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National Mall and Memorial Parks
Washington, D.C.



AN ANALYSIS OF TOUR BUS OPERATIONS WITHIN THE NATIONAL MALL AND MEMORIAL PARKS

Phase IV: Off-Bus Data Collection at Parking Areas

March 2014

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An Analysis of Tour Bus Operations within the National Mall and Memorial Parks

Phase IV: Off-Bus Data Collection at Parking Areas

Technical Report Submitted to:

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EXECUTIVE SUMMARY

STUDY RATIONALE

The National Park Service (NPS), National Mall and Memorial Parks (National Mall), was awarded a grant through the Paul S. Sarbanes Transit in Parks Program to study and make recommendations for improving tour bus operations within the National Mall. The *National Mall Plan / Environmental Impact Statement* (NPS 2010) confirmed tour bus parking and traffic congestion problems and suggested that little has been done to address concerns that were previously identified in 2003. The 2010 plan reported that approximately 21-25 million visits occur in the 684-acre national icon each year. Approximately one-third of the visiting public arrives via tour bus; this can total as many as 1200 buses a day operating in and around the National Mall during the spring-summer peak season.

The purpose of the current project is to quantitatively and qualitatively document existing conditions and set forth a plan of action for short-term and long-term improvements in operational efficiency. A series of studies is being completed that pertain to operational efficiency, congestion, visitor mobility, access, safety, education, recreation, health benefits and protection of sensitive natural, cultural and historical resources. The data collection is occurring in phases, as indicated in Table A. The current report summarizes Phase IV findings, specific to off-bus data collection at parking areas. Acronyms that will be used throughout the report include those for the National Park Service (NPS), George Mason University (GMU), District Department of Transportation (DDOT), Metropolitan Washington Council of Governments (COG) and American Bus Association (ABA).

Five days of observational data were collected using a standardized instrument to systematically determine usage at bus parking areas. Seven zones were identified by NPS for inclusion in the parking analysis. A total of 1328 parking observations were documented that had usable data. Figure A indicates the locations of the zones specific to this study. The findings and recommendations that follow are summarized by zone.

TABLE A: PROJECT PHASES

Project Phase	Study*	Details
I	Off-Bus Data Collection and Photographic Documentation at Loading and Unloading Zones, Part 1	Data collected and analyzed by GMU that is specific to congestion, operational efficiency, mobility, access, safety, and resource protection at loading and unloading zones.
II	Off-bus Data Collection at Gateway Points	Data collected by COG for DDOT specific to tour bus volume and carrying capacity; analyzed by COG and GMU.
III	Off-Bus Data Collection and Photographic Documentation at Loading and Unloading Zones, Part 2	Data collected and analyzed by GMU that is specific to congestion, operational efficiency, mobility, access, safety, and resource protection at loading and unloading zones.
IV	Off-bus Data Collection at Parking Areas	Data collected and analyzed by GMU that is specific to turnover, stacking, user conflict, and carrying capacity at parking areas adjacent to major destinations as well as parking in peripheral locations.
V	On-Bus Data Collection and Photographic Documentation of Daily Bus Operations	Data collected and analyzed by GMU that is specific to congestion, operational efficiency, mobility, access, safety, education, recreation, health benefits and resource protection during the point-to-point experience
VI	Operator Self-Reports	Data collected and analyzed by GMU that is specific to logs, itineraries, education, recreation, health, vehicle-miles-traveled, methods used to reduce pollution, safety, regulation, and suggestions for improving operational efficiency and energy conservation.
VII	Client Self-Reports	Data collected and analyzed by GMU that is specific to itineraries, group needs, intermodal capabilities of diverse tour group markets and ways to maximize the on-bus and pedestrian experience.

*Note: Highlighted study is current report.

FIGURE A: PARKING ZONES



SUMMARY OF FINDINGS AND RECOMMENDATIONS

Zone A (700-900 Block, Maine Avenue, SW): 6 Curbside Spaces for Tour Bus Parking

Zone A, located on the periphery of major attractions yet within close driving distance, was found to be at or beyond capacity more often than not. During the three days of data collection at Zone A, the area was at or beyond capacity from 55% to 100% of the observation timeframe. Researchers noted many buses cruising by this zone looking for an open space to park and unable to find one, indicating that drivers are aware of this parking location. Idling in this zone was also noted by researchers. The overall vehicle mix was primarily comprised of private large tour buses, followed by private medium tour buses and school buses. The provision of additional tour bus parking spaces along Maine Avenue is recommended, in particular during the high season months of March through May. Tour bus parking in Zone A is currently free; however, DC officials should consider adding parking meters to this zone to align with NPS plans to add parking meters in NPS-managed zones. A consistent approach to curbside parking on and around the National Mall can improve circulation patterns.

Zone B (900-1200 Block, Maine Avenue, SW): 4 Curbside Spaces for Tour Bus Parking

Zone B is adjacent to Zone A and was similarly congested, being at or beyond capacity from 44% to 55% of the time during the observation periods. The vehicle use in Zone B was almost exclusively private large tour buses although some private medium tour buses utilized these spaces as well. The provision of additional tour bus parking spaces along Maine Avenue is recommended, in particular during the high season months of March through May. Tour bus parking in Zone B is free; however, DC officials should consider adding parking meters to this zone to align with NPS plans to add parking meters in NPS-managed zones. A consistent approach to curbside parking on and around the National Mall can improve circulation patterns.

Zone C (1500 Block, Independence Avenue, NW): 8 Curbside Spaces for Tour Bus Parking

Zone C is located just south of the Washington Monument and was therefore used as a loading/unloading zone as well as for parking. Although the interior of the Washington Monument was closed for visitation during 2012 and 2013 (see <https://irma.nps.gov/Stats/>) due to restoration necessitated by a 2011 earthquake, visitors still walked the surrounding grounds of the monument. While Zone C was found to be at or beyond capacity a maximum of 33% of the time during the data collection periods, this finding must be considered within the context of the location of the zone. Independence Avenue is a major thoroughfare that runs along the National Mall. Just beyond the west endpoint of Zone C is a traffic light; thus, frequently many of the parking spaces are impossible to access due to backed up traffic, meaning that fewer than the designated 8 curbside spaces were available for use. Due to access issues, buses frequently parked outside of the zone beyond the east endpoint of the zone, blocking the turn lane at 15th Street. Demarcations for the bus parking area should be made more evident to decrease the encroachment of access space by through traffic. Tour bus parking in Zone C is currently free; however, NPS plans to add parking meters to this zone.

Zone D (200-400 Block, 15th Street, NW): 5 Curbside Spaces for Tour Bus Parking

Zone D is situated at the Ellipse, on 15th Street between Pennsylvania Avenue and Constitution Avenue. This area is the drop off point for viewing or visiting the White House, which hosted over 650,000 visitors in 2012 (see <https://irma.nps.gov/Stats/>). This zone houses bus parking and loading/unloading areas as

well as vendor parking; as such, the mixed use is leading to a considerable amount of non-designated zone use, with passenger cars and vendors seen in bus spaces. In order to decrease confusion, the various uses should be consolidated into distinct areas, with standardized signage utilized to set forth the boundaries. Zone D was at or beyond capacity from 78% to 89% of the time during the observation periods. Use was shown to drop off during typical lunch hour periods on all days of data collection. These findings suggest the utility of a flipped itinerary where tour planners consider either an early or late lunch in order to benefit from improved circulation and parking access. Tour bus parking in Zone D is free; however, DC officials should consider adding parking meters to this zone to align with NPS plans to add parking meters in NPS-managed zones. A consistent approach to curbside parking on and around the National Mall can improve circulation patterns.

Zone E (Buzzard Point, 1880 2nd Street, SW): Up to 80 Parking Lot Spaces for Tour Bus Parking; Mixed Use with Personal Vehicle Access

Zone E is a mixed use parking lot for tour buses and personal vehicles that is less than two miles from the National Mall; yet, because this is a paid lot (\$20 for up to 3 hours or \$50 per day) it was rarely utilized by tour buses during the data collection periods. Evidence suggests that some drivers are not aware of the location of this lot while many others know of the location yet are not willing or able to pay for parking. For the 3-hour parking fee of \$20, there are no in and out privileges. The \$50 per day fee does allow for in and out privileges. The Buzzard Point lot is managed by MarcParc, a full service parking company. A MarcParc manager noted that the lot is utilized primarily by new tenants of the Transpoint building that was the former headquarters of the Coast Guard, located at Buzzard Point. Monthly parkers have privilege, so tour buses are unlikely to find spaces during the week. Weekend access is not regularly offered but can be negotiated with MarcParc. It is recommended that NPS work with the MarcParc leadership team to establish weekend tour bus parking access that allows for in and out privileges at Zone E during high season periods.

Zone F (Hains Point, East Potomac Park, SW): 11 Parking Lot Spaces for Tour Bus Parking

Zone F includes 11 parking spaces that are adjacent to parking spots for personal vehicles. As such, buses frequently encroached upon these non-designated spaces, taking up anywhere from four to six spaces that were designed for personal vehicle use. This complicated parking for both personal vehicles and other buses. Drivers noted their frustration with the reduction of spaces in Hains Point, as NPS reduced parking along Ohio Drive SW south of Case Bridge for safety and access reasons. Buses were also noted crossing over the lot lines and therefore taking up two bus parking spaces. Park Police were observed in this zone honking at drivers to make them move out of non-designated areas and ticketing when a driver was not present to move an illegally parked bus. Many tour bus drivers circled through Zone F looking for an open parking space. Tour bus parking in Hains Point should be expanded during the high season of March through May to accommodate the increase demand. Tour bus parking in Zone F is free; however, NPS managers should consider adding parking meters to this zone to align with their other plans to add parking meters in NPS-managed zones. A consistent approach to curbside parking on and around the National Mall can improve circulation patterns.

Zone G (Ohio Drive, SW, Independence Avenue to Inlet Bridge): Up to 50 Curbside Spaces for Tour Bus Parking; Mixed Use with Personal Vehicle Access

While Zone G can technically accommodate up to 50 buses, this number of spaces was never evidenced as being available to tour buses during the data collection periods. Instead, because this same area is open to personal vehicles, it was often impossible for tour buses to find a space. For instance, researchers attempted to collect data at Zone G on Saturday, April 6; however, by 9:15 a.m. in the morning all spots

were taken by personal vehicles due to the anomaly of the National Cherry Blossom Festival. Two hours later, no spots had opened that would accommodate a bus and the attempt at data collection was suspended. Because lines are not used to demarcate spaces along Zone G, available curbside areas frequently cannot accommodate a bus. Because of the length of this zone, drivers were more likely to notice the researchers collecting data and were quick to express their frustrations upon learning about the study as well as offer ideas for improvement. These comments are summarized in Section 4 of this study. In order to better utilize this large parking area, it should be split into bus parking and parking for personal vehicles. Zone G along Ohio Drive is fairly evenly split by West Basin Drive, SW. Parking for personal vehicles should be located north of West Basin Drive to Independence Avenue while parking for tour buses should be restricted to south of West Basin Drive to Inlet Bridge. Tour bus parking in Zone G is currently free; however, NPS plans to add parking meters to this zone.

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1. INTRODUCTION AND BACKGROUND

The National Park Service/National Mall and Memorial Parks (NPS/National Mall) management team completed a plan and environmental impact statement (*National Mall Plan*, 2010) to provide a long-term management framework for the future of the National Mall and Pennsylvania Avenue National Historic Site. As part of the larger plan, conditions pertaining to access and circulation were highlighted. The *National Mall Plan* proposed numerous recommendations in light of tour bus operations, including but not limited to: loading and unloading locations; parking; the management of large groups arriving by tour bus; creating multilingual educational opportunities for culturally diverse groups that arrive by tour bus; ready access to refreshments for tour bus arrivals and departures at select locations; information provision; and sustainable practices.

The background for the 2010 recommendations included findings from a 2003 study entitled the *District of Columbia Tour Bus Management Initiative* that was conducted by the Volpe National Transportation Systems Center for the District of Columbia Department of Transportation and other key stakeholders. The 2003 study highlighted numerous problems associated with tour bus operations in the District of Columbia, including traffic congestion, residential neighborhood disruption, air pollution, excessive noise, obstruction of view corridors and major landmarks and negative impacts on local infrastructure. The 2003 study recommended specific changes as well as on-site data collection and counts for monitoring purposes. However, the concerns raised and recommendations set forth in the *National Mall Plan*, completed in 2010, suggested that little progress had been made in the interim period.

In 2011, NPS managers contracted with researchers at George Mason University (GMU) to conduct a scoping study to determine the perceptions of the current state of tour bus operations in Washington DC from key stakeholders. The study was conducted to better understand tour bus operations, in general, and specifically to determine the constraints to making improvements to current tour bus operations on the National Mall.

The GMU research team worked collaboratively with NPS managers to identify agencies for participation in the scoping interviews. Feedback was also received through meetings, e-mail communication and webinar participation. The following stakeholders were represented in the 2011 study: Academy Bus / New World Tours, Destination DC, DDOT, Guild of Professional Tour Guides, National Tour Association, United Motorcoach Association, U.S. Capitol Police, U.S. Park Police and the U.S. Travel Association. The primary goal of the scoping questions was to determine perceptions of the progress that has been made in terms of addressing the problems identified and the recommendations made in the 2003 study. Results from operators indicated perceptions of little progress, with an overall sense of increased enforcement being accompanied by a decrease in available parking, resulting in increased congestion and cruising. A disconnect between operator and enforcement personnel was evidenced, with operators indicating that parking and loading spaces near key visitor sites on the National Mall are inadequate for current demand while enforcement agencies indicated concerns regarding a lack of knowledge of and/or unwillingness to use available sites.

The current study builds upon the background knowledge provided in the 2003, 2010 and 2011 reports by beginning the process of systematically documenting existing conditions related to tour bus operations. This is the fourth phase of the seven-phase study that will ultimately be integrated into a comprehensive plan of action for short-term and long-term improvements in tour bus operational efficiency within the National Mall. For Phase IV, data specific to turnover, stacking, user conflict and carrying capacity at parking areas adjacent to major destinations as well as in peripheral locations was collected and analyzed.

2. METHODS

2.1 ZONE DETERMINATION

Seven zones were identified by the NPS for inclusion in the parking analysis. Table 2.1 lists the zones and the data collection dates and times for each, while Figure 2.1 offers a visual representation of the zones. Due to typical tour bus schedules, Wednesdays were over-sampled to capture maximum usage. While the sum of spaces suggests that up to 173 curbside spaces and 91 parking lot spaces are available for use, these totals are misleading in that curbside parking along Ohio Drive and the Buzzard Point parking lot are also utilized by personal vehicles (cars, SUVs, vans, etc.), greatly diminishing the parking availability for tour buses.

TABLE 2.1: DATA COLLECTION SCHEDULE

Zone	Location	Details / Restrictions	Spaces	Data Collection Dates / Times
A	700-900 Block, Maine Ave, SW	Free curbside parking, tour buses only; available 9:30 a.m. – 4:00 p.m., 4 hour limit M-F; no reservation required	6	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 1:45 p.m. Wed., 05/01/13, 10:30 a.m. – 2:45 p.m.
B	900-1200 Block, Maine Ave, SW	Free curbside parking, tour buses only; no limit, no reservation required	4	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 1:45 p.m. Wed., 05/01/13, 10:30 a.m. – 2:45 p.m.
C	1500 Block of Independence Ave, NW	Free* curbside parking, tour buses only; available 7:00 a.m. – 6:30 p.m., 2 hour limit; no reservation required	8	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 1:45 p.m. Wed., 05/01/13, 10:30 a.m. – 2:45 p.m. Wed., 05/22/13, 5:30 p.m. – 9:15 p.m.
D	200-400 Block 15 th St., NW	Free curbside parking, tour buses only; available 7:00 a.m. – 6:30 p.m., 2 hour limit; no reservation required	5	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 1:45 p.m. Wed., 05/01/13, 10:30 a.m. – 2:45 p.m.
E	Buzzard Point, 1880 2nd St.	Privately owned paid parking lot, tour buses or personal vehicles; available 6:00 a.m. – 6:00 p.m. M-F; reservation suggested; bus fees \$20 up to 3 hours, \$50 per day. In and out privileges with daily \$50 fee only.	Up to 80 buses or 200+ personal vehicles	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 1:45 p.m. Tues., 06/04/13, 4:45 p.m. – 6:45 p.m.
F	Hains Point East Potomac Park, SW	Free parking lot, tour buses only; available 6:00 a.m. – 1:00 a.m.; no reservation required	11	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 1:45 p.m. Wed., 05/01/13, 10:30 a.m. – 2:45 p.m. Tues., 06/04/13, 4:45 p.m. – 6:45 p.m.
G	Ohio Dr. SW, Independence to Inlet Bridge	Free* street parking, tour buses or personal vehicles; no reservation required	Up to 50 buses or 150 personal vehicles	Wed., 03/27/13, 11:00 a.m. – 3:30 p.m. Sat., 04/06/13, 9:15 a.m. – 11:30 a.m.** Wed., 05/01/13, 10:30 a.m. – 2:45 p.m. Tues., 06/04/13, 4:45 p.m. – 6:45 p.m.

* Free at the time of the study; NPS is converting this zone to metered parking.

** Data collection attempted but no tour buses documented. All spaces taken by personal vehicles.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

FIGURE 2.1: PARKING ZONES



Key for Parking Zones

- | | |
|--|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, SW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence to Inlet Bridge | |

2.2 OFF-BUS INSTRUMENT

The off-bus instrument was constructed with input from the NPS, the DC Department of Transportation (DDOT) and Destination DC. Variables pertained to date, zone, time, bus style, DOT number and last three digits of the license plate. Space was also designated for researchers to add qualitative comments and observations. The instrument was utilized in both hard copy and iPad formats.

2.3 DATA COLLECTION: TRAINING AND IMPLEMENTATION

All researchers went through a 1-hour offsite training session to become familiar with the instrument and protocol. Once onsite, research teams were positioned at the zones, as indicated in Table 2.1. Researchers did not wear any NPS identifiers on their clothing and stayed at least six feet away from the buses at all times so as not to draw attention to the study in such a way that would influence driver behaviors. However, because researchers were holding clipboards or iPads, they did receive some inquiries regarding the study. All researchers carried a letter signed by the Superintendent of the National Mall and Memorial Parks, describing the study should any concerns be raised. When researchers did receive questions or feedback from drivers, they made notations on the instrument in the space designated for comments and observations.

Buses were documented in approximate 30-minute increments. Each researcher would document all buses parked within the zone within each 30-minute period. For instance, on Wednesday, March 27, 2013, parked buses were documented at 11:00 a.m., 11:30 a.m., 12:00 noon, 12:30 p.m., etc. An exception to this procedure was made for Zone G. Due to the expanse this zone covered, it was not always feasible to document all parked buses within a 30-minute window; thus, data for this zone will be presented as approximations within the 30-minute time periods.

2.4 SAMPLE SIZE

Using the methods outlined above, a total of 1328 parked buses were documented that had usable data. Importantly, this total does not represent 1328 unique buses, as many stayed within their chosen zones for two hours or longer. The distinction between total buses and unique buses is illustrated in Table 2.2. For instance, on Wednesday, March 27, 2013, a total of 43 parked buses were documented in Zone A, representing 24 unique buses.

TABLE 2.2: NUMBER OF TOTAL / UNIQUE TOUR BUSES DOCUMENTED BY DATE AND ZONE

Zone	Total / Unique Tour Buses Documented Wednesday 03/27/13	Total / Unique Tour Buses Documented Saturday 04/06/13	Total / Unique Tour Buses Documented Wednesday 05/01/13	Total / Unique Tour Buses Documented Wednesday 05/22/13	Total / Unique Tour Buses Documented Tuesday 06/04/13
A	43 / 24	77 / 19	78 / 30	n/a	n/a
B	25 / 12	32 / 7	26 / 9	n/a	n/a
C	62 / 23	63 / 22	97 / 48	23 / 17	n/a
D	53 / 27	53 / 26	58 / 31	n/a	n/a
E	87 / 20	13 / 13	n/a	n/a	11 / 6
F	80 / 30	73 / 24	97 / 25	n/a	34 / 18
G	81 / 28	*	117 / 67	n/a	45 / 28

n/a = No data collected at zone on this date.

* Data collection attempted but no bus spaces available; all taken by personal vehicles.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW B = 900–1200 Block, Maine Ave, SW
 C = 1500 Block, Independence Ave, NW D = 200–400 Block, 15th St., NW
 E = Buzzard Point, 1880 2nd St., SW F = Hains Point East Potomac Park, SW
 G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

2.5 DATA ANALYSIS

Quantitative data were analyzed using SPSS/PASW statistical package software and Microsoft Excel. Data files were converted into Arc GIS format for spatial analysis. Each data point was geocoded by zone before creating graphical illustrations of each key variable. Google Earth and Street View technologies were also utilized to better understand the peculiar spatial makeup of each location. Qualitative data were analyzed by determining response frequencies and, as needed, using constant comparative analysis to inductively create themes.

Key for Parking Zones

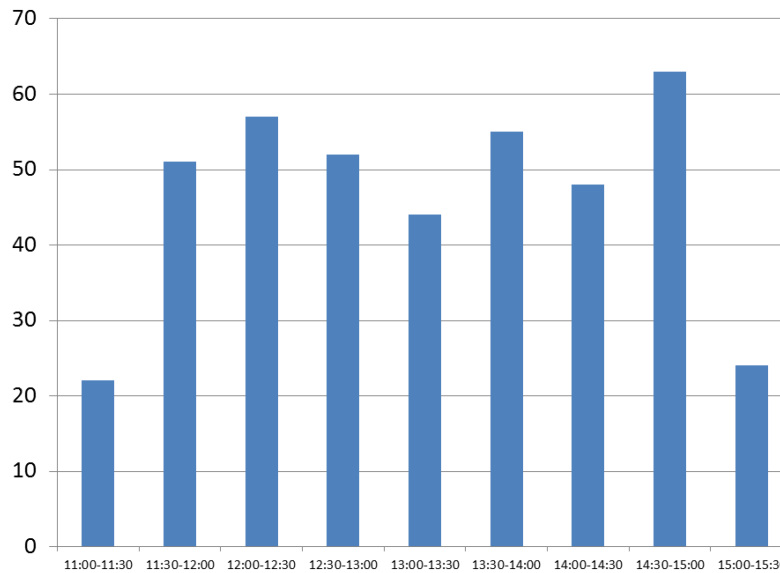
A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

3. QUANTITATIVE RESULTS

3.1 TEMPORAL DISTRIBUTION OF PARKING DEMAND, COMBINED ZONES

Figure 3.1 through Figure 3.5 illustrate the approximate number of buses observed when considering all zones, using 30-minute intervals, on each of the five days of data collection. These figures indicate unique observations only, meaning that if the same bus was documented more than once in a 30-minute interval, only the first data point was included. The temporal distribution findings suggest the utility of a flipped itinerary where tour planners consider an early/late lunch and early/late dinner in order to benefit from improved circulation and parking access, as parking demand drops during typical meal periods.

FIGURE 3.1: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MARCH 27, 2013, COMBINING ALL ZONES, 30-MINUTE INTERVALS



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

FIGURE 3.2: TEMPORAL DISTRIBUTION OF PARKING DEMAND: SATURDAY, APRIL 6, 2013, COMBINING ALL ZONES, 30-MINUTE INTERVALS

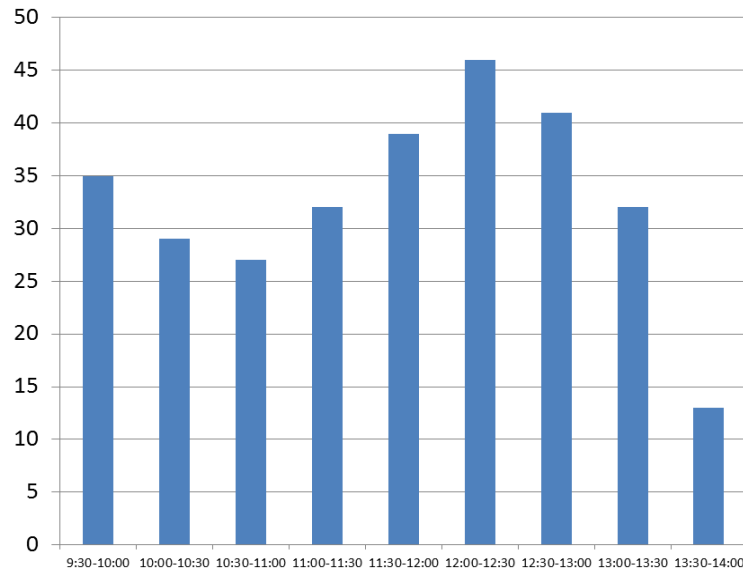
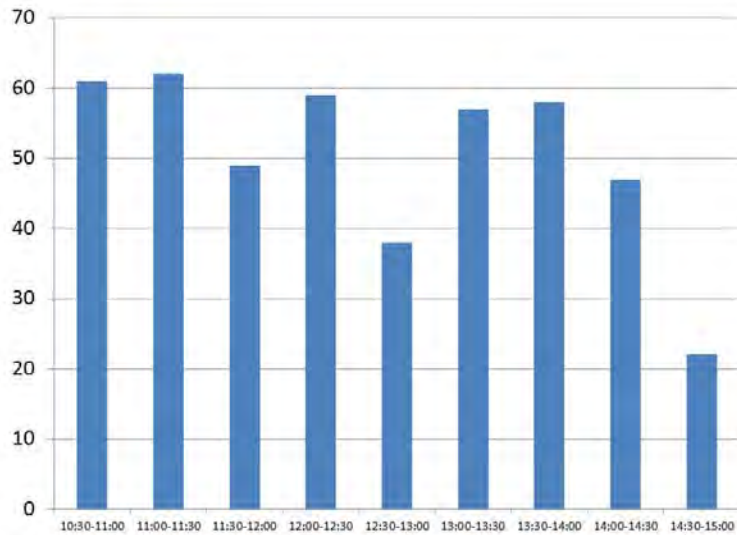


FIGURE 3.3: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MAY 1, 2013, COMBINING ZONES A, B, C, D, F, G, 30-MINUTE INTERVALS



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

FIGURE 3.4: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MAY 22, 2013, ZONE C, 30-MINUTE INTERVALS

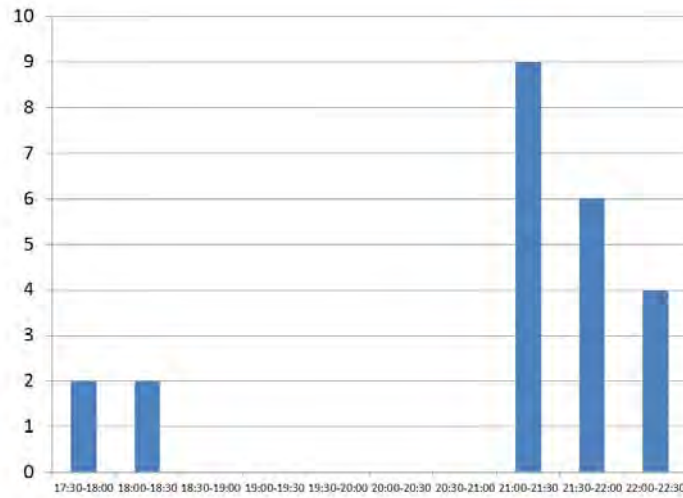
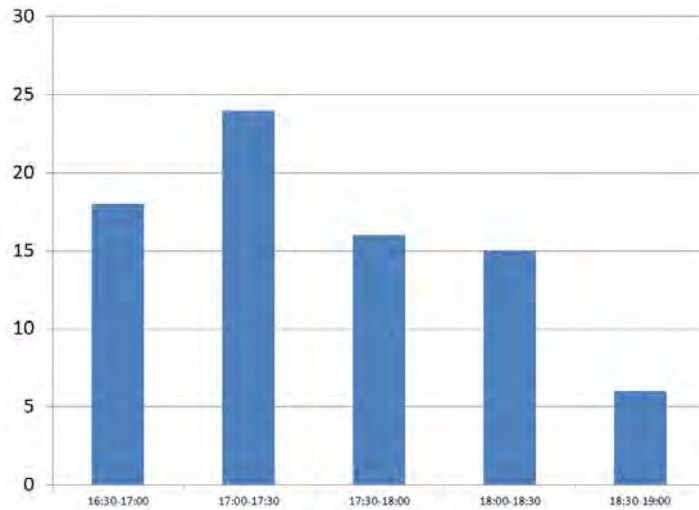


FIGURE 3.5: TEMPORAL DISTRIBUTION OF PARKING DEMAND: TUESDAY, JUNE 4, 2013, COMBINING ZONES E-G, 30-MINUTE INTERVALS



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

3.2 TEMPORAL DISTRIBUTION OF PARKING DEMAND, INDIVIDUAL ZONES

Figure 3.6 through Figure 3.10 illustrate the approximate number of buses observed when considering all zones individually, using 30-minute intervals, on each of the five days of data collection. These figures indicate unique observations only, meaning that if the same bus was documented more than once in a 30-minute interval, only the first data point was included. As noted with the combined zones, the temporal distribution findings suggest the utility of a flipped itinerary where tour planners consider an early/late lunch and early/late dinner in order to benefit from improved circulation and parking access, as parking demand drops during typical meal periods.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

FIGURE 3.6: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MARCH 27, 2013, BY ZONE, 30-MINUTE INTERVALS

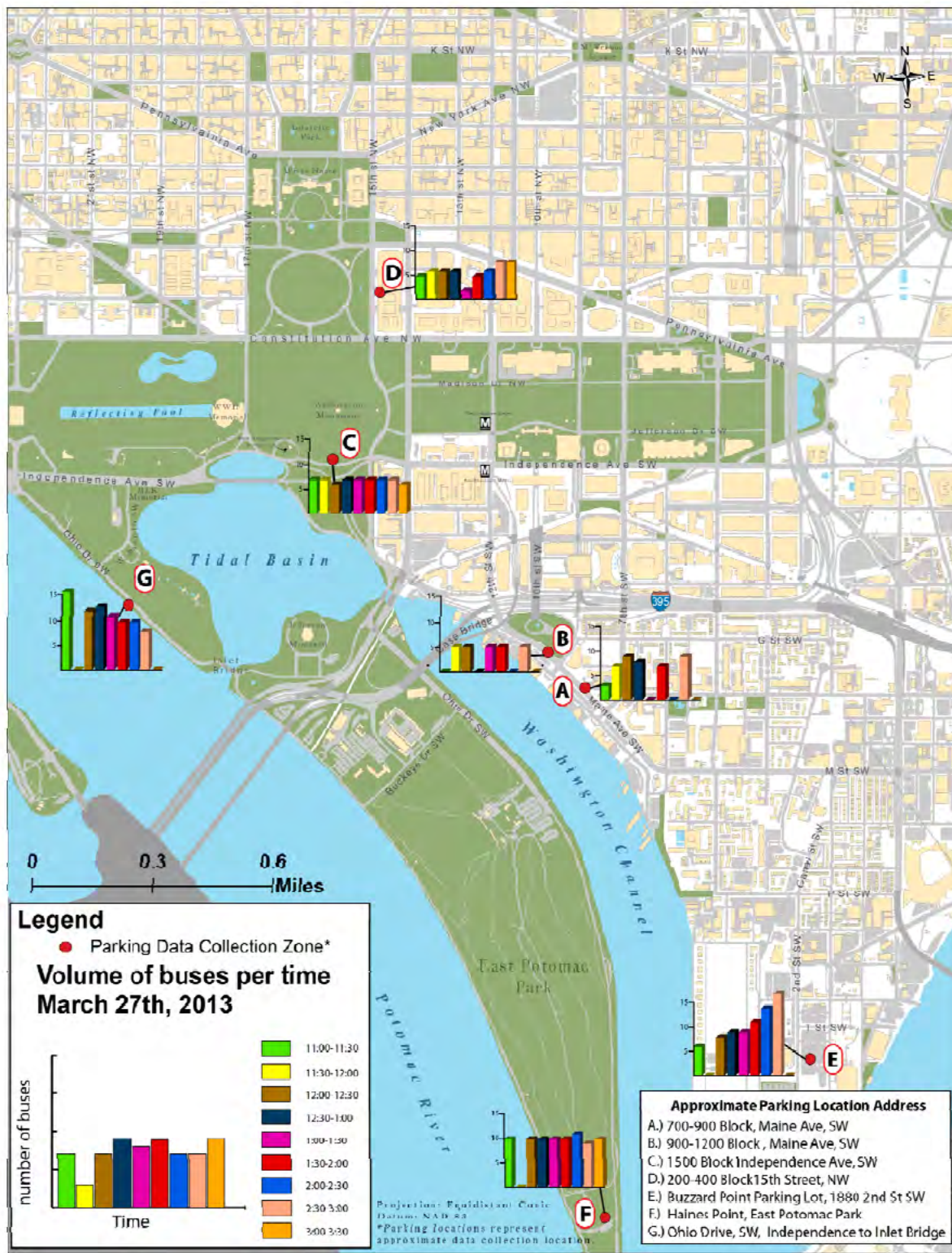


FIGURE 3.7: TEMPORAL DISTRIBUTION OF PARKING DEMAND: SATURDAY, APRIL 6, 2013, BY ZONE, 30-MINUTE INTERVALS

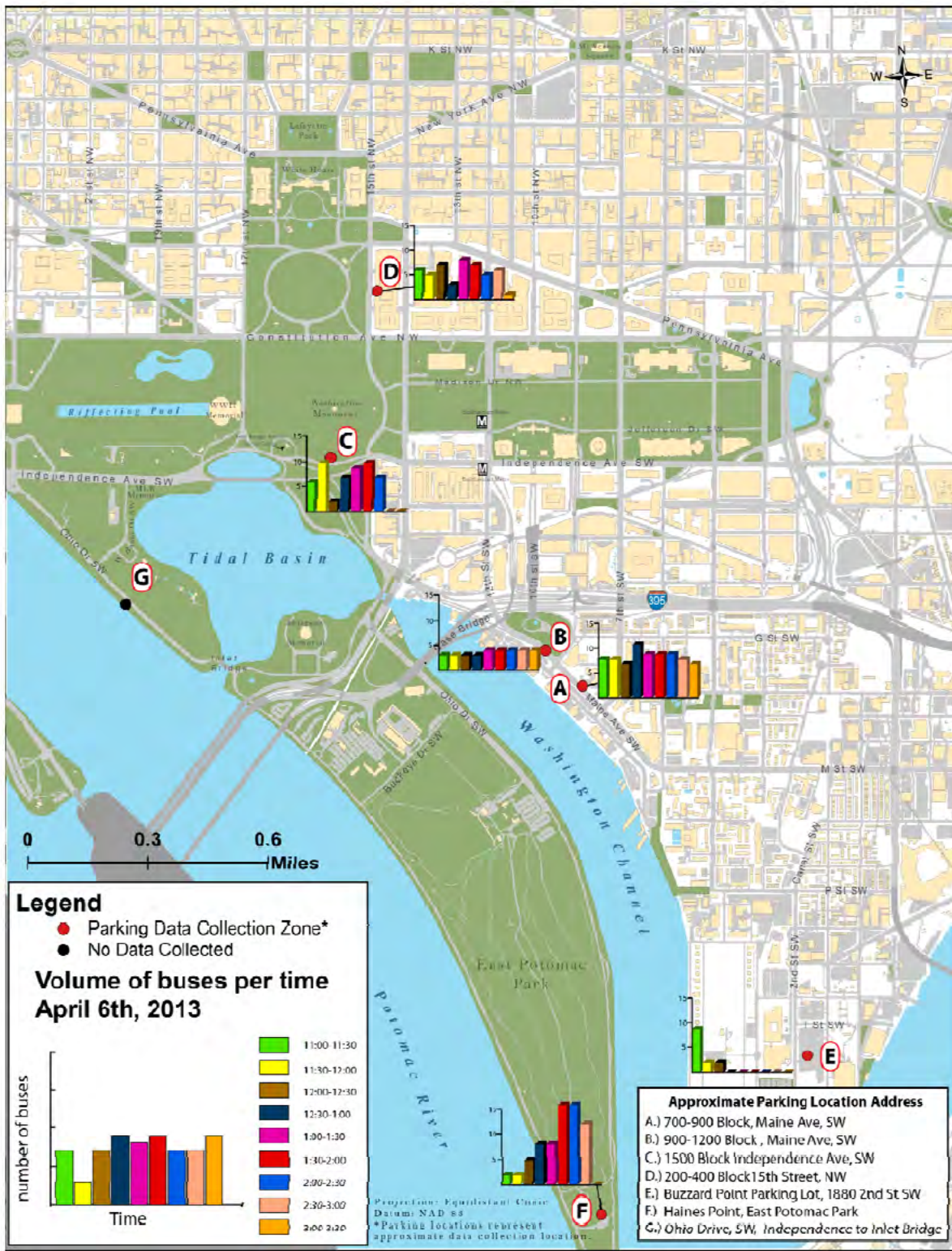


FIGURE 3.8: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MAY 1, 2013, BY ZONE, 30-MINUTE INTERVALS

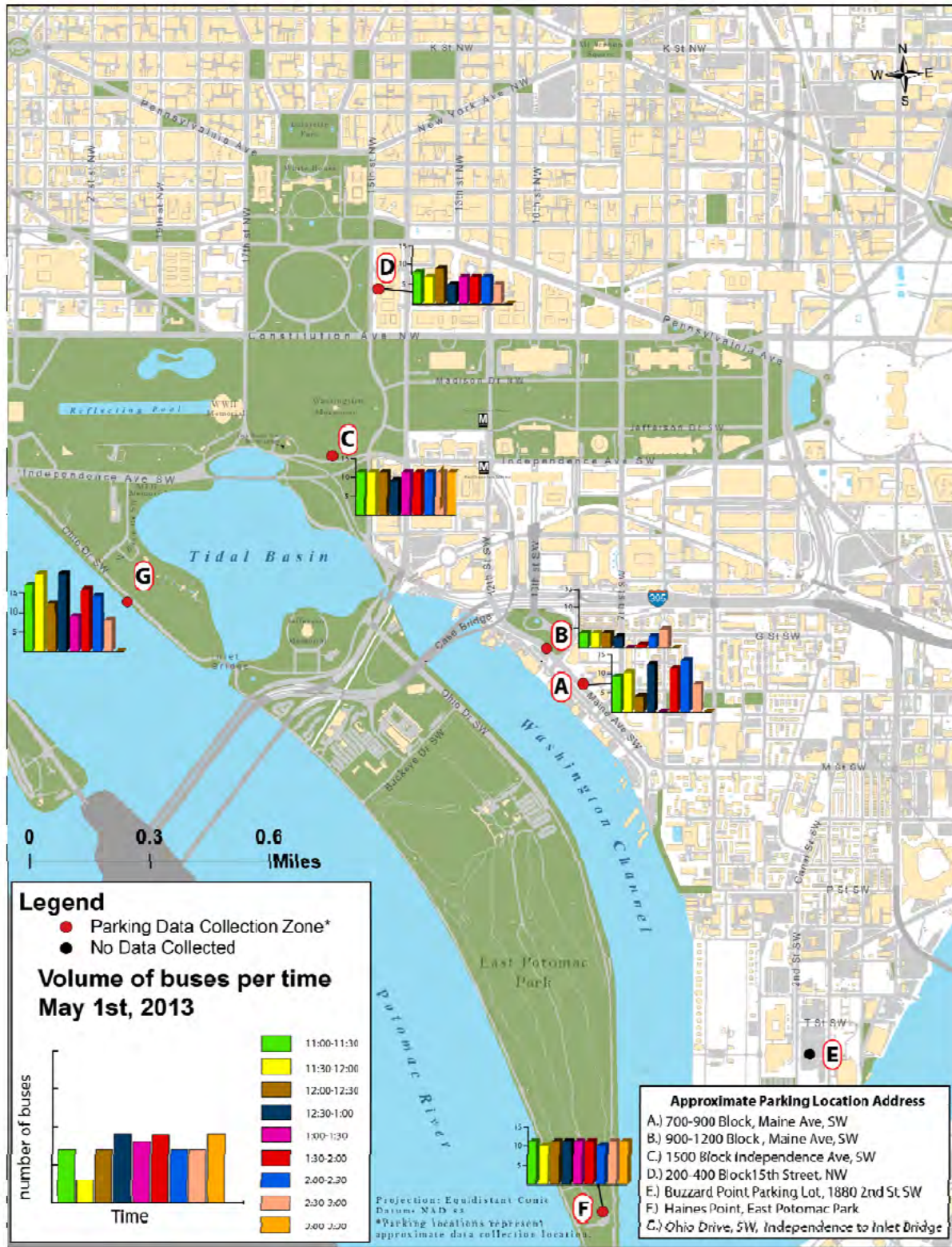


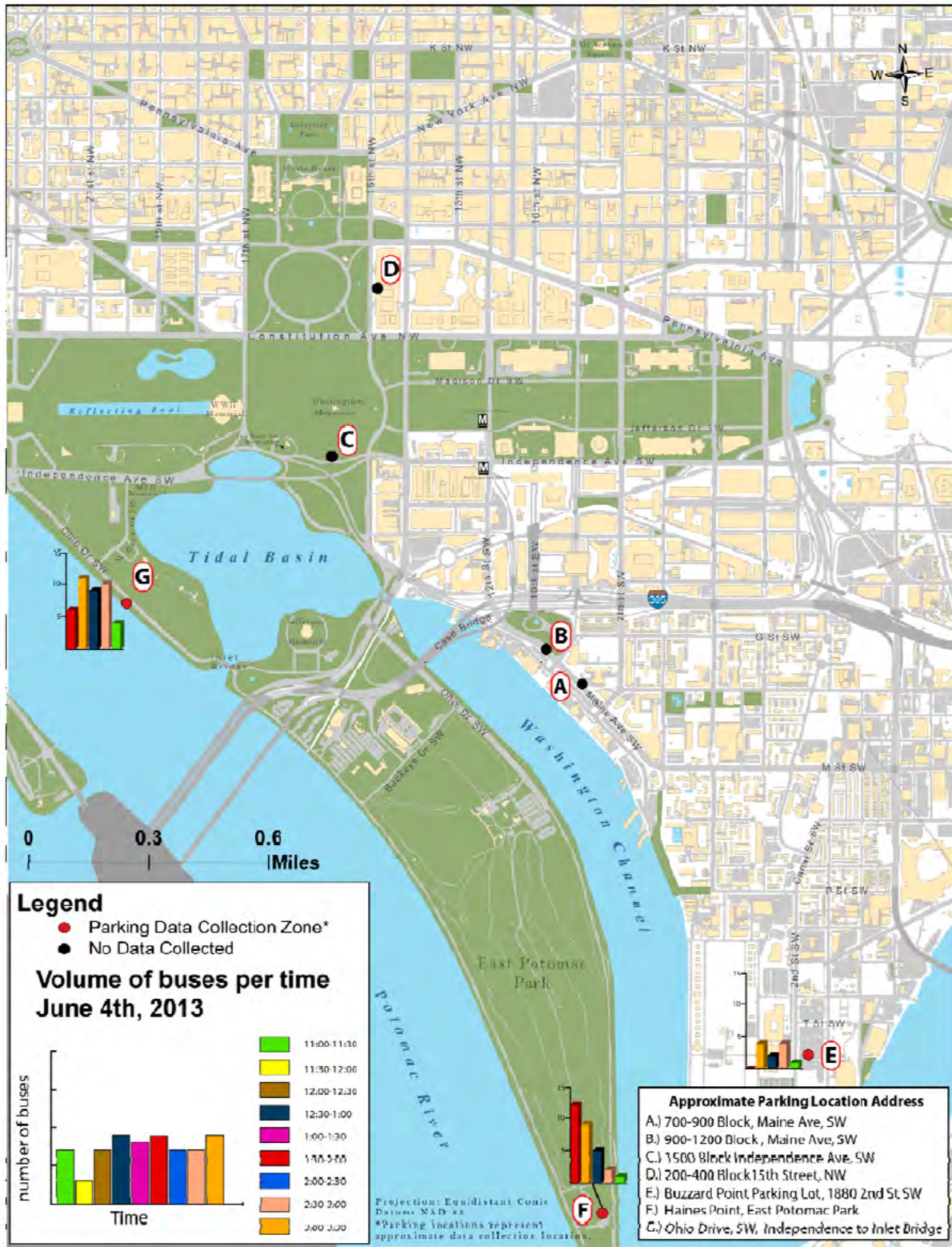
FIGURE 3.9: TEMPORAL DISTRIBUTION OF PARKING DEMAND, WEDNESDAY, MAY 22, 2013, BY ZONE, 30-MINUTE INTERVALS



Key for Parking Zones

- A = 700–900 Block, Maine Ave, SW
- B = 900–1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200–400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Haines Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

FIGURE 3.10: TEMPORAL DISTRIBUTION OF PARKING DEMAND, TUESDAY, JUNE 4, 2013, BY ZONE, 30-MINUTE INTERVALS



Key for Parking Zones

- A = 700-900 Block, Maine Ave, SW
- B = 900-1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200-400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Hains Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

3.3 TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY, INDIVIDUAL ZONES

Figure 3.11 through Figure 3.17 illustrate the temporal distribution of parking demand with respect to the parking capacity of the zone. Zones were frequently above capacity, evidenced by movement within the zone during 30-minute increments and parking beyond the boundaries of the zone. Table 3.1 indicates the percentage of time that each zone was at capacity.

FIGURE 3.11: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE A BY DATE

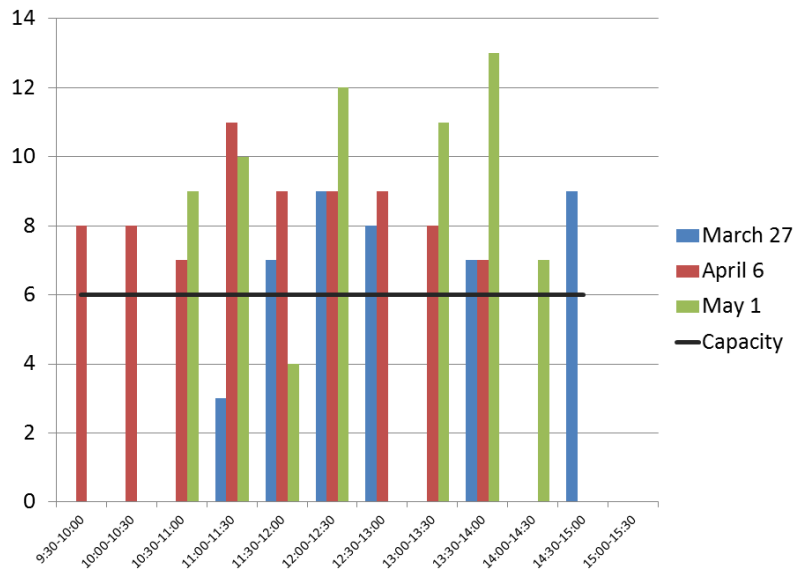
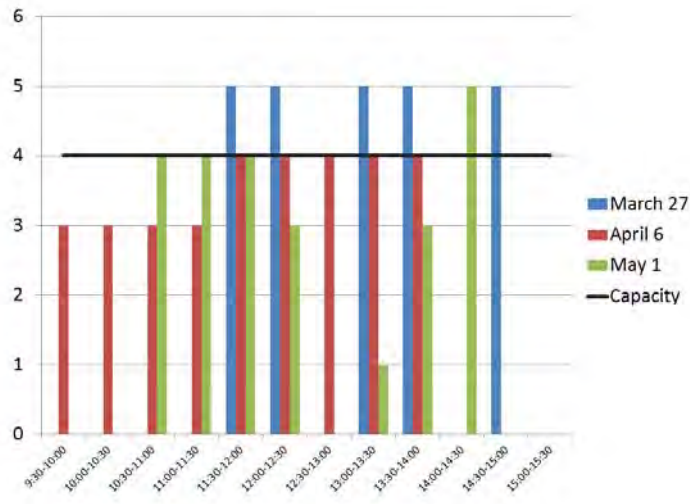


FIGURE 3.12: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE B BY DATE



Key for Parking Zones

- A = 700–900 Block, Maine Ave, SW
- B = 900–1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200–400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Hains Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

FIGURE 3.13: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE C BY DATE

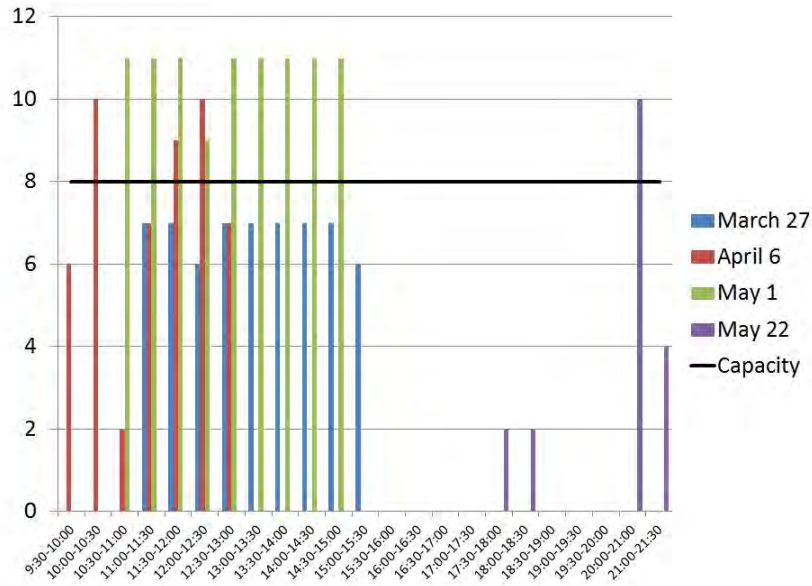
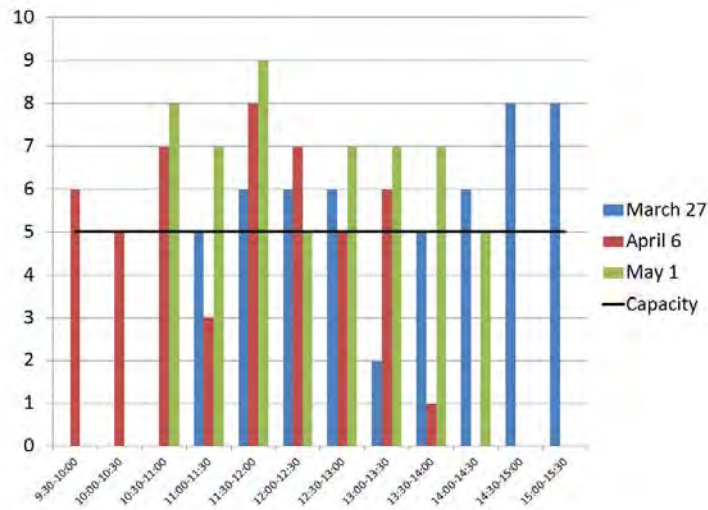


FIGURE 3.14: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE D BY DATE



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

FIGURE 3.15: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE E BY DATE

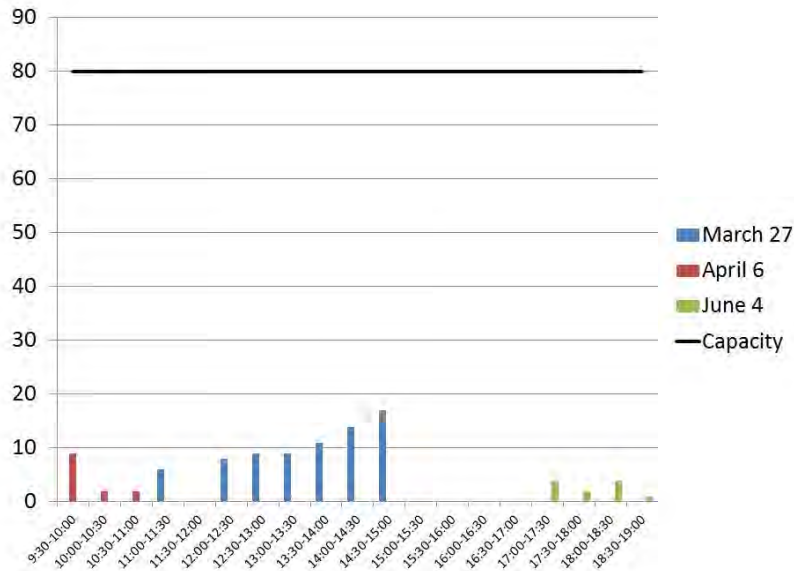
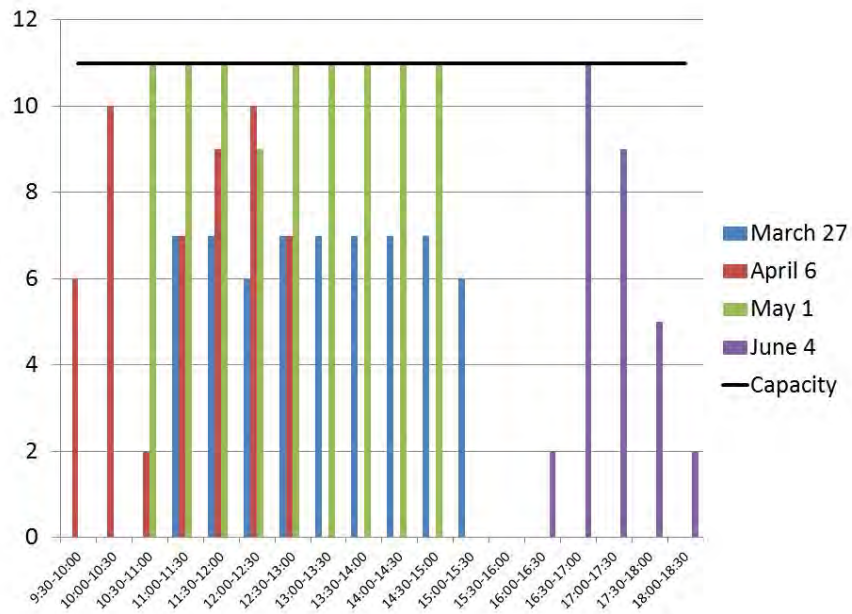


FIGURE 3.16: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE F BY DATE



Key for Parking Zones

- A = 700–900 Block, Maine Ave, SW
- B = 900–1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200–400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Hains Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

FIGURE 3.17: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE G BY DATE

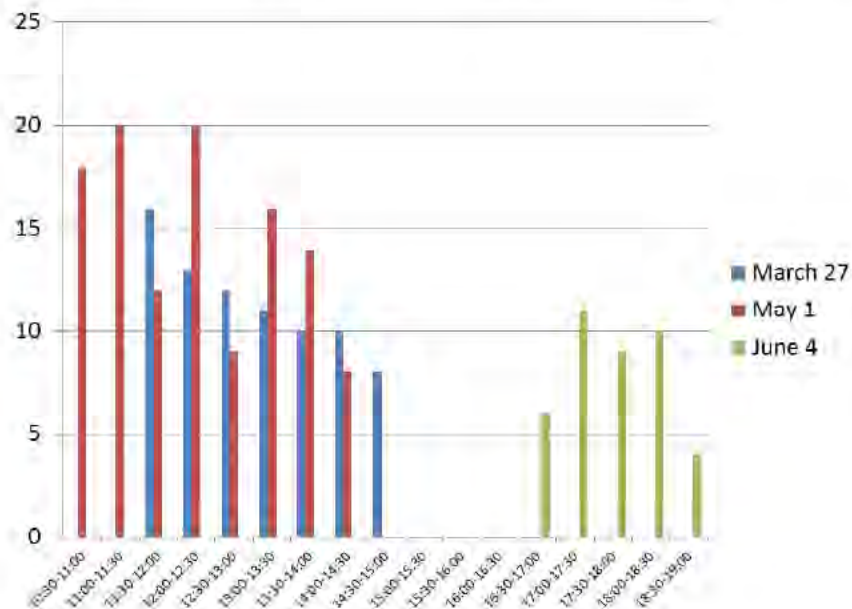


TABLE 3.1: PERCENT OF TIME AT CAPACITY BY ZONE AND DAY OF COLLECTION

Zone	Percent of Time at Capacity Wednesday 03/27/13	Percent of Time at Capacity Saturday 04/06/13	Percent of Time at Capacity Wednesday 05/01/13	Percent of Time at Capacity Wednesday 05/22/13	Percent of Time at Capacity Tuesday 06/04/13
A	55%	100%	67%	n/a	n/a
B	55%	55%	44%	n/a	n/a
C	0%	33%	33%	14%	n/a
D	89%	78%	89%	n/a	n/a
F	0%	0%	88%	n/a	80%
G	*	*	*	n/a	n/a

n/a = No data collected at zone on this date.

* Due to mixed use, capacity percentages cannot be computed.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW
 B = 900–1200 Block, Maine Ave, SW
 C = 1500 Block, Independence Ave, NW
 D = 200–400 Block, 15th St., NW
 E = Buzzard Point, 1880 2nd St., SW
 F = Hains Point East Potomac Park, SW
 G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

3.4 AVERAGE AMOUNT OF TIME SPENT IN ZONE BY DATE

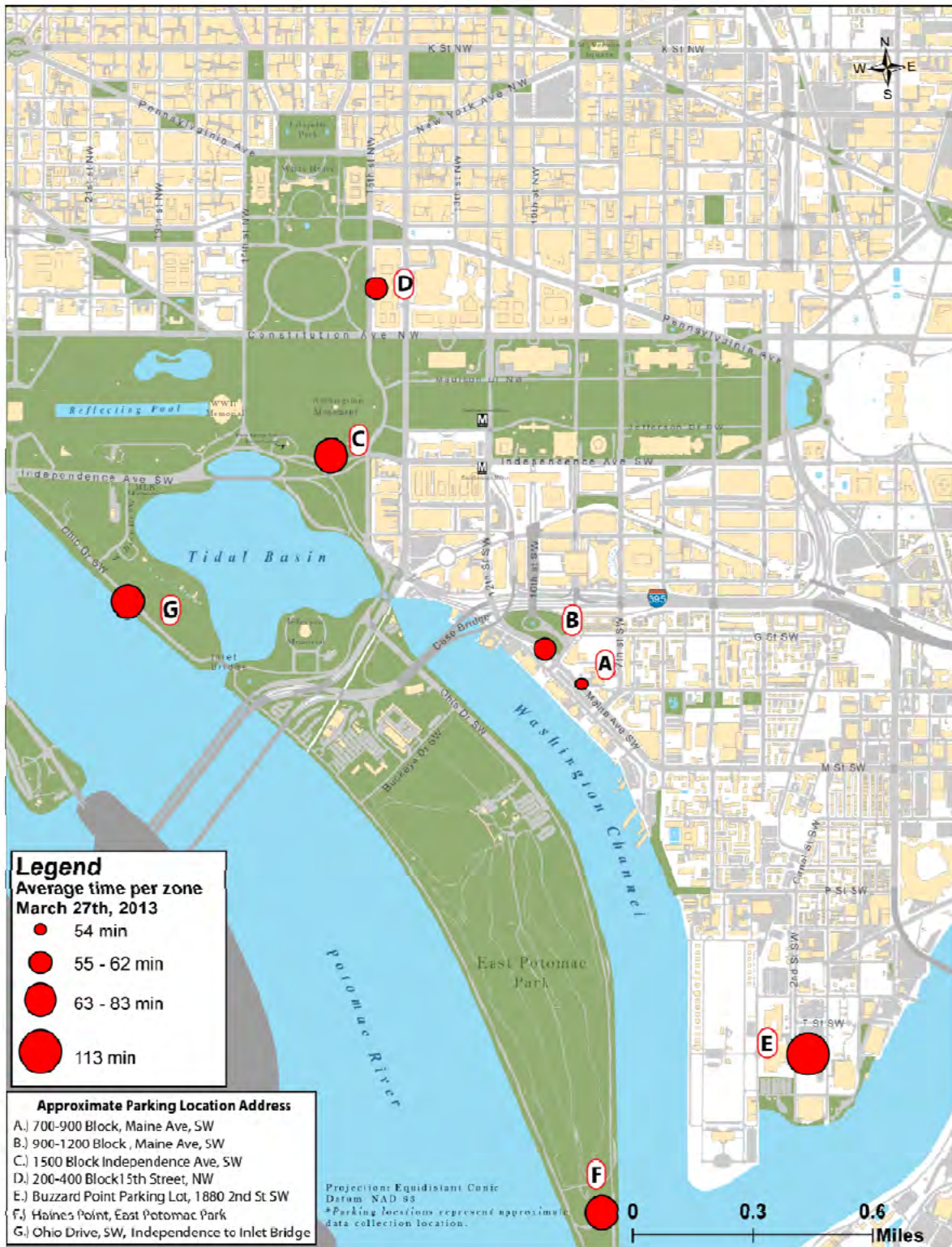
Figure 3.18 through Figure 3.22 illustrate the average amount of time spent in each zone, by date. Table 3.2 follows with summary statistics indicated the mean, median and standard deviation with respect to time spent in the parking zones and in relationship to the parking time limits.

The findings suggest that drivers typically stay parked well under the time limits, with the averages frequently noted as being well under two hours. These findings suggest why drivers are reluctant to travel to off-site parking locations such as Union Station Parking Garage (USPG) and RFK Stadium, as these paid parking lots are not readily accessible and, as will be discussed in more depth during Phase V of this research study, drivers have noted that by the time they arrive at these lots they essentially have to turn around to pick up their groups. Operators can view these results as an educational opportunity to plan itineraries that require fewer drop offs, allowing drivers to take advantage of longer stays at off-site parking areas and the associated amenities.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

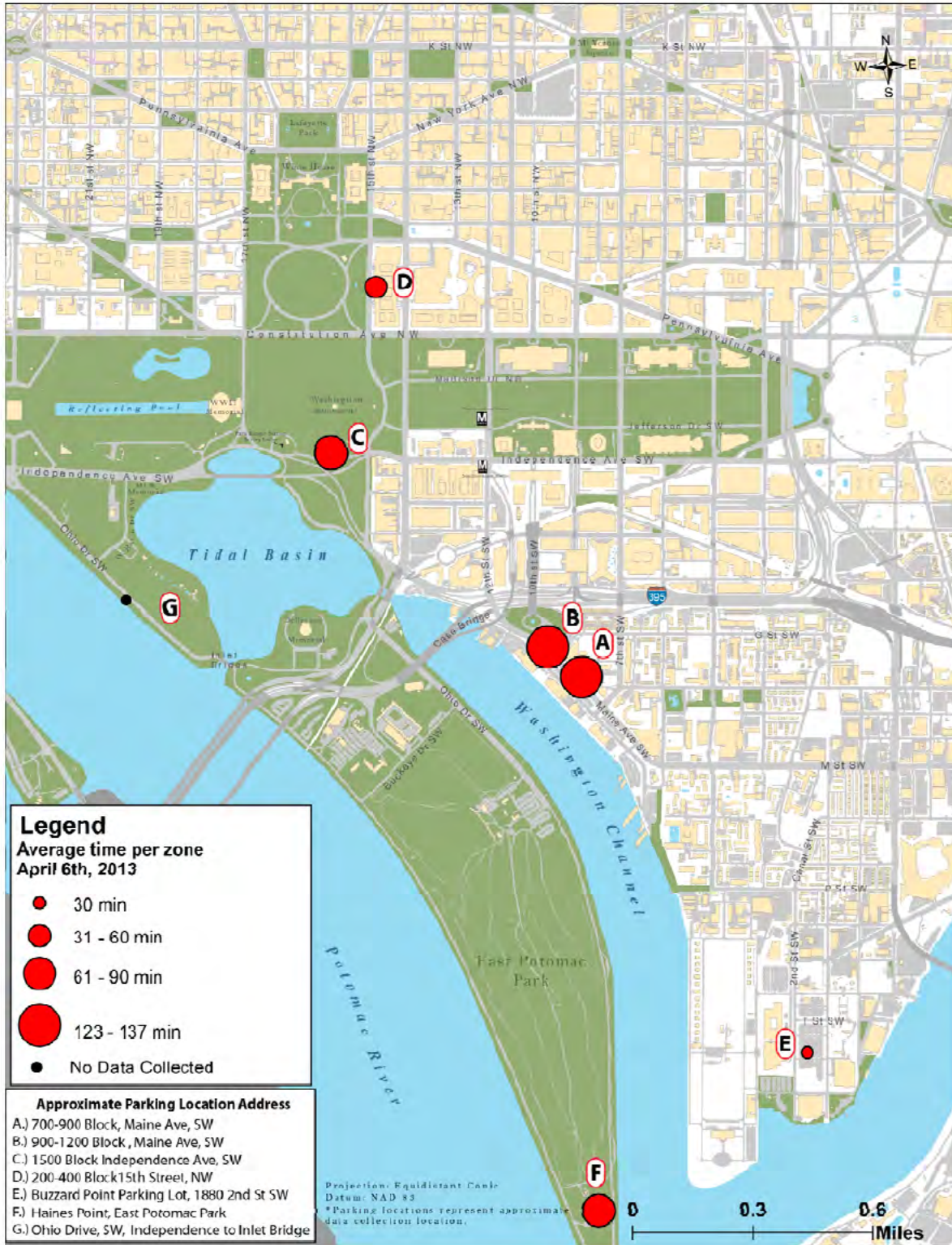
FIGURE 3.18: AVERAGE AMOUNT OF TIME SPENT IN ZONE: WEDNESDAY, MARCH 27, 2013



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700-900 Block, Maine Ave, SW | B = 900-1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200-400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

FIGURE 3.19: AVERAGE AMOUNT OF TIME SPENT IN ZONE: SATURDAY, APRIL 6, 2013



Key for Parking Zones

- | | |
|--|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence to Inlet Bridge | |

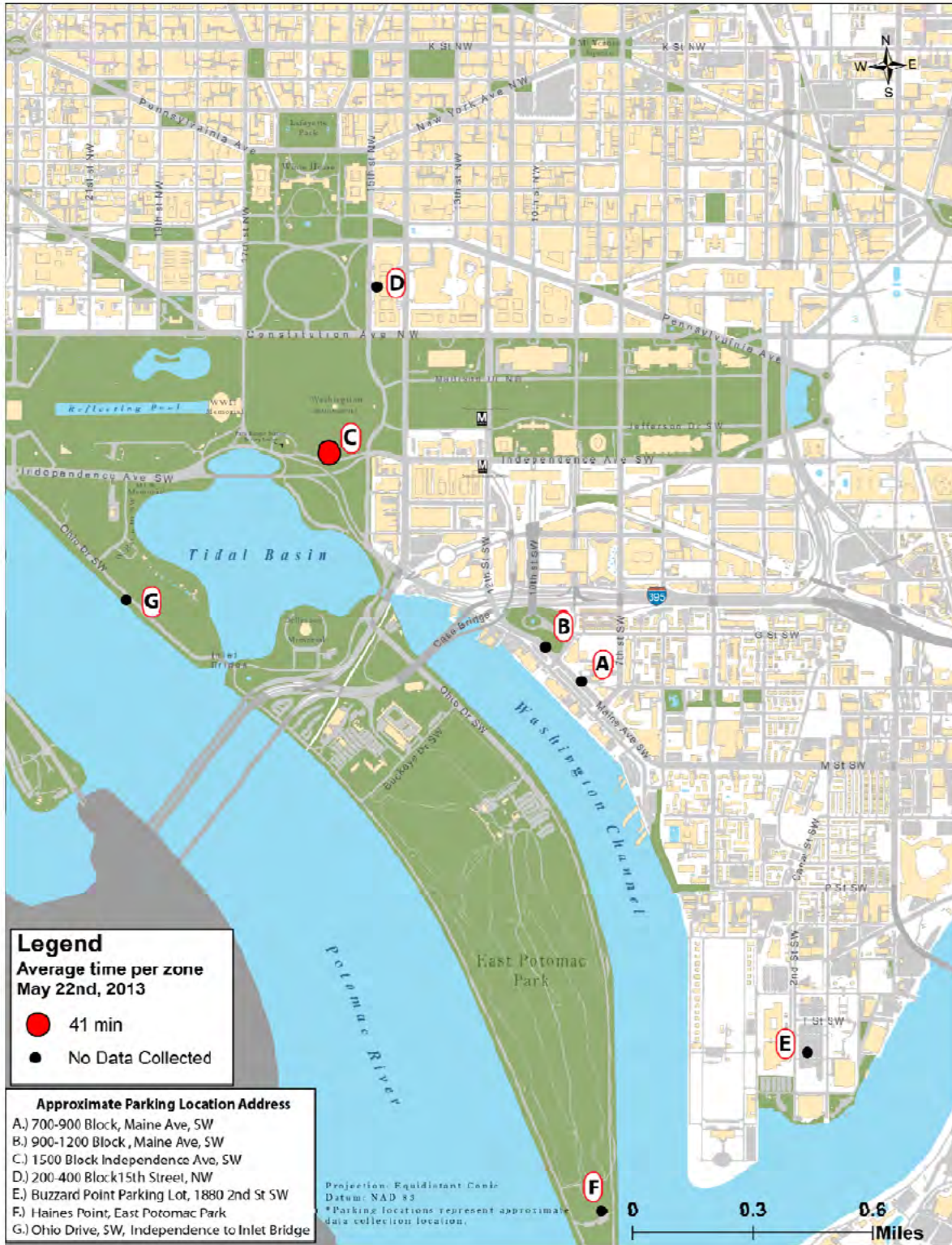
FIGURE 3.20: AVERAGE AMOUNT OF TIME SPENT IN ZONE: WEDNESDAY, MAY 1, 2013



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

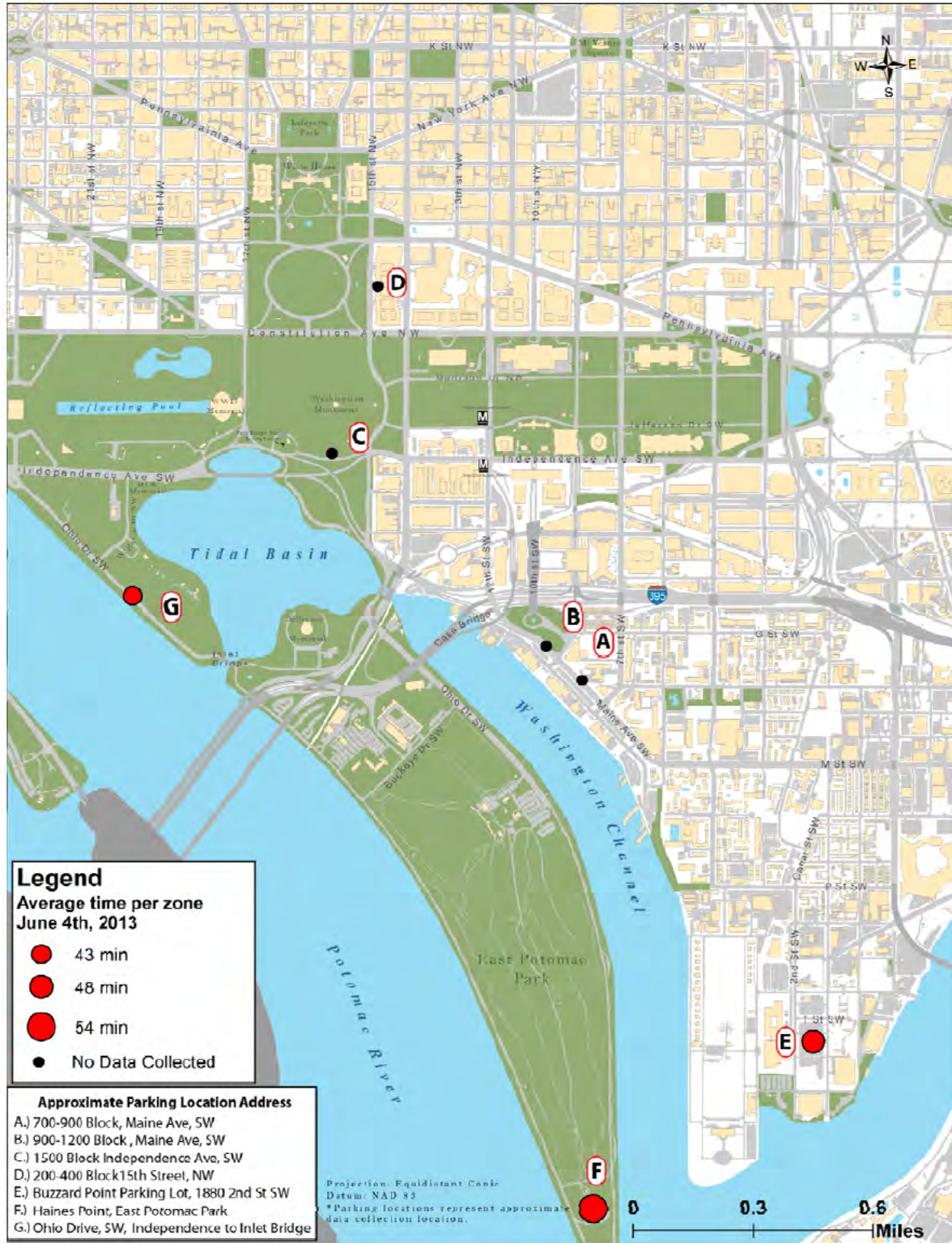
FIGURE 3.21: AVERAGE AMOUNT OF TIME SPENT IN ZONE: WEDNESDAY, MAY 22, 2013



Key for Parking Zones

- | | |
|--|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, SW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence to Inlet Bridge | |

FIGURE 3.22: AVERAGE AMOUNT OF TIME SPENT IN ZONE: TUESDAY, JUNE 4, 2013



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St, SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

TABLE 3.2: SUMMARY STATISTICS FOR DURATION OF STAY AT ZONES, IN MINUTES

Wednesday, March 27, 2013				
Zone	Mean	Median	Standard Deviation	Parking Time Limit
A	53.7	45	25.95	240
B	62.4	60	33.3	n/a
C	81.6	60	56.4	120
D	60	30	49.2	120
E	112.5	105	72.6	n/a
F	80.1	60	61.2	n/a
G	82.5	60	57.6	n/a
Saturday, April 6, 2013				
Zone	Mean	Median	Standard Deviation	Parking Time Limit
A	123.3	120	70.5	240
B	137.1	150	57.6	n/a
C	69.6	60	45.6	120
D	55.5	30	39.6	120
E	30	30	0	n/a
F	86.25	75	57.6	n/a
Wednesday, May 1, 2013				
Zone	Mean	Median	Standard Deviation	Parking Time Limit
A	66	60	44.1	240
B	80.1	60	51	n/a
C	60.6	30	41.4	120
D	53.1	30	37.8	120
F	116.4	60	86.7	n/a
G	52.8	30	29.7	n/a
Wednesday, May 22, 2013				
Zone	Mean	Median	Standard Deviation	Parking Time Limit
C	40.5	30	17.67	n/a
Tuesday, June 4, 2013				
Zone	Mean	Median	Standard Deviation	Parking Time Limit
E	54	30	29.4	n/a
F	48.3	30	24.9	n/a
G	42.9	30	23.4	n/a

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW

B = 900–1200 Block, Maine Ave, SW

C = 1500 Block, Independence Ave, NW

D = 200–400 Block, 15th St., NW

E = Buzzard Point, 1880 2nd St., SW

F = Hains Point East Potomac Park, SW

G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

3.5 VEHICLE MIX

Researchers documented the bus style for each parked tour bus. Options included private small tour bus, private medium tour bus, private large tour bus, sightseeing bus, public transport bus, NPS visitor bus and school bus. Table 3.3 offers summary counts of the vehicle mix by zone. The vast majority of buses that parked were private large tour buses, followed by private medium tour buses and school buses. Figure 3.23 through Figure 3.27 illustrate the vehicle mix for each zone by date while Figure 3.28 through Figure 3.34 demonstrate the overall mix across all data collection dates by zone.

TABLE 3.3: TOTAL NUMBER OF EACH TOUR BUS STYLE OBSERVED BY ZONE

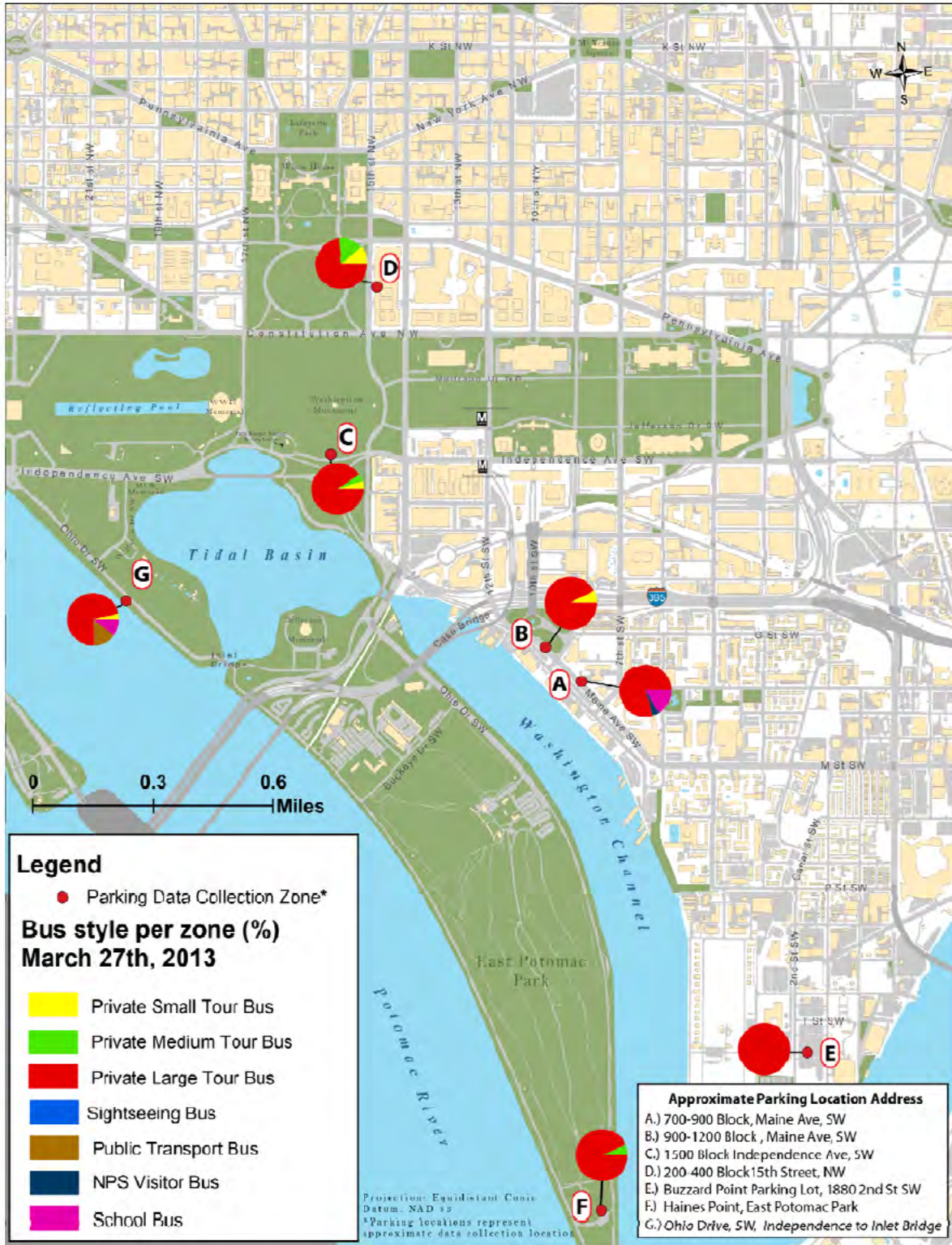
Zone	Private Small Tour Bus : 1–15 Passengers	Private Medium Tour Bus: 16–40 Passengers	Private Large Tour Bus: 41+ Passengers	Public Transport Bus	Sightseeing Bus: Open-top, 2-Deck Trolleys	NPS Visitor Bus	School Bus	Total
A	2	0	190	0	0	1	5	198
B	1	3	79	0	0	0	0	83
C	5	18	207	0	0	0	15	245
D	5	33	122	0	0	0	4	164
E	0	3	108	0	0	0	0	111
F	3	26	222	31	1	0	1	283
G	7	12	183	16	0	0	25	243
Total (N)	23	95	1110	47	1	1	50	1328
Total (%)	1.73	7.16	83.66	3.54	0.07	0.07	3.77	100.00

* Numbers represent individual observations during designated data collection time periods. The same bus could be documented more than once if it remained in a given zone during consecutive time periods. See Table 2.2 to differentiate between total and unique bus observations.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW
 B = 900–1200 Block, Maine Ave, SW
 C = 1500 Block, Independence Ave, NW
 D = 200–400 Block, 15th St., NW
 E = Buzzard Point, 1880 2nd St., SW
 F = Hains Point East Potomac Park, SW
 G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

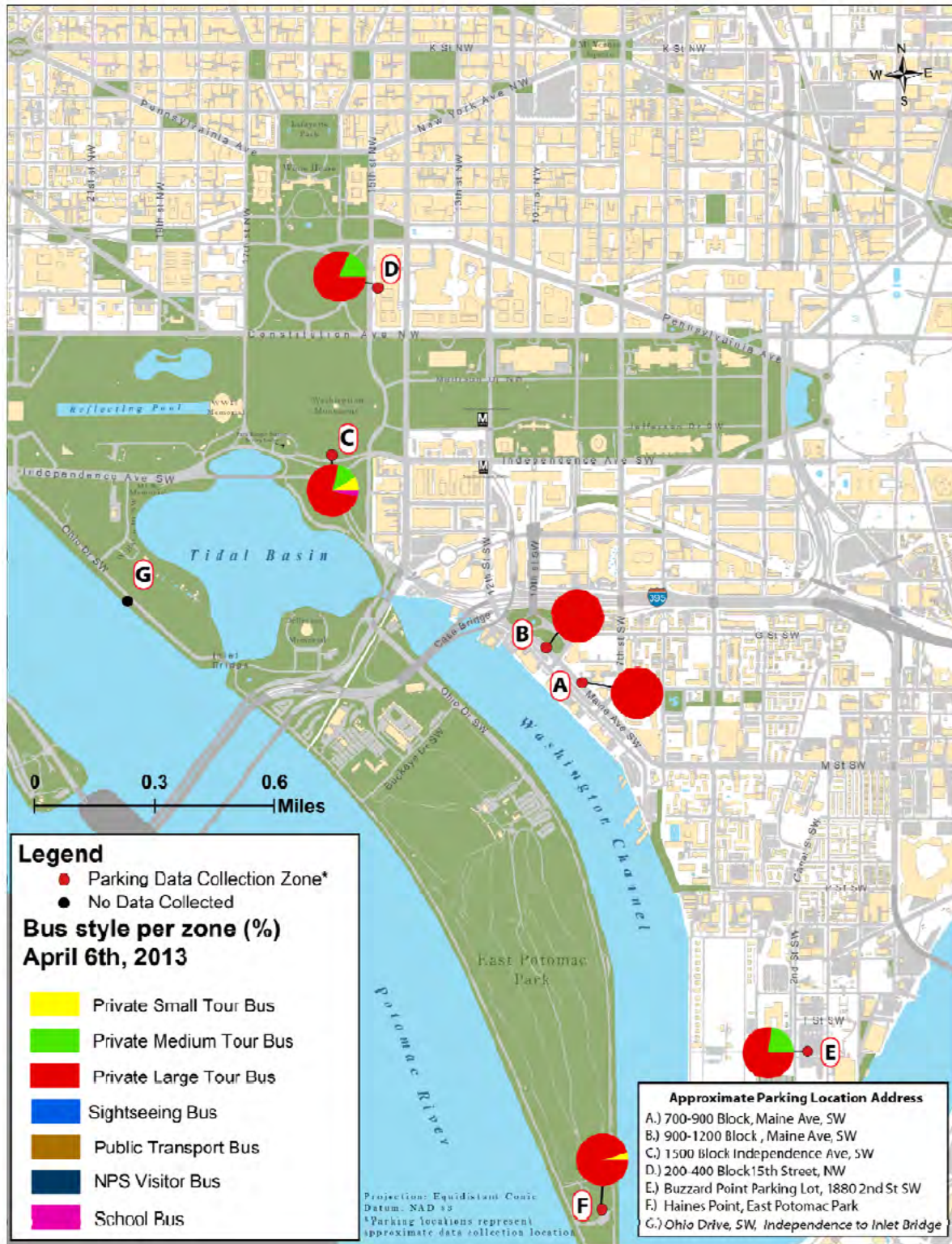
FIGURE 3.23: VEHICLE MIX: WEDNESDAY, MARCH 27, 2013



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, NW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

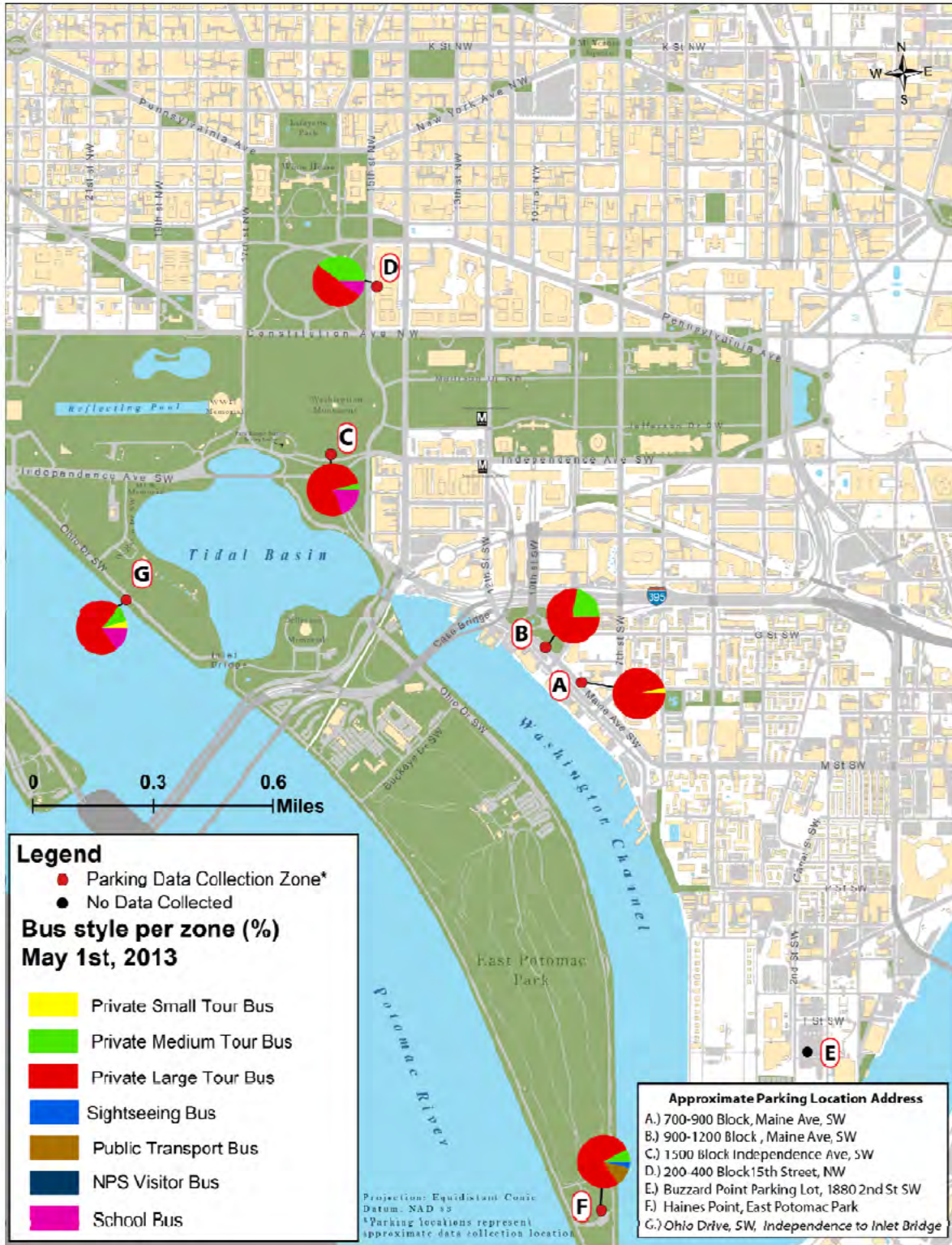
FIGURE 3.24: VEHICLE MIX: SATURDAY, APRIL 6, 2013



Key for Parking Zones

- A = 700–900 Block, Maine Ave, SW
- B = 900–1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200–400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Hains Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

FIGURE 3.25: VEHICLE MIX: WEDNESDAY, MAY 1, 2013



Key for Parking Zones

- A = 700–900 Block, Maine Ave, SW
- B = 900–1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200–400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Hains Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

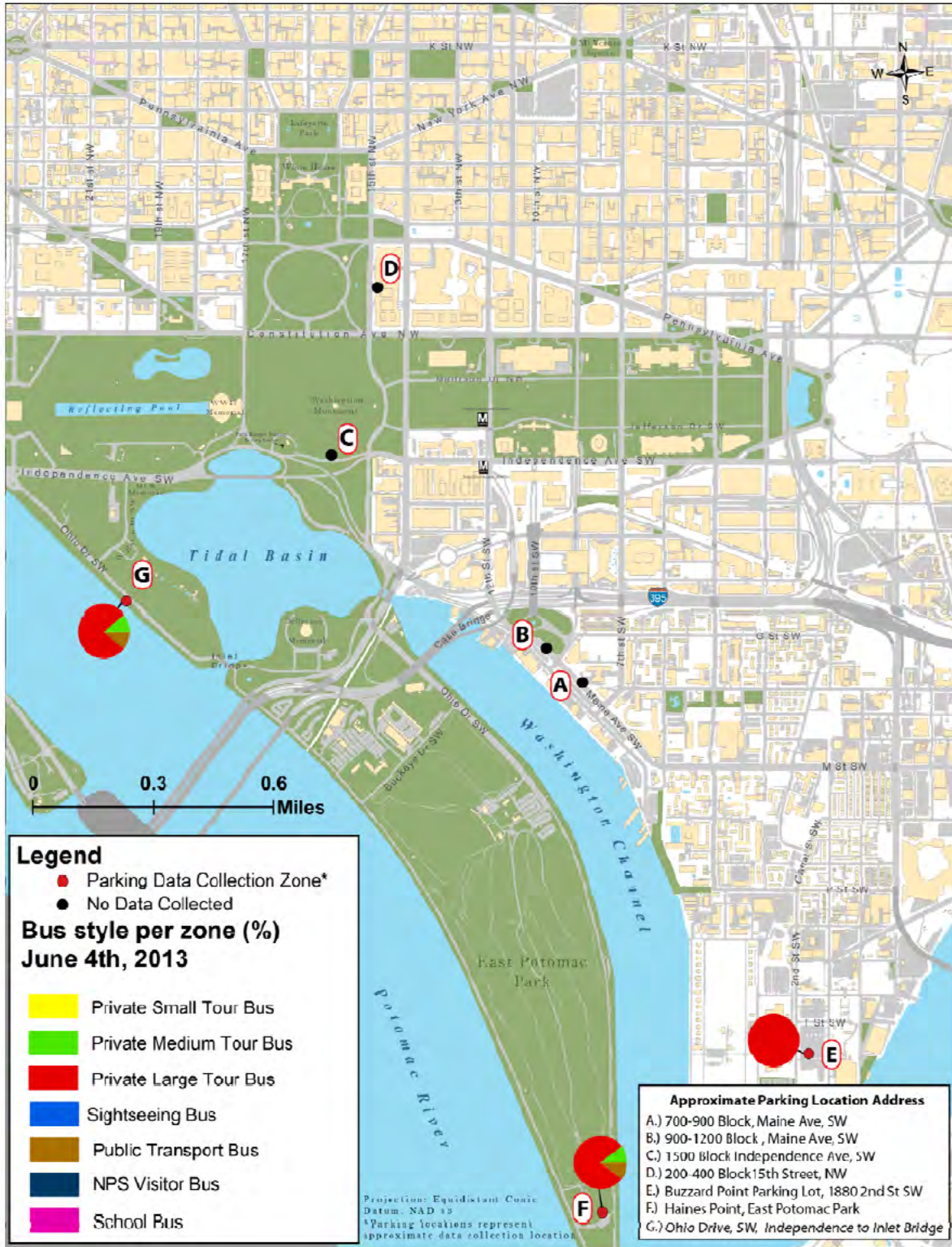
FIGURE 3.26: VEHICLE MIX: WEDNESDAY, MAY 22, 2013



Key for Parking Zones

- A = 700–900 Block, Maine Ave, SW
- B = 900–1200 Block, Maine Ave, SW
- C = 1500 Block, Independence Ave, NW
- D = 200–400 Block, 15th St., NW
- E = Buzzard Point, 1880 2nd St., SW
- F = Hains Point East Potomac Park, SW
- G = Ohio Dr., SW, Independence Ave. to Inlet Bridge

FIGURE 3.27: VEHICLE MIX: WEDNESDAY, JUNE 4, 2013



Key for Parking Zones

- | | |
|---|---------------------------------------|
| A = 700–900 Block, Maine Ave, SW | B = 900–1200 Block, Maine Ave, SW |
| C = 1500 Block, Independence Ave, SW | D = 200–400 Block, 15th St., NW |
| E = Buzzard Point, 1880 2nd St., SW | F = Hains Point East Potomac Park, SW |
| G = Ohio Dr., SW, Independence Ave. to Inlet Bridge | |

FIGURE 3.28: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE A

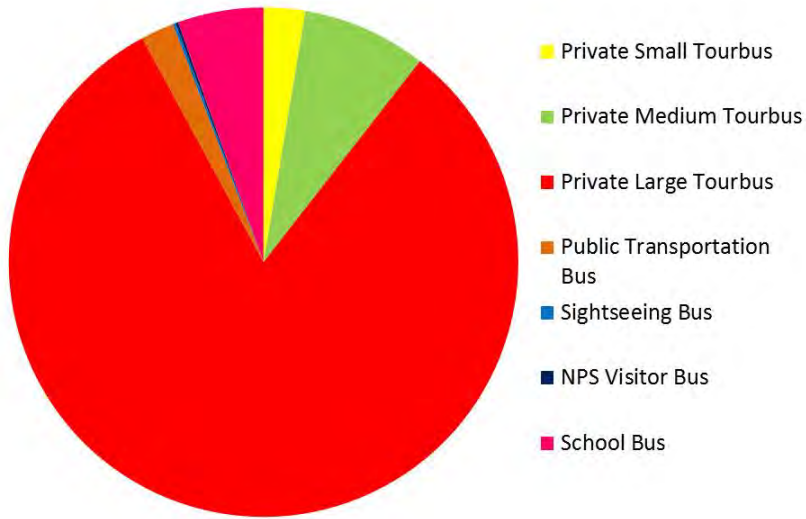
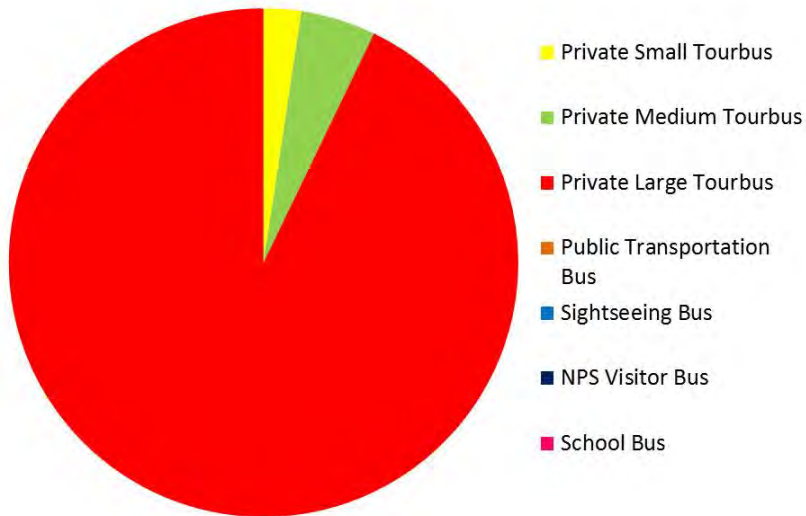


FIGURE 3.29: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE B



Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

FIGURE 3.30: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE C

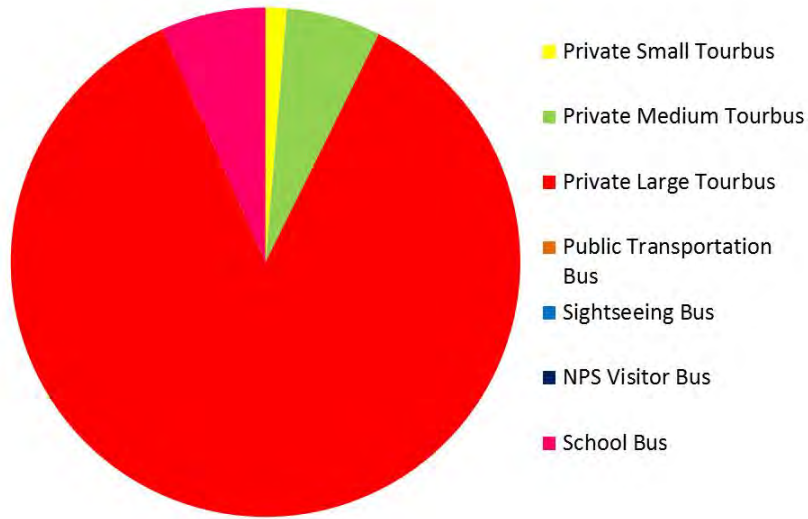
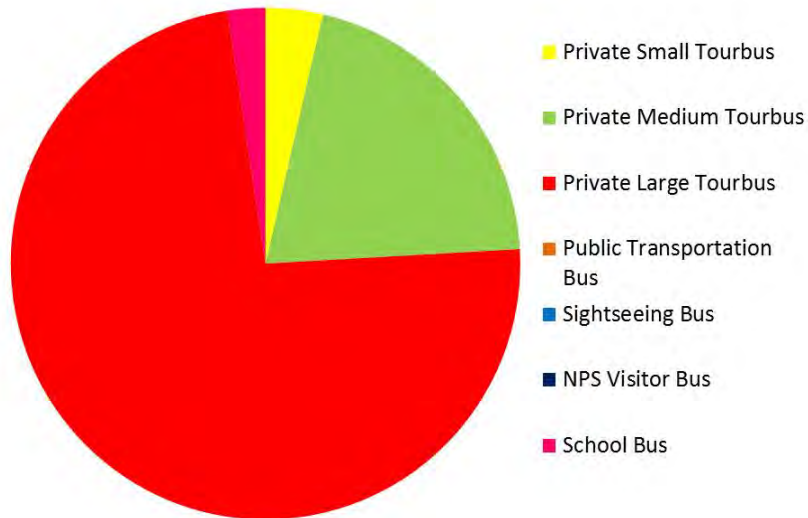


FIGURE 3.31: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE D



Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

FIGURE 3.32: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE E

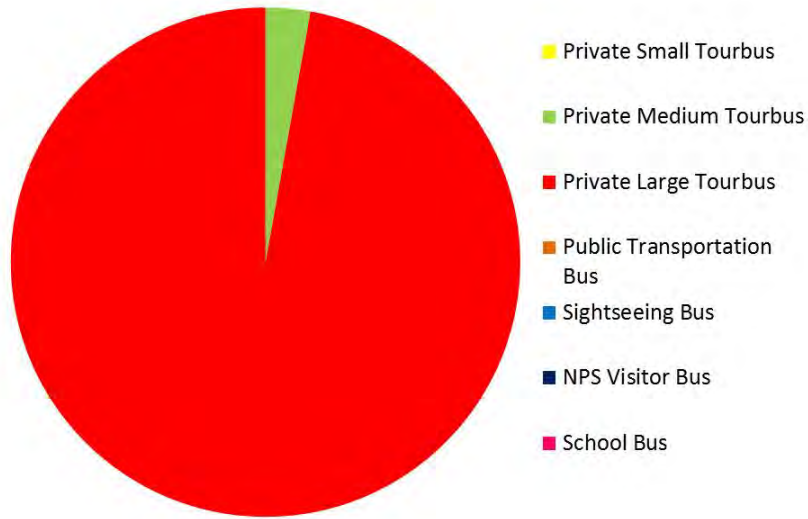
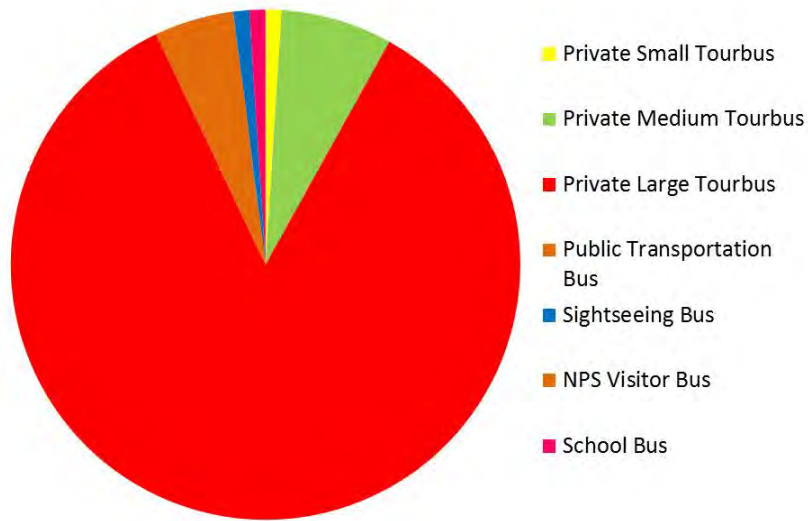


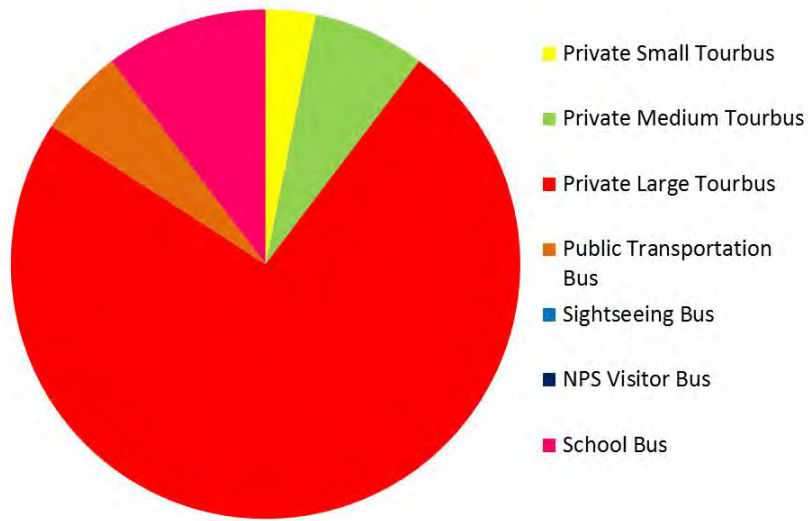
FIGURE 3.33: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE F



Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
C = 1500 Block, Independence Ave, NW	D = 200–400 Block, 15th St., NW
E = Buzzard Point, 1880 2nd St., SW	F = Hains Point East Potomac Park, SW
G = Ohio Dr., SW, Independence Ave. to Inlet Bridge	

FIGURE 3.34: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE G



Key for Parking Zones

- | | |
|---|---------------------------------------|
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4. QUALITATIVE RESULTS

4.1 TOTAL COMMENTS BY THEME AND ZONE

Table 4.1 summarizes the frequency of the written observations by theme while Table 4.2 presents the number of written observations by zone. Comments were written only as deemed relevant. A total of 89 written observations were analyzed, resulting in seven overall themes and representing six of the seven zones observed. No comments were made regarding Zone B. The most common themes were specific to parking/space availability (33.7%), parking violations (31.5%) and Driver Behaviors (22.5%).

TABLE 4.1: NUMBER OF WRITTEN OBSERVATIONS BY THEME

Themes	Number of Written Observations	Percentage (%)
Parking/space availability	30	33.7
Parking Violations	28	31.5
Driver Behaviors	20	22.5
Idling	5	5.6
Police	4	4.5
Loading/unloading	2	2.2
Total	89	100.0

TABLE 4.2: NUMBER OF WRITTEN OBSERVATIONS BY ZONE

Zones	Number of Written Observations	Percentage (%)
A	8	9.0
C	22	24.7
D	8	9.0
E	3	3.4
F	28	31.4
G	20	22.5
Total	89	100.0

4.2 ALL WRITTEN OBSERVATIONS BY THEME

Table 4.3 includes all written observations classified by the themes identified in the analysis. A total of 89 written observations were analyzed and seven (7) outstanding themes were identified as presented. Parking/space availability was the most frequently observed behavior in the studied areas, followed by parking violations, driver behaviors, idling, police and loading/unloading. Note that DOT is in reference to the Department of Transportation number that was documented for each bus.

Key for Parking Zones

A = 700–900 Block, Maine Ave, SW	B = 900–1200 Block, Maine Ave, SW
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TABLE 4.3: ALL WRITTEN OBSERVATIONS BY THEME

Theme 1. Parking/Space Availability
Parked in metered parking (no other parking available).
Saw many buses in the past 20 minutes trying to find parking but couldn't get any space.
National Park Service truck 61441 was parked in the bus raking area for 20 minutes.
Available space.
At 6.30 p.m. it was empty. Now packed.
A few open spaces now.
This bus is located in first spot but there is an additional one located in front of it.
Max capacity of available parking (at this time) buses uploading in street.
15th & east, 3 traffic cones blocked 20 yards of parking space, city workers measuring road and lane width, vendors take up most of the space.
Couldn't quite fit in spot so front end is poking out in the road.
Really close to snack vender. Approximately half a foot between them.
Many buses are parking across car spots. Also a lot of buses drove through looking for parking without stopping b/c the spots were full.
Not in real spot, at the end of the official spots.
Not technically spot, at end of bus parking.
Not in technical spot. At end of the bus parking spots.
Cars are beginning to park in the car spots so some of the blocking buses have moved.
Leaving but was parked when I began.
Lot was full at 11:30 a.m.; a number of buses drove through looking for a spot that was not available.
At 6:00 p.m. there are 6 spots free.
Loudon County transit. At 6:30 p.m. there is only one bus in the lot leaving 9 spots open.
Around 10:15 a.m., park police blocked Ohio Drive at West Basin Drive so cars were forced onto West Basin Drive.
Tons of buses appear to be parked on West Basin heading in to MLK.
Start of second round. First round took over an hour. Starting second round at sign for west Potomac park right after statue. Lots of cars have come in so there are fewer spaces for buses.
No DOT. Third time through. Looks like even more cars have moved in.
Tons of buses.
Pulling in between two cars. Very tricky.
Pulling in between car and small bus. Again very close quarters. Came at same time as previous bus.
From start to West Basin, one medium bus, one large bus and all other spaces taken by cars. Reinforces separation of bus and car parking; using West Basin as cut off.
Arrived on site at 9:15 a.m., no buses parked on any part of Ohio Drive. All traffic is heading north and no traffic is allowed to come south bound. All signs on the Potomac river side of the street have been covered. Therefore cars are parking facing north bound on the south bound facing side of the Ohio Drive where bus parking would normally be.
No DOT. Knollwood military retirement bus. Just saw one open spot and it was taken immediately. Does it make sense to separate bus and car parking? Cars park in such a way that wastes space.
Theme 2. Parking Violation
Parked out of parking zone.
Parked out of parking zone.
Parked in no parking zone, just in front of parking zone.
Red and blue buses that were photographed at 11:30 a.m. are still parked beyond zone.
Red and blue buses are still blocking the area in front of the actual parking zone which blocks a lane.
Parked out of parking zone.
Red and blue buses from 11:30 a.m. are still parked beyond the designated parking and blocking the lane.
Parked out of parking zone.
Parked out of parking zone.
Blue and red buses with dot # 301225, red license plate 375 and blue license plate 164 still parked beyond parking zone and are blocking turn lane.
Parked out of parking zone.
Parked out of parking zone.
Not in parking spot lines i.e. Taking two spots.
Taking two spots.
Many buses parked illegally in area making parking difficult.
Not in designated bus parking. Taking 6 car spots.
Not in bus parking. Taking up 6 car spots.
Not in bus parking. Taking 6 car spots. Two bus drivers talked to me and explained their frustration of the bus parking. More spots are needed.
Not in bus parking. Taking 4 car spots.
Buses were continuing to park across car spots in bus loop and on main road facing toward DC until the park police arrived at 11:55 a.m. and just sat behind them with his lights on/horn honking until they moved. Buses left except one which received a ticket.
Not in bus parking. Taking car parking.

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4. QUALITATIVE RESULTS

Not in bus parking. Taking 6 car spots.
Not in bus parking. Doubled parked and blocking one car from getting out.
Not in bus parking, taking 6 car spots and other bus parallels to it.
Not in bus parking, actually doubled parked next to other bus.
Although buses were moved out new ones arrived and parked in car spots again.
Not in bus parking. In car spots behind bus spots.
Not in bus parking. In car spots behind bus spots.
Theme 3. Driver Behaviors
Some bus drivers left their buses unattended.
Driver stated not aware of Buzzard Point parking lot.
Some drivers I never saw. I don't know if they were sleeping on the bus or if they were permanently parked.
Due to SOLs (Standards of Learning exams) in April, many more schools are pushing the trips to May. Driver requested please open up Ohio drive just in April and may it would help tremendously.
Driver mentioned that many groups drop off for dinner around Ford's Theatre area and then need parking.
Bus driver honked and asked for a vehicle to leave parking area.
Bus left and returned.
Tour bus driver told me that school buses aren't to park here.
Never saw the Loudoun Co. bus drivers during the whole 4 hour period.
Spoke with two drivers who asked that Haines point parking return. RFK not a reasonable option because of limited time and adds to traffic congestion. Cannot get on from 395. Have to go around.
Bus driver noted that they are treated poorly. Everyone parks illegally. Conflicts with police common. Bus drivers not here to make trouble. They just want to drop off kids and park. After four years, learn to work the system.
Idea from driver. Do it like inauguration. Need shuttle from parking area. Make it a law.
Drivers said Hains Point only true hideout. DC not bus friendly. Something similar to Hains Point is needed. Need in and out privileges for pay for park.
Driver asked that police be nicer. Stated we are people. Asked what happened to parking on other side of Ohio Drive. Close to park service offices. Have heard rumors about shuttle in from RFK. Drivers would love this.
This bus is Loudoun County no DOT. Driver of previous bus said "make us feel comfortable when we come to town."
Many talking about user conflicts with bikes.
Driver of previous bus asked what I am doing. Said he felt lucky to get a spot today.
Driver told me about his experience with ticketing from different entities and bus impounded. Judge threw most of it out and judge stated that different entities ticket and intimidates to make money.
Women school bus driver informed some people in the car spots were for buses and didn't they read the sign with the arrow that said it was a bus area.
There are 3 hour spots on West Basin. Some drivers asking for food and restrooms along Ohio Drive.
Theme 4. Idling
Idling.
Idling for about 30 min, metro access van.
Idling.
Parked but idling for over 10 min.
Idling for over 30 min.
Theme 5. Police
Parked out of parking zone, police told them to move but no ticket was given.
Parked out of parking zone, police told them to move but no ticket was given.
There are a number of cars parked in the bus parking spots. Police are consulting some individuals but they are definitely parked.
Bike police "parked" asked taxi driver to leave parking area.
Theme 6. Loading/unloading
Loaded and unloaded.
Loading passengers while parked.

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TABLE 4.4: ALL WRITTEN OBSERVATIONS BY ZONE

Zone A
Some bus drivers left their buses unattended.
Driver stated not aware of Buzzard Point parking lot.
Some Drivers I never saw. I don't know if they were sleeping on the bus or if they were permanently parked.
Idling.
Idling for about 30 min, metro access van.
Idling.
Parked in metered parking (no other parking available).
Saw many buses in the past 20 minutes trying to find parking but couldn't get any space.
Zone C
Due to SOLs (Standards of Learning exams) in April, many more schools are pushing the trips to may. Driver requested please open up Ohio drive just in April and may it would help tremendously.
Driver mentioned that many groups drop off for dinner around fords theater area and then need parking.
Loaded and unloaded.
Parked out of parking zone.
Parked out of parking zone.
Parked in no parking zone, just in front of parking zone.
Red and blue buses that were photographed at 11:30 a.m. are still parked beyond zone.
Red and blue buses are still blocking the area in front of the actual parking zone which blocks a lane.
Parked out of parking zone.
Red and blue buses from 11:30 a.m. are still parked beyond the designated parking and blocking the lane.
Parked out of parking zone.
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Parked out of parking zone.
Parked out of parking zone.
National park service truck 61441 was parked in the bus raking area for 20 minutes.
Available space.
At 6.30 p.m. it was empty. Now packed.
A few open spaces now.
This bus is located in first spot but there is an additional one located in front of it.
Parked out of parking zone, police told them to move but no ticket was given.
Parked out of parking zone, police told them to move but no ticket was given.
Zone D
Bus driver honked and asked for a vehicle to leave parking area.
Loading passengers while parked.
Max capacity of available parking (at this time) buses uploading in street.
15th & East, 3 traffic cones blocked 20 yards of parking space, city workers measuring road and lane width, vendors take up most of the space.
Couldn't quite fit in spot so front end is poking out in the road.
Really close to snack vender. Approximately half a foot between them.
There are a number of cars parked in the bus parking spots. Police are consulting some individuals but they are definitely parked.
Bike police "parked" asked taxi driver to leave parking area.
Zone E
Parked but idling for over 10 min.
Idling for over 30 min.
Bus left and returned.
Zone F
Tour bus driver told me that school buses aren't to park here.
Never saw the Loudon Co. Bus drivers during the whole 4 hour period.
Not in parking spot lines i.e. Taking two spots.
Taking two spots.
Many buses parked illegally in area making parking difficult.
Not in designated bus parking. Taking 6 car spots.
Not in bus parking. Taking up 6 car spots.
Not in bus parking. Taking 6 car spots. Two bus drivers talked to me and explained their frustration of the bus parking. More spots are needed.
Not in bus parking. Taking 4 car spots.
Buses were continuing to park across car spots in bus loop and on main road facing toward DC until the park police arrived at 11:55am and just sat behind them with his lights on/horn honking until they moved. Buses left except one which received a ticket.
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Loudoun county transit. At 6:30 p.m. there is only one bus in the lot leaving 9 spots open.
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Zone G
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No DOT. Third time through. Looks like even more cars have moved in.
Tons of buses.
Pulling in between two cars. Very tricky.
Pulling in between car and small bus. Again very close quarters. Came at same time as previous bus.
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