

National Park Service
U.S. Department of the Interior

National Mall and Memorial Parks
Washington, D.C.



NATIONAL MALL AND MEMORIAL PARKS TOUR BUS STUDY

FINAL REPORT

June 2015

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FINAL REPORT

Technical Report Submitted to:

The National Mall and Memorial Parks
900 Ohio Dr. SW
Washington, D.C. 20024

National Park Service
Denver Service Center
PO Box 25287
Denver, CO 80225-0287

Submitted by:

Margaret Daniels, Ph.D.
Laurlyn Harmon, Ph.D.
Rodney Vese, M.S.
Minkyung Park, Ph.D.
Russ Brayley, Ph.D.
Laurie Schintler, Ph.D.

Contact:

Margaret Daniels, Ph.D.
School of Recreation, Health, and Tourism
George Mason University
10900 University Blvd., MS 4E5
Bull Run Hall, Room 202
Manassas, VA 20110-2203

Voice: (703) 993-4279
Fax: (703) 993-2025
mdaniels@gmu.edu

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Thank You

The National Park Service is deeply grateful for the level of interest in tour bus transportation planning for the National Mall and Memorial Parks. We appreciate the feedback from our participating agencies as well as the access granted and information provided by many tour bus companies. We are thankful for the funding provided by the Paul S. Sarbanes Transit in Parks Program that made this research possible.

Participating Groups and Agencies

The following entities participated in the study process:

American Bus Association
District of Columbia Department of Transportation
Destination D.C.
Downtown D.C. Business Improvement District
George Mason University
Honor Flight Network
Metropolitan Washington Council of Governments
National Capital Planning Commission
The Guild of Professional Tour Guides of Washington, D.C.
Trust for the National Mall

EXECUTIVE SUMMARY

STUDY RATIONALE

The National Park Service (NPS), National Mall and Memorial Parks (NAMA), was awarded a grant through the Paul S. Sarbanes Transit in Parks Program to study and make recommendations for improving tour bus operations within NAMA. 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 NAMA during the spring-summer peak season.

The purpose of the current project was to quantitatively and qualitatively document existing conditions related to tour bus operations and set forth a plan of action for short-term and long-term improvements in operational efficiency. A series of studies was completed between March 2012 and June 2014 that pertained to operational efficiency, congestion, visitor mobility, access, safety, education, recreation, health benefits and protection of sensitive natural, cultural and historical resources. The data collection occurred in seven phases, as indicated in Table A. In this final report, the research team integrated the findings of the seven phases, as applicable, and provided site-specific summary recommendations (Table B) followed by global recommendations.

Acronyms that will be used throughout the report include those for Washington, D.C. (D.C.), the National Mall and Memorial Parks (NAMA), National Park Service (NPS), George Mason University (GMU), District of Columbia Department of Transportation (DDOT), Metropolitan Washington Council of Governments (COG) and American Bus Association (ABA).

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. 626 buses documented.
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. 5,256 buses documented.
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. 831 buses documented.
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. 1,328 buses documented.
V	On-Bus Data Collection and 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. Six full-day and 2 half-day tours documented.
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. Six tour companies documented.
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. Four client groups documented.

ORGANIZATION OF THE FINAL REPORT

As part of the summary, the site-specific recommendations are set forth, including site location, summary of documented issues, recommendations, estimated cost level, complexity level, jurisdiction, degree of improvement in terms of circulation, visitor experience, driver experience and air quality and accompanying maps. The site-specific recommendations are followed by general recommendations that apply to the study area as a whole. The body of the final report is then integrated, beginning with an introduction and then a systematic presentation of the studies completed for this project, whose findings support the recommendations. The order of the studies is as follows: gateway points (Section 2), loading/unloading zones (Section 3), parking areas (Section 4), daily bus operations (Section 5) and operator/client self-reports (Section 6). The appendices include the associated data collection instruments and select data. In all studies, the use of “n” indicates that associated sample size.

Tables and maps are used extensively throughout this report to illustrate the data. The reader should note that the site numbering utilized in the executive summary maps is independent of the numbering and lettering used within the supporting studies.

SITE-SPECIFIC RECOMMENDATIONS

The NAMA Tour Bus Study was completed to document current issues in order to make site-specific recommendations based on objective evidence. The recommendations listed below grew out of the recognition that NAMA was not designed or prepared for the types or levels of use it receives and that the resulting transportation difficulties have compromised circulation, visitor experiences, driver experiences and air quality.

As loading/unloading and parking present a cumulative circulation impact, recommendations are not listed in priority order; instead, they are grouped in areas to coincide with the accompanying map (Figure A) and the associated inset maps (Figures B and C). On Figures A, B and C, numbered locations represent precise study areas while spaces designated by letters represent additional locations that are salient to the recommendations.

TABLE B: SITE-SPECIFIC IMPLEMENTATION RECOMMENDATIONS: ORGANIZED IN GROUPINGS TO COINCIDE WITH FIGURES A, B AND C

NOTES:

Estimated Cost: \$\$\$ = high; \$\$ = medium; \$ = lower. (Costs will be determined during design or implementation.)

Complexity: 3 = high; 2 = medium; 1 = lower.

Jurisdiction: NPS = National Park Service; DC = District of Columbia; Other = Other Government or Private Entity.

Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality: ★★ ★ (high degree of improvement) to ★ (less improvement)

Location; Current Function	Summary of Documented Issues	Recommendations	Cost / Complexity / Jurisdiction	Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality	Map Location
1. Constitution Avenue, east-bound between 23rd and Henry Bacon Drive; 3 spaces for tour bus loading/unloading during non-rush hour periods	Underutilized; illegal use as parking area; minimal/inconsistent enforcement	Convert to 3-hour tour bus parking during peak season, non-rush hour times; install 3-hour parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / NPS	★★	1
2. Lincoln Memorial, north on Henry Bacon Dr.; 6 spaces for tour bus loading/unloading on southwest bound side	Underutilized; illegal use as parking area; idling beyond legal limits; use by private vehicles; minimal/inconsistent enforcement	Open northbound Lincoln Circle restricted lanes as a pilot bus route, add loading/unloading spaces on northeast bound side of Henry Bacon Dr.; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 1 / NPS	★★★	2
3. Lincoln Memorial, south on Daniel French Dr.; 6 spaces for tour bus loading/unloading	Over-utilized; congested; illegal double parking; illegal loading/unloading in non-designated areas; pulling into traffic in dangerous ways; blocking pedestrian traffic; stopping in zone beyond time needed to load/unload; illegal loading/unloading in non-designated areas; jaywalking; minimal/inconsistent enforcement	Open northbound Lincoln Circle restricted lanes as a pilot bus route; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 1 / NPS	★★	3
4. Constitution Avenue, east-bound between Henry Bacon Drive and 21st; 1 space for tour bus loading/unloading during non-rush hour periods	Underutilized; illegal use as parking area; minimal/inconsistent enforcement	Convert to designated Circulator bus stop; install 3-hour parking meters for buses or private vehicles; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / NPS	★★	4
5. Franklin Delano Roosevelt Memorial / Martin Luther King, Jr. Memorial, West Basin Drive;	Over-utilized, particularly during peak season; stopping in zone beyond	Reallocate and accommodate tour bus loading/unloading, tour bus parking, private vehicle parking,	\$ / 2 / DC	★★★	5

Location; Current Function	Summary of Documented Issues	Recommendations	Cost / Complexity / Jurisdiction	Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality	Map Location
5 spaces for tour bus loading/unloading	time needed to load/unload; illegal loading/unloading in nondesignated areas; minimal/ inconsistent enforcement	parking for individuals with disabilities, NPS visitor transit, permit parking and local sightseeing buses to be responsive to seasonal modal surges; explore best uses for FDR one-way circle road; develop and install standard regulatory signs; standardize and coordinate enforcement.			
6. Ohio Drive, SW, Independence Avenue to Inlet Bridge; 50 curbside spaces for buses (or 150 for cars)	Consistently at capacity with private vehicles; mixed use area makes it difficult to impossible for tour buses to park; attempts to parallel park often endanger vehicles and visitors; common area for cruising	Consolidate and separate tour bus and personal vehicle parking, with parking for personal vehicles north of West Basin Drive to Independence Avenue and parking for tour buses located south of West Basin Drive to Inlet Bridge; assess feasibility of angled parking for easier tour bus access; assess feasibility of one-way access during peak season, with buses parking on east side of Ohio Drive; install 3-hour parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / NPS	★★★	6
7. Constitution Avenue, east-bound between 19th and 18th and Constitution Eastbound between 18th and 17th; 5 spaces for tour bus loading/unloading during non-rush hour periods	Underutilized; illegal use as parking area; minimal/ inconsistent enforcement	Convert to 3-hour tour bus parking during peak season, non-rush hour times; install 3-hour parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / NPS	★★	7
8. World War II Memorial, Homefront Dr.; 3 spaces for tour bus loading/unloading	Over-utilized during peak season; buses lined up on 17th Street awaiting entry; specialized needs for Honor Flight veterans; stopping in zone beyond time needed to load/unload; illegal loading/unloading in nondesignated areas; idling beyond legal limits; minimal/ inconsistent enforcement	Allocate supplemental loading/unloading spaces during peak season during non-rush hour times on 17th Street southbound, outside of east-west viewshed of Great Cross Axis as a seasonal pilot; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 1 / NPS	★★★★	8

Location; Current Function	Summary of Documented Issues	Recommendations	Cost / Complexity / Jurisdiction	Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality	Map Location
9 Thomas Jefferson Memorial, East Basin Dr.; 7 spaces for tour bus loading/unloading	Over-utilized during peak season; dangerous thoroughfare along East Basin Dr.; pulling dangerously into traffic; stopping in zone beyond time needed to load/ unload; illegal loading/ unloading in non-designated areas; idling beyond legal limits; minimal/inconsistent enforcement	Assess the feasibility of using a portion of NPS National Capital Regional Office parking lot as a parking area (for after drop-off) as a weekend seasonal pilot; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / NPS and Other	★★★	9
10. 1500 Block, Independence Ave., NW; 8 curbside spaces for tour bus parking	Frequently at or beyond capacity; access difficulties due to Independence Ave. thoroughfare, parking beyond designated area; blocking turn lane at 15th street; minimal/inconsistent enforcement	Demarcate tour bus parking from through lane; reconfigure parking to protect north-south viewshed of Great Cross Axis; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / NPS	★★★	10
11. U.S. Holocaust Memorial Museum, 100 Raoul Wallenberg Place; 2 spaces for tour bus loading/unloading	Stopping in zone beyond time needed to load/unload; illegal loading/unloading in non-designated areas	Review designated areas (i.e., government vehicle, no standing zone, bus loading/unloading, commuter vehicles) to increase tour bus loading/unloading spaces during peak season; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / NPS and DC	★★	11
12. 15th Street, NW between Pennsylvania Avenue and Constitution Avenue near the Ellipse, White House and White House Visitor Center; 5 spaces for tour bus parking; also used for loading/unloading	Consistently at or beyond capacity; mixed use confusion; congestion; use/encroachment by private vehicles and permitted food/retail vendors; illegal double parking; blocking traffic; pulling dangerously into traffic; stopping in zone beyond time needed to load/unload; illegal loading/unloading in nondesignated areas; minimal/inconsistent enforcement	Reallocate space for distinct uses (tour bus parking, tour bus loading/unloading, vendors, bike route) and clearly separate, with input from NPS and DC to collaboratively determine appropriate percentage allocation of space for each use; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / NPS and DC	★★	12
13. 14th Street, west side of Ronald Reagan Building	Undesignated use; blocking traffic; stopping in zone be-	Designate a minimum of two spaces for tour bus loading/unloading	\$\$ / 2 / DC	★★	13

Location; Current Function	Summary of Documented Issues	Recommendations	Cost / Complexity / Jurisdiction	Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality	Map Location
northbound pull-off; not designated for tour bus loading/unloading	yond time needed to load/unload; illegal loading/unloading in non-designated areas; idling beyond legal limits; minimal/inconsistent enforcement	during peak season during non-rush hour times; assess off-peak seasonal use; develop and install standard regulatory signs; standardize and coordinate enforcement.			
14. Ford's Theatre, 600 Block 10th Street; 1 space for tour bus loading/unloading	Underutilized; illegal use as parking area; minimal/inconsistent enforcement	Convert to metered parking; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / DC	★	14
15. Ford's Theatre, 500 block 10th Street; one-way southbound; 2 spaces for tour bus loading/unloading	Over-utilized and highly congested during peak season; stopping on the wrong side of the road; illegal double parking; pulling into traffic in a dangerous way; stopping in zone beyond time needed to load/unload; illegal loading/unloading in nondesignated areas; idling beyond legal limits; minimal/inconsistent enforcement	Convert public through-traffic on 10 th Street to buses only and those going to parking garages; use signage and pavement changes to indicate gateway to an area that can be named Ford's Theatre District; consider use of crossing guard or traffic control personnel during peak season; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$\$ / 3 / DC	★★★	15
16. Ford's Theatre, 1000 Block F Street; 1 space for tour bus loading/unloading	Underutilized; illegal use as parking area; minimal/inconsistent enforcement	Convert to metered parking; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / DC	★	16
17. Ohio Drive, south of East Potomac Park Golf Course entry, on channel side and river side; 0 curbside spaces	Removal of curbside spaces for safety and access reasons; consistent requests from tour bus drivers and owners for reinstatement of tour bus parking spaces; common area for cruising	Reinstate and reallocate pull-off areas for tour bus parking located south of U.S. Park Police District One Station and East Potomac Park Golf Course during peak season as a pilot; ensure that tour bus presence will not block law enforcement access; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 3 / NPS	★★★	17
18. Hains Point, East Potomac Park, SW; 11-space area for tour bus parking	Mixed use area; illegal double parking; access hindered by buses encroaching on spaces for private vehicles; common area for cruising	Reallocate and separate usage areas; increase number of tour bus parking spaces by allowing tour bus parking within the private vehicle area during peak season; clearly	\$\$ / 1 / NPS	★★★	18

Location; Current Function	Summary of Documented Issues	Recommendations	Cost / Complexity / Jurisdiction	Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality	Map Location
		demarcate tour bus parking; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.			
19. National Museum of American History, Madison Drive between 12th and 14th Streets; 3 spaces for tour bus loading/unloading	Converted to loading/unloading zone during study period; backup due to limited spaces; blocking pedestrian traffic; blocking facility entrance	Allocate supplemental seasonal loading/unloading and parking spaces on north side of Madison Avenue; add seasonal loading/unloading and parking spaces on south side of Constitution Avenue; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / NPS and DC	★★	19
20. National Museum of Natural History, Madison Dr. at 9th St.; 8 spaces for tour bus loading/unloading	Congested; stopping in zone beyond time needed to load/unload; illegal loading/unloading in non-designated areas; use by private vehicles; minimal/inconsistent enforcement	Allocate supplemental seasonal loading/unloading and parking spaces on north side of Madison Avenue; add seasonal loading/unloading and parking spaces on south side of Constitution Avenue; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / DC	★★	20
21. Constitution Avenue, Westbound south side of National Archives; not designated for tour bus loading/unloading	Designated for general parking; use of nondesignated areas to load/unload; traffic jams; illegal loading/unloading in non-designated areas; minimal/inconsistent enforcement	Convert general parking space to at least one tour bus loading/unloading space; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$ / 2 / DC	★	21
22. National Air and Space Museum, Jefferson Drive at 7th St.; 9 spaces for tour bus loading/unloading	Over-utilized; congested; blocking pedestrian traffic; blocking facility entrance; stopping in zone beyond time needed to load/unload; illegal loading/unloading in non-designated areas; minimal/inconsistent enforcement	Allocate supplemental loading/unloading and parking spaces directly south of the museum on Independence Avenue; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / NPS and DC	★★	22
23. National Museum of the American Indian, Jefferson Drive between 3rd and 4th	Underutilized; illegal use as parking area; minimal/inconsistent enforcement	Convert to 3-hour tour bus parking area; install parking meters; develop and install standard regulatory	\$ / 2 / NPS	★★	23

Location; Current Function	Summary of Documented Issues	Recommendations	Cost / Complexity / Jurisdiction	Degree of Improved Circulation, Visitor Experience, Driver Experience and Air Quality	Map Location
Streets; 9 spaces for tour bus loading/unloading		signs; standardize and coordinate enforcement.			
24. 900-1200 Block, Maine Avenue, SW; 4 curbside spaces for tour bus parking	Consistently at or beyond capacity; cruising by area	Increase number of tour bus parking spaces; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / DC	★★	24
25. 700-900 Block, Maine Avenue, SW; 6 curbside spaces for tour bus parking	Consistently at or beyond capacity; cruising by area; idling beyond legal limits; minimal/inconsistent enforcement	Increase number of tour bus parking spaces; install parking meters; develop and install standard regulatory signs; standardize and coordinate enforcement.	\$\$ / 2 / DC	★★	25
26. Buzzard Point, 1880 2nd Street, SW; 80-space mixed use parking lot	Few tour bus spaces available during weekdays due to monthly parking privileges of private vehicles; 3-hour fee of \$20 does not allow for in-and-out privileges; \$50 daily fee that allows for in and out privileges is perceived as cost prohibitive; weekend access not regularly offered	Negotiate with MarcParc leadership team to establish weekend tour bus parking with in-and-out privileges during peak season; negotiate with MarcParc leadership team to set aside 10 weekday tour bus parking spaces that require advance registration; educate drivers regarding this optional parking area.	\$ / 3 / Other	★★	26

Recommendation Sites



Sites

Map Number	Location	Current Use
1	Constitution Ave (Eastbound)	Loading/Unloading 3 Spaces
2	Henry Bacon Dr	Loading/Unloading 6 Spaces
3	Daniel French Dr	Loading/Unloading 6 Spaces
4	Constitution Ave	Loading/Unloading 1 Space
5	West Basin Dr	Loading/Unloading 5 Spaces
6	Ohio Dr SW	Mixed use Curbside 50 Tour Bus Spaces
7	Constitution Ave (Eastbound)	Loading/Unloading 5 Spaces
8	Homefront Dr	Loading/Unloading 3 Spaces
9	East Basin Dr	Loading/Unloading 7 Spaces
10	1500 Block Independence	Curbside Parking 8 Spaces
11	100 Raoul Wallenberg Place	Loading/Unloading 2 Spaces
12	15th Street	Loading/Unloading 5 Spaces
13	14th Street	Loading/Unloading Non-Designated
14	600 Block 10th Street	Loading/Unloading 1 Space
15	500 Block 10th Street	Loading/Unloading 2 Spaces
16	1000 Block F Street	Loading/Unloading 1 Space
17	Ohio Dr SW. South of Case Bridge	Non-Designated Tour Bus Parking
18	Hanes Point, East Potomac Park	Parking 11 Tour Bus Spaces
19	Madison Dr NW	Loading/Unloading 3 Spaces
20	Madison & 9th Street	Loading/Unloading 8 Spaces
21	Constitution Ave(National Archives)	Non-Designated Tour Bus Parking
22	Jefferson Dr & 7th Street	Loading/Unloading 9 Spaces
23	Jefferson Dr	Loading/Unloading 9 Spaces
24	900-1200 Block Maine Ave SW	Curbside Parking 4 Spaces
25	700-900 Block Maine Ave SW	6 Curbside Parking Spaces
26	1880 2nd St SW	Mixed Use Parking 80 Spaces

Additional Considerations

Map Letter	Location	Current Use
A	I-66 East	Paved Shoulder
B	Lincoln Circle	Restricted Roadway Access
C	FDR Entry Circle	Restricted Access
D	17th Street Southbound	Travel Lane
E	NRC/NPS Parking Lot	Employee Parking
F	Constitution, Eastbound	Multiuse
G	Constitution, Eastbound	Multiuse
H	Independence Ave SW	Multiuse
I	Pentagon/Crystal City Vicinity	Parking

Recommendation Sites

Washington Monument
to Memorial Bridge



Memorial Bridge

Potomac River

Lincoln Memorial

Vietnam Veterans Memorial

Korean War Memorial

MLK Memorial

Federal Reserve Board

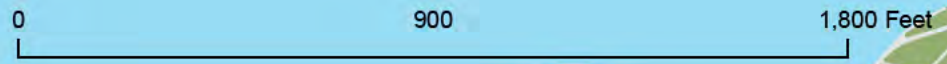
WW II Memorial

Washington Monument

Constitution Gardens Lake

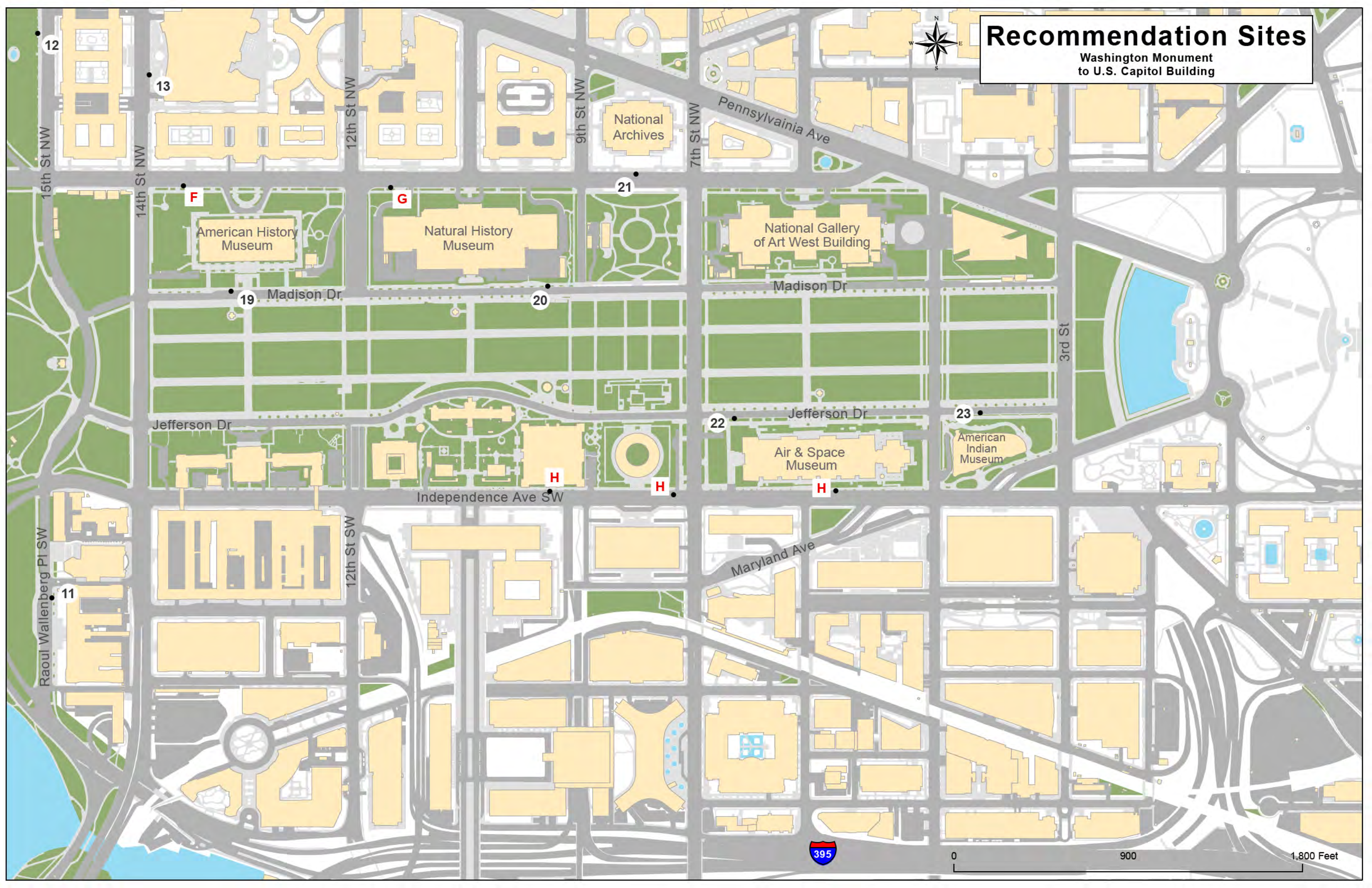
Reflecting Pool

Tidal Basin



Recommendation Sites

Washington Monument
to U.S. Capitol Building



F

G

21

19

20

22

23

11

H

H

H



0 900 1,800 Feet

GLOBAL RECOMMENDATIONS

Beyond the site-specific issues that were documented, there are notable overarching challenges to tour bus operations on and around NAMA. These problems emerged on a global scale based on their repeated identification during multiple phases of the study. Since the onset of data collection some changes have been initiated; for example, metered parking in areas not previously metered and Circulator routes are closer to initiation. Additionally, the District's multi-space parking meter program has replaced aged individual meters and NPS has officially let a contract with Big Bus to provide visitor interpretive transportation once provided by Tourmobile. Some global recommendations are written with recognition of these changed conditions.

Some recommendations can be implemented on a pilot basis or seasonally during peak use times. Others require a year-round commitment. Importantly, as reflected throughout this report, progress will stall unless partnerships are made, accountability is determined and implementation is made a priority. A regional approach is recommended with support from the COG Board of Directors and membership in collaboration with NPS, DDOT, ABA, Destination D.C., select motorcoach companies and other key stakeholders.

Information Delivery

Consistent and accurate information delivery is fundamental to facilitating tour bus operations. Overall data and feedback suggest inconsistency with respect to the breadth and depth of information tour bus drivers receive prior to their arrival in D.C. Beyond differing training protocols that are likely to be implemented by motorcoach companies, there may additionally be cultural differences and language barriers.

In addressing variations in information provision, the production of a manual that is collaboratively designed by NPS, DDOT, ABA, Destination D.C., select motorcoach companies and other key stakeholders is recommended. This guide can then be systematically disseminated to tour bus operators and drivers.

DDOT's Motorcoach Operator's Guide, found at: http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/Motorcoach%20Operators%20Guide%202013_Web_0.pdf, is an excellent starting point as this 2-page document includes mapping features and highlights information specific to many of the issues identified throughout this study, such as parking, loading/unloading and idling. However, language selection and document presentation should be carefully reviewed and revised. While DDOT's document is helpful in identifying what drivers should not do, it may receive more use if designed in a more inviting and welcoming manner. Research findings support that embracing a less punitive and more empowering approach with respect to desired visitation behaviors increases compliance (e.g., Acevedo-Gutierrez, Acevedo, Belonovich and Boren, 2011; Smith, Newsome and Lee, 2014).

The ABA also offers extensive guidance on their Operator Trip Planning website: <http://www.buses.org/Member-Resources/Contact-ABA-Members/Operator-Trip-Planning>. While the information made available on the ABA site is comprehensive, it requires users to navigate multiple levels on the website to reach documents that have been created by myriad organizations. In addition, it is unclear what additional information is available in the Members Only section. Tan, Tung and Xu (2009) found a discrepancy between the way a webpage is designed to be navigated by the web developer and the way users desire to use the site. Therefore, it is suggested that the comprehensive manual be located prominently on the ABA website and reviewed by a cohort of operators and drivers prior to implementation to assess usability. In this way, the document can be designed to allow motorcoach companies to efficiently incorporate the website into their training, thus empowering operators with the tools to help identify relevant information and determine the preferred mechanism for information delivery.

Translation of the final document and associated website into multiple languages will enhance usability for non-native English speaking tour operators and drivers. As with the previous suggestions, the reviewers for this task should include representation from tour bus drivers and operators who represent non-native English speaking tours. As part of the discussion, cultural norms should be discussed and considered with respect to visitor management behavior.

The final document should include sections on the following: arrival (suggested entry areas; highlighted map; helpful hints); itinerary planning (peak dates and hours; helpful hints); parking (rationale for offsite parking; recommended sites; crowdsourcing and other real-time information channels; areas to avoid; policies, jurisdictions and enforcement; estimated financial and time savings associated with recommendations; highlighted map; helpful hints); loading/unloading (zone selection and rationale; policies, jurisdictions and enforcement; highlighted map; helpful hints); additional information (numbers; email addresses; websites; apps; assistance with specialized needs). It is important to remember that while much of this information is currently available, the findings of this study indicate there are inconsistencies in delivery, use and perceived credibility of the content.

Consistent Regulations, Signage and Enforcement

In addition to data illustrating uneven enforcement (see Sections 3 and 4), tour bus operators and drivers expressed universal concerns regarding what is perceived as inconsistent policies pertaining to loading/unloading and parking (see Sections 5 and 6). Confusion results from varying requirements, standards, regulations, fees and signage. In an urban area with multiple jurisdictions and a significant percentage of tour buses arriving from out of the region, it would be beneficial for elements such as parking time allowances to be consistent. For instance, NPS allows 3-hour parking to account for multiple destinations while D.C. parking meters have 1- and 2-hour limits.

Part of this variability appears to be due to a lack of coordination between DDOT and the U.S. Park Police. For instance, on brochures that indicate regulations and fines for idling and other infractions, there is no indication of the enforcement agency and whether fine amounts are consistently applied. Two examples include a document put out by the District Department of the Environment at <http://www.buses.org/files/GovernmentAffairs/OperatorTripPlanning/DC-Engine-Idling-Brochure.pdf> as well as one provided by the D.C. Department of Motor Vehicles at <http://dmv.dc.gov/service/obtain-trip-permit>. Information regarding policies, jurisdictions and enforcement is recommended for inclusion in the comprehensive manual outlined above.

Parking and Route Considerations

While individual areas are highlighted in the site-specific recommendations, the lack of tour bus parking within or close to NAMA has a ripple effect that leads to congestion within the entire system. On the one hand, there are simply not enough spaces to accommodate demand (see Sections 4, 5 and 6), especially at locations close to major attractions and at peak times of the day, week and year. Additional problems are related to inefficient use of existing capacity and management of demand. Approaches to expand parking opportunities for tour buses should accordingly address these issues. In the short term, strategies should focus on expanding capacity at areas currently reserved for tour bus parking, as noted in the site-specific recommendations. In the long term, additional parking and route considerations include (see Figure A):

- A. **I-66 East, highway near the John F. Kennedy Center for the Performing Arts.** Along the wide shoulders, or right of way, within multiple areas of the NW Expressway unauthorized parking occurs regularly. The location should be explored further as an authorized/signed tour bus parking location.
- B. **Lincoln Circle.** This is currently a restricted roadway that should be explored further as an authorized/signed tour bus route.

- C. **Franklin Delano Roosevelt Memorial / Martin Luther King, Jr. Memorial, West Basin Drive.** The FDR Memorial currently has a circular entry road with restricted access that should be explored further as part of an authorized/signed multi-modal solution.
- D. **17th Street southbound by World War II Memorial.** Parking occurs here unofficially currently and should be explored further as an authorized/signed tour bus parking location during high season.
- E. **NPS National Capital Regional Office parking lot off of Ohio Drive SW.** This employee parking lot is also used for car parking on weekends during the National Cherry Blossom Festival with no issues and should be explored further as an authorized/signed, weekend tour bus parking location during high season.
- F. **Constitution Avenue eastbound at 14th Street.** This area currently is a multi-use area for Metro buses, private/commuter buses, vendors and public parking. It should be explored further as an authorized/signed tour bus parking location.
- G. **Constitution Avenue eastbound at 12th Street.** This area currently is a multi-use area for Metro buses, private/commuter buses, vendors and public parking. It should be explored further as an authorized/signed tour bus parking location.
- H. **Independence Ave SW at 4th Street.** This area currently is a multi-use area for Metro buses, private/commuter buses, vendors and public parking. It should be explored further as an authorized/signed tour bus parking location.

During the peak season, it is further recommended that existing metered, public parking along Constitution Avenue, eastbound from 6th to 14th and 17th to 23rd be reallocated as feasible to tour bus metered parking. Changes should align with D.C. policies and standards regarding parking meters and loading/unloading fees.

Crowdsourcing

Crowdsourcing has the potential to improve real time information about conditions, trip planning and parking. Crowdsourcing as first coined by Howe (2006) was introduced to describe a shifting paradigm in how business and professionals solve problems, a shift mainly driven by new web based technologies. Expanding this topological framework, Goodchild (2007) introduced the term Voluntary Geographic Information (VGI) to reference a special case of crowdsourcing in which non-professionals submit user generated content in the on-going collection, production and dissemination of geographic data. The expanding rise of user-generated and contributed geographic information has largely been a consequence of ever expanding web 2.0 technologies, allowing amateur and untrained users to easily submit content via inexpensive mobile data collection devices. Thus VGI, once produced by authoritative mapping agencies, can now be assembled by individuals with localized knowledge and incentives with little or no training. Aligning the knowledge and incentives of these amateurs with city initiatives can provide jurisdictions with a cost effective solution to urban planning design challenges.

Nakatsu, Grossman and Iacovou (2014) offer a four-stage approach to crowdsourcing, including: 1) problem identification; 2) online broadcasting of the problem; 3) task performance by the crowd; and 4) information integration and/or solution identification. They go on to identify and analyze over 100 well-known examples of crowdsourcing, such as *Kickstarter*, *Freecycle* and *AirBnB*, to develop a taxonomy determining the three key components of task structure, task interdependence and task commitment to align crowdsourcing assessment. When considering urban planning, an excellent example of leveraging mobile technologies and VGI as a planning tool to improve the urban experience while simultaneously increasing government communication and efficiency can be seen in *CitySourced* (citysourced.com). *CitySourced* offers a real time mobile platform for citizens to identify localized civic issues using a GPS enabled device (smartphone) or desktop environment and submit issues on a map in real time. These issues are then sent to local government for review and resolution. Similarly, *OpenPlans* (OpenPlans.org)

offers a platform for crowdsourcing public input for urban planning issues such as bikeway and walkway infrastructure opportunities. While these examples are not exhaustive of the scope of work being accomplished through the VGI community they do show how new technologies are shifting the paradigm from a top-down problem solving approach to a bottom-up approach in which citizens are actively engaged.

For many tour bus operators, finding relevant real time trip planning information is a barrier to efficient daily operations. For example, the limited availability of both long- and short-term parking spaces in and around NAMA consistently results in drivers choosing to cruise empty while waiting for passengers to return. As documented in the daily bus operations section of this report, cruising results in increased emissions and congestion, with some buses documented travelling empty for over 20 miles per trip. This problem can be improved if tour bus drivers have access to real time information to make informed decisions. In addition to parking availability, crowdsourcing may be used to provide drivers with other real time information like road closures, special events, best routing practices and other relevant localized information. A crowdsourcing platform specifically designed to meet the localized needs of tour bus drivers could contribute to an overall outreach plan of information delivery while specifically addressing the limited availability of tour bus designated parking spaces in proximity to resources available within NAMA.

Cultural Needs

NAMA is a popular destination for foreign visitors. Yet, most foreign visitor groups who travel to D.C. on tour buses run on a very tight schedule (see Section 5). NAMA is typically one stop of multiple destinations in their tour bus itinerary and the duration at NAMA is relatively short (i.e., half-day or single day trip) compared to that of foreign visitors who arrive by other means. Since tour buses with foreign visitors tend to stay for short periods of time in NAMA, their trip itinerary tends to be selective, thus limiting the visitors' on-site experiences. Ultimately, foreign visitors arriving by tour bus wish to learn about U.S. government and history in brief. NPS should consider producing an orientation program (e.g., audio program in multiple languages) that can be made available to tour operators who cater to foreign visitors.

Additionally, many foreign visitors who rely on tour buses experience cultural and language constraints; therefore, they are almost entirely dependent on their tour guides. The qualification of the tour guides who lead foreign visitors is crucially important in determining visitor education during tour experiences in NAMA. It is recommended that NPS provide interpretive brochures and materials in multiple languages so that foreign visitors can get accurate and valid knowledge and information about the U.S. history, monuments and memorials to accompany information presented by tour guides.

Specialized Needs

Addressing specialized needs for individuals with disabilities ranging from mobility to cognitive challenges was repeatedly identified as critical to tour bus itinerary planning and implementation. Evidence of structural constraints (e.g. loading/unloading in areas without curb cuts), in many cases aligns with driver behavior and can be improved through adherence to vehicle rules and regulations regarding loading/unloading locations. Additionally, extreme weather conditions were found to be constraining to groups with specialized needs, particularly when a target destination was some distance from available tour vehicle loading/unloading zones.

Honor Flight tours offer an example of the importance of planning for bus groups that include a significant number of individuals with specialized needs (see Section 5). These tour bus groups are comprised of veterans who are brought to D.C. to visit war-related and service branch memorials. Because many of the memorials honor them and their fallen comrades-in-arms, it is appropriate that the National Park Police and other enforcement agencies adjust certain policies regarding unloading/loading, parking time limits and idling times in order to ensure accessibility and provide a positive and supportive visitor experience. These modified policies can be applied to any tour group that includes a significant number of individuals with mobility issues. Information regarding client delivery strategies for tour bus visitors with specialized needs can also be made available within the tour bus information delivery manual.

School Groups

NAMA and other sites in D.C. provide school-age children with a unique and highly valued opportunity to observe the monuments to democracy and learn about the history of the United States. Tour bus companies are consistently chartered to transport the school groups to D.C., with a spring peak season. Although over 60% of visitors counted during the loading/unloading phases of this study were pre-teens and teens (see Section 3), school groups enjoy no special privileges and face the same issues (e.g., parking difficulties, traffic congestion, lack of information, limited accessibility to sites, compromised safety and minimal guest service facilities) as other operators.

School groups are large (often filling a convoy of buses), cannot be easily fragmented, and require extraordinary supervision. They tend to do things as a group and thereby tax the resources of the sites they visit. It is recommended that, in particular, bathroom facilities and water-filling stations be redesigned and expanded to accommodate large school group use.

School groups try to see and do as much as they can while in the area and thus tend to have daily itineraries of 12 hours or more (see Section 5). It is recommended that lighting be improved throughout NAMA and at some other commonly visited sites to accommodate extended itineraries that include safe evening and night activities and provide clear and sufficiently lighted routes to nearby bus loading/unloading areas.

School groups were generally enthusiastic about the recreational and educational benefits derived from their tours of NAMA, but also felt that the benefits could be increased (see section 6). It is recommended that NPS develop preparatory and on-site recreational opportunities for school groups that are fun, purposeful and educational. Activities and diversions such as themed fact-finding scavenger hunts, geocaching, historical clues as part of a directional sign system, cooling stations at waiting areas and talks given by NPS Rangers/Interpreters who are trained to work with students can do much to educate and make the tasks of walking, waiting and listening more enjoyable and memorable.

Health Benefits

A day spent in and around NAMA can result in a significant amount of physical exercise, with participants documented walking over nine miles during full-day tours (see Section 5). Stress reduction, peacefulness and a sense of gratitude are additional health benefits that were documented (see Section 6). Operators and clients noted that health benefits could be increased by reducing client risk when accessing tour buses, reducing fumes by minimizing idling and circulation, considering additional offsite areas for tour bus parking, increasing the use of onsite transportation opportunities, improving the food quality, increasing the number of water filling stations, providing additional shaded areas with benches to prevent overheating and improving pathways to address mobility needs and encourage walking. Walking tours and careful itinerary planning that decreases clients' reliance on tour buses to move between sites of interest should be widely promoted.

Protection of Sensitive Natural, Cultural, and Historical Resources

In order to protect the NAMA viewshed, it is important to select loading and parking locations that reduce the "wall" of stacked tour buses in and around NAMA. Planned loading/unloading and parking spaces should not intrude upon prominent designed vistas that are an important part of the visitor experience in D.C. As noted in the global recommendations regarding parking, D.C. and NPS are simultaneously moving to multi-space metered parking and should work together to ensure that buses do not obstruct vistas or viewsheds.

The study findings confirm that the shortage or inconvenience of tour bus parking and unloading/loading locations lead drivers to cruise with empty tour buses, creating concentrated traffic congestion, increased vehicle-miles-traveled (VMT) and associated emission of fumes. An additional concern pertains to the

finding that tour buses often allow engine idling longer than is legally permitted (see Section 3). The site-specific recommendations include suggestions for easing congestion and reducing stacking at intersections and along roadways, including removing obstructions to general traffic flow. For instance, a pilot project has been recommended to open the north bound restricted access lane to buses at Lincoln Circle. Additional bottlenecks, backup areas and obstructions to movement are identified throughout the report, with modifications identified for pilot study in the site-specific recommendations.

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1. INTRODUCTION AND BACKGROUND

The National Park Service (NPS) / National Mall and Memorial Parks (NAMA) management team completed a plan entitled the *National Mall Plan / Environmental Impact Statement (2010)* to provide a long-term management framework for the future of NAMA. 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 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, D.C. from key stakeholders. The study was conducted to confirm perceptions of current tour bus operations, in general, and specifically to determine the constraints to making improvements to current tour bus operations in and around NAMA.

The GMU research team worked collaboratively with NPS 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 D.C., 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 NAMA visitor sites are inadequate for current demand while enforcement personnel indicated concerns regarding drivers' perceived lack of knowledge of and/or unwillingness to use available sites.

The purpose of the current project was to quantitatively and qualitatively document existing conditions related to tour bus operations and set forth a plan of action for short-term and long-term improvements in operational efficiency. A series of studies was completed between March 2012 and June 2014 that pertained to operational efficiency, congestion, visitor mobility, access, safety, education, recreation, health benefits and protection of sensitive natural, cultural and historical resources. The data collection occurred in seven phases, as indicated in Table A. In this final report, the research team integrated the findings of the seven phases, as applicable, and provided site-specific as well as global recommendations (Table B and Table C).

The findings of the studies are ordered as follows in the report: gateway points (Section 2), loading/unloading zones (Section 3), parking areas (Section 4), daily bus operations (Section 5) and

operator/client self-reports (Section 6). The appendices include the associated data collection instruments and select data. In all studies, the use of “n” indicates that associated sample size.

Acronyms that will be used throughout the report include those for Washington, D.C. (D.C.), the National Mall and Memorial Parks (NAMA), National Park Service (NPS), George Mason University (GMU), District of Columbia Department of Transportation (DDOT), Metropolitan Washington Council of Governments (COG) and American Bus Association (ABA).

2. GATEWAY POINTS

2.1 STUDY OVERVIEW: GATEWAY POINTS

This section of the final report is linked to Phase II of data collection, which was specific to off-bus data collection at gateway points. The data were collected and summarized by the Metropolitan Washington Council of Governments (COG). The following summary provides a spatial context of the data provided by COG, as evidenced through mapping and interpretation.

2.2 SUMMARY OF FINDINGS: GATEWAY POINTS

To help understand the relationships present within the dataset, four tables and corresponding maps were used to illustrate the data. The first map (see Figure 2.1) provides an overview of the locations of the 13 entry points. These locations are distributed throughout D.C., to reflect the most heavily traveled points of entry into D.C. and, more specifically, to NAMA. As the map reflects, not all entry points to D.C. were observed; however, general trends can be derived from the sample locations.

The second map (see Figure 2.2) indicates the average number of buses passing each observation location for all collection dates. It can be seen that I-295 southbound was the most heavily traveled route for buses entering D.C. While some of the southbound I-295 buses are presumably entering along US 50 (New York Avenue) a majority seemed to prefer entering from points farther south (i.e., I-695 /11th street Bridge, Pennsylvania Ave, East Capitol Street, etc.).

The third map (see Figure 2.3) displays the number of observation days and the composition of buses that were classified at each location. While the number of total buses entering the city along I-295 was the highest, more buses classified as motorcoaches were found to be entering using points west of D.C. The Theodore Roosevelt Bridge was the most popular entry point for motorcoaches, while I-295 southbound was the most popular entry location for D.C. yellow school buses.

The final map (see Figure 2.4) showcases the peak volume trends of the data observed at each location. Peak bus times were found to be an indicator of different bus types utilizing a route. For instance, peak bus times at entry points composed mainly of transit, commuter and school buses were found to be earlier than peak times for entry points used primarily by motorcoaches. Together, these illustrations indicate trends at each of the entry points, summarized in more detail as follows.

- 1. Key Bridge NW:** Located west of NAMA, this entry point resides within the lower 50th percentile of all data locations showing an average of 125 total buses per collection date. The majority of buses entering the city through this location were classified as transit or motorcoaches. This location is consistent with other similar sites located west of D.C.
- 2. Theodore Roosevelt Bridge NW:** Located west of NAMA, this entry point ranks as showing the second highest number of total buses per collection date. While not showing the largest number of total buses per collection date (258) as opposed to 458 for site 9, this entry point had the highest number of motorcoaches, on average. These results reflect the high number of buses classified as motorcoaches observed at this location, which on average were a full 63 percent of the total composition.
- 3. Arlington Memorial Bridge:** Located southwest of NAMA, this entry point ranks as a median site for average number of buses at 150 per collection date. While not the highest in number of buses, this site has the highest proportion of buses classified as motorcoaches, with 79 percent of buses passing this location classified as such.
- 4. 14th Street Bridge Express Lanes:** As an entry points for multiple highways this collection site ranks as the third highest at an average 245. A majority of buses passing this location (56 percent) were

classified as motorcoaches with 27 percent classified as commuter buses. The peak volume trends are indicating a peak volume earlier than other similar sites, indicating that the high total number of buses observed at this location is reflective of the large number of federal workers commuting into D.C. from points west.

5. 14th Street Bridge Local Lanes: As an entry point for multiple highways this collection site ranks as the fifth highest at an average of 174. A majority of buses passing this location (65 percent) were classified as motorcoaches with less than 5 percent classified as commuter buses. Local inbound lanes are being utilized by motorcoaches headed to tourist locations rather than express lanes which bypass popular tourist destinations.

6. Anacostia Freeway and Laboratory Road: As an entry point for locations south of D.C. this location is in the bottom 50th percentile of entry point locations at 100 buses per collection date. There is large variability within the composition of the buses which is prohibitive to discerning any single trend but is consistent with entry points south of D.C.

7. Suitland Parkway SE and Alabama Ave SE: As an entry point for locations south of D.C., this location resides in the bottom 25th percentile of entry point locations with an average of 51 buses per collection date. More specifically this site ranks as the second lowest in average total bus count. There is large variability within the composition of the buses which is prohibitive to discerning any single trend but is consistent with other entry points located south of D.C.

8. Pennsylvania Avenue SE and Southern Avenue: As an entry point for locations south of D.C. this location also resides in the bottom 25 percentile of entry point locations at 11 buses per collection date, which is the lowest average total bus count of all observed sites. There is large variability within the composition of the buses which is prohibitive to discerning any single trend but is consistent with other entry points located south of D.C.

9. Kenilworth Avenue (I-295) and Eastern Avenue: Located as an entry point for locations north and east of D.C. this site was observed to have the highest average total number of buses at 458. This was almost a full two times the amount observed at the next highest entry point location. The composition of buses at this site changes considerably from entry points located west. The majority or highest proportions of buses observed were classified as D.C. yellow school buses (30 percent). The temporal trends also indicate earlier peak times at this entry point, which can be reflective of commuters and school buses and less reflective of tourists.

10. New York Avenue NE and South Dakota Avenue NE: Located as an entry point for locations North and East of D.C. this site was observed to have the fourth highest average total number of buses at 229. The composition of buses was consistent with other entry points servicing locations north of D.C. with 31 percent classified as D.C. yellow school buses

11. New York Avenue NE and Montana Avenue NE: This location is in the 25th percentile and ranks as the third lowest for average number of buses at 55. The precipitous drop in average number of buses between entry point 11 and entry point 10 or from an average of 229 buses per date to 55 could be indicative of buses not utilizing US 50 (New York Avenue) as the primary route. On average the largest composition of buses at this entry point are motorcoaches (43 percent). While these relationships are observed it must be noted that the geographic location of this site could cause double counting of buses from previous locations.

12. H Street NE and Florida Avenue NE: This entry point has a high number of average total buses per collection date (167) which ranks in the top 50th percentile. Yet this number may be skewed by the large composition of buses classified as transit. While these relationships are observed it must be noted that the geographic location of this site could cause double counting of buses from previous locations.

13. Maryland Avenue NE and 14th Street NE: This entry point ranks in the 25th percentile of average number of buses per collection day with 67. The compositions of buses at this location are

classified as 50 percent motorcoaches and 42 percent transit. While these relationships are observed it must be noted that the geographic location of this site could cause double counting of buses from previous locations.

2.3 STUDY METHODS: GATEWAY POINTS

COG researchers completed counts of buses heading inbound to D.C. at 13 select locations. The dates selected (March 5, 2012; March 12, 2012; April 3, 2012; April 4, 2012; and April 5, 2012) coincided with the pre-peak, peak and post-peak periods of the cherry blossom blooms associated with the 2012 National Cherry Blossom Festival. On each date, bus counts were made between the hours of 6:00 a.m. and 12:00 noon. A total of 5,256 buses were documented during the data collection period.

2.4 RESULTS: GATEWAY POINTS

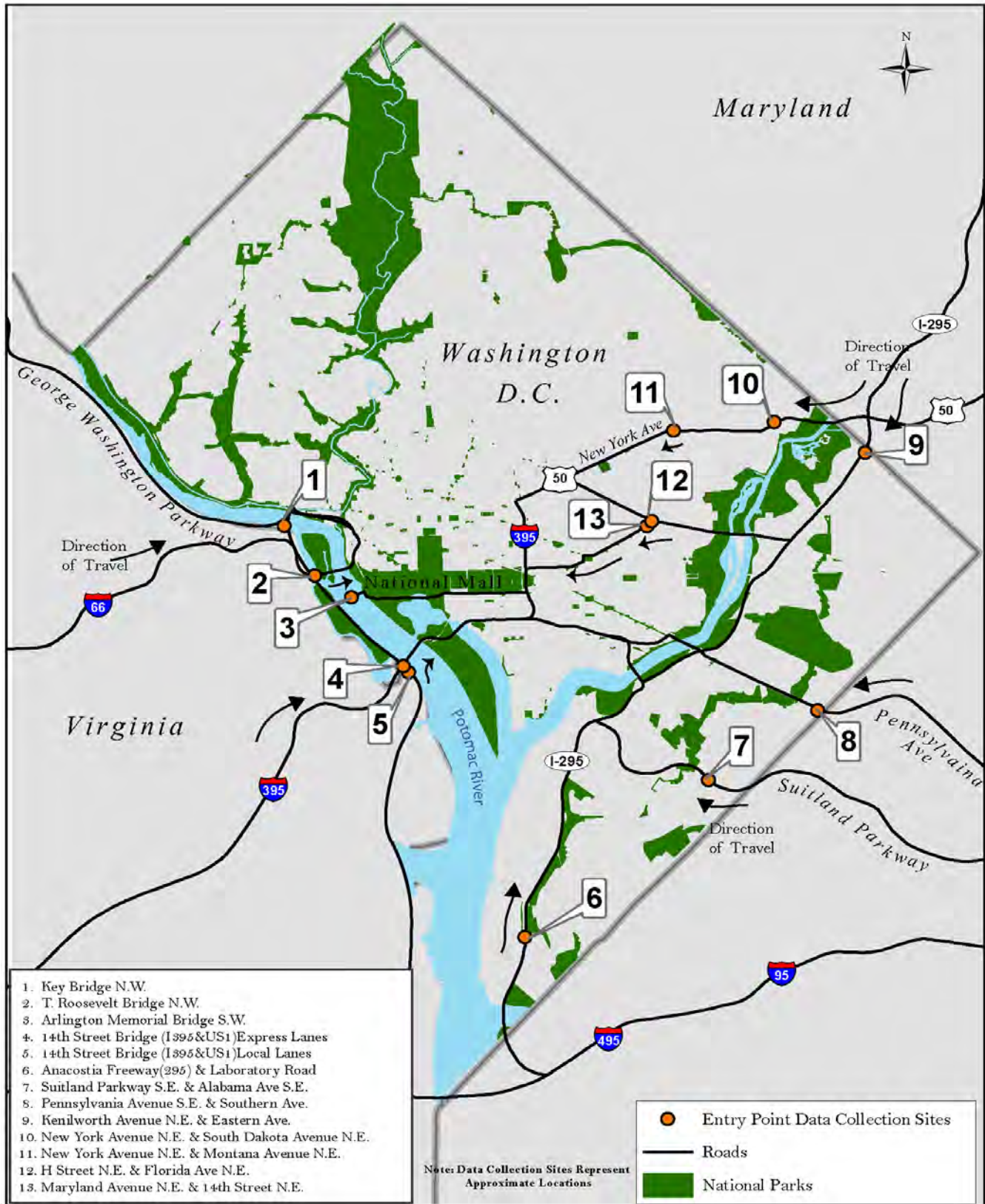
2.4.1 Geographic Distribution of Entry Points

Table 2.1 and the first map in the series (Figure 2.1) indicate the basic geographic distribution of all entry point data collection sites. The map is provided to give the reader a spatial context of the data collection site locations. There were 13 separate entry point locations where buses were observed and recorded while heading inbound toward D.C. The locations of entry points can be read directly from the map and corresponding description of approximate intersection found in the table. Locations are represented as orange circles and arrows indicating direction of travel on the map. Only roads that are relevant to the location of the entry points are represented, many adjacent roads have been removed for clarity.

TABLE 2.1: ENTRY POINT LOCATIONS

Site Number	Entry Point Location
1	Key Bridge NW
2	Theodore Roosevelt Bridge NW
3	Arlington Memorial Bridge SW
4	14th Street Bridge (I-395 and US 1) Express Lanes
5	14th Street Bridge (I-395 and US 1) Local Lanes
6	Anacostia Freeway (I-295) and Laboratory Road
7	Suitland Parkway SE and Alabama Avenue SE
8	Pennsylvania Avenue SE and Southern Avenue
9	Kenilworth Avenue NE and Eastern Avenue
10	New York Avenue NE and South Dakota Avenue NE
11	New York Avenue NE and Montana Avenue NE
12	H Street NE and Florida Avenue NE
13	Maryland Avenue NE and 14th Street NE

FIGURE 2.1: GEOGRAPHIC DISTRIBUTION OF ENTRY POINTS



2.4.2 Average Number of Buses at Entry Points

Table 2.2 and Figure 2.2 indicate the average number of buses at each location aggregated for all collection dates. A spatial pattern of the bus count data is evidenced, with the largest average number of buses observed along I-295 approximately located at the intersection of Kenilworth Avenue NE and Eastern Avenue (shown as location 9). This entry point has an average count of 458 buses per day. The large number of buses recorded at this location is the result of high volumes of buses converging from the north on I-295 and from the east on US 50 and the large numbers of D.C. Yellow school buses that were recorded passing this location. Numbers recorded at locations 9 and 10 are also evidence of more buses utilizing I-295 southbound than westbound along New York Avenue regardless of which direction they originate.

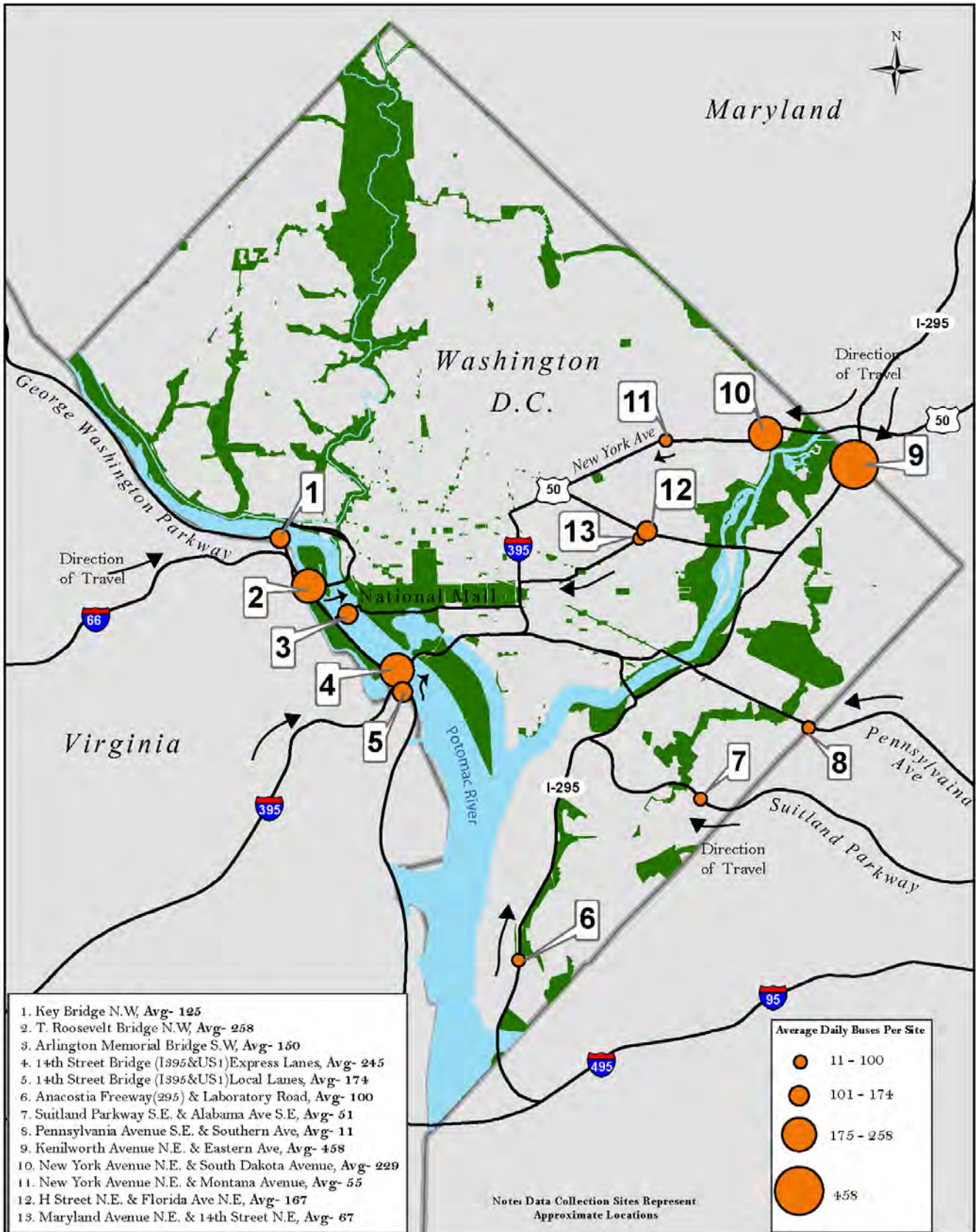
Entry point sites servicing locations south of D.C. are reflecting the lowest number of buses per collection date and the lowest averages overall. The data points show a sharp decrease in the number of buses entering from the south-southeast along Pennsylvania Avenue, Suitland Parkway and Anacostia Freeway (I-295). This can be observed from either the map or table in the small averages at locations 6, 7 and 8. The smallest average was observed at intersection of Pennsylvania Avenue and Southern Avenue with an average of 11 buses per day (location 8). While the entry point locations in the south are not showing a significant number of buses per day, this may not reflect the number of buses entering the city from the south, particularly across the 11th Street Bridge and along South or East Capitol Street. While the numbers are reflective of decreased entry from points south, the distributions of entry point locations are insufficient to determine the actual entry points of buses traveling I-295 southbound or northbound from all points south.

The volume of buses coming from the west is the highest for buses traveling northbound along I-395 and eastbound on route 66 with the 14th Street Bridge express lanes (location 4) and Theodore Roosevelt Bridge (location 2) showing the largest averages in the west at 245 and 258 respectively. For clarification, the table indicates the site number and description with average bus counts arranged from highest to lowest values.

TABLE 2.2: AVERAGE NUMBER OF BUSES AT ENTRY POINTS, HIGHEST TO LOWEST

Site Number	Entry Point Location	Average Number of Daily Buses
9	Kenilworth Avenue NE and Eastern Avenue	458
2	Theodore Roosevelt Bridge NW	258
4	14th Street Bridge (I-395 and US 1) Express Lanes	245
10	New York Avenue NE and South Dakota Avenue NE	229
5	14th Street Bridge (I-395 and US 1) Local Lanes	174
12	H Street NE and Florida Avenue NE	167
3	Arlington Memorial Bridge SW	150
1	Key Bridge NW	125
6	Anacostia Freeway (I-295) and Laboratory Road	100
13	Maryland Avenue NE and 14th Street NE	67
11	New York Avenue NE and Montana Avenue NE	55
7	Suitland Parkway SE and Alabama Avenue SE	51
8	Pennsylvania Avenue SE and Southern Avenue	11

FIGURE 2.2: AVERAGE NUMBER OF BUSES AT ENTRY POINTS



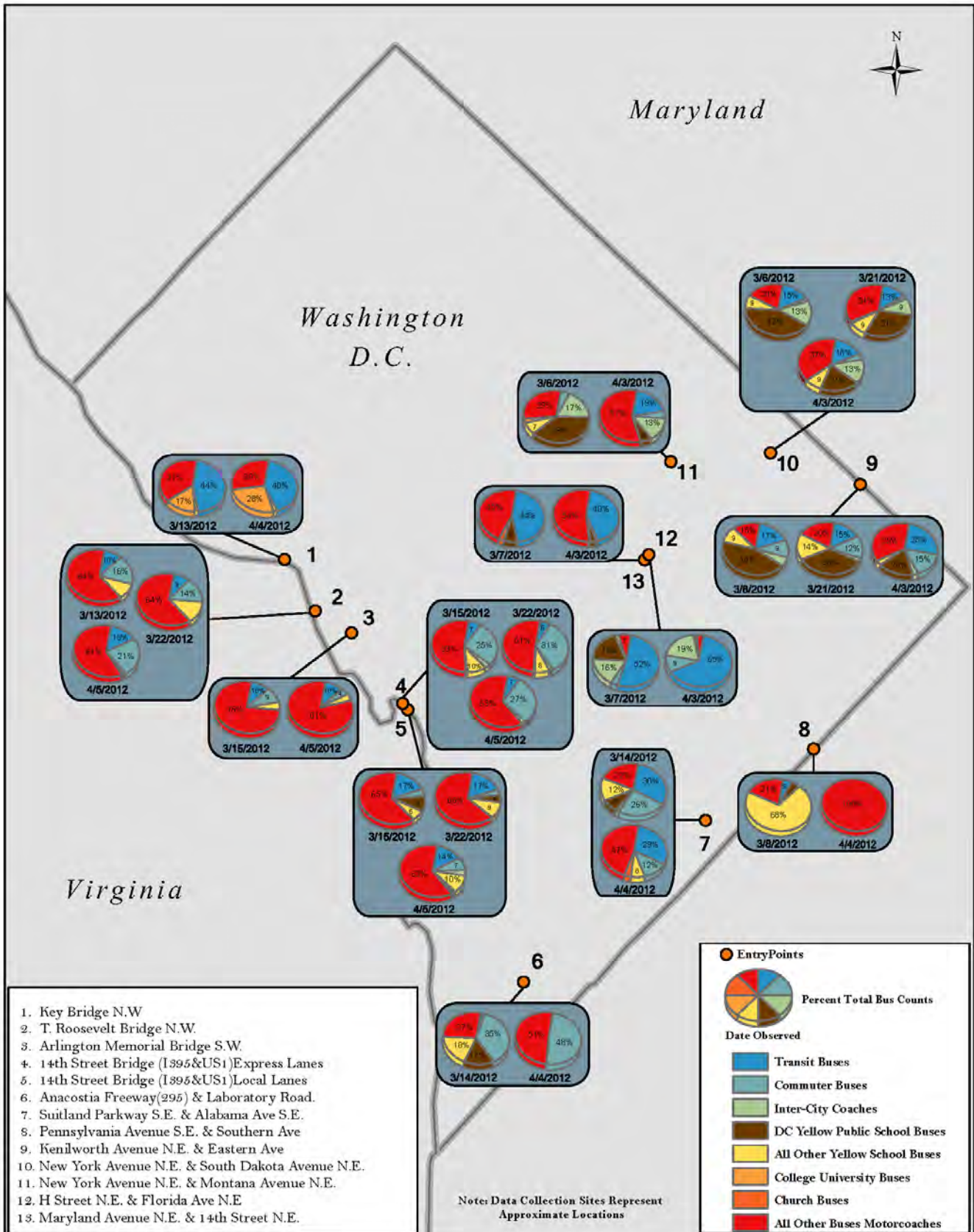
2.4.3 Composition of Buses at Entry Points

Table 2.3 and Figure 2.3 display the observation days and the composition of buses that were classified at each location. A trend within the data is the variability of composition between collection sites. For example, consider entry point locations from the west (locations 1, 2, 3, 4, 5 and 13). These points show relative consistency from day to day observations. However, entry points generally concentrated in the east and south (locations 6, 7, 8, 9, 10, 11 and 12) are showing more variability in the composition of buses from day to day. While more total buses are entering the city from points north, more tour groups are entering the city via motorcoaches from points located west of D.C. This conclusion can be evidenced by considering entry point number 2 (Theodore Roosevelt Bridge) which has an average proportion of 63 percent classified as motorcoaches. Using this proportion and multiplying it by average buses per site it can be shown that on average 162 motorcoaches passed through this location as opposed to 69 at location 9 which saw a much higher total bus count. This result is most likely reflective of the large numbers of tour groups who chose to stay in Virginia during their visit and the subsequent motorcoach tours they utilize. Additionally, it can be seen that the buses categorized as “All Other Buses and Motorcoaches” were the most prevalent type of bus to pass through all locations. In fact, out of 31 collection instances (measured as each day a count was taken per location) a full 22 instances or approximately 71 percent had “All Other Buses and Motorcoaches” as the largest category. Some general trends can also be seen in the daily bus composition at each entry point. For instance, notice how there seems to be a general increasing trend in the percentage of “All Other Buses and Motor Coaches” from early March collection days to April, in line with increasing tourist activity. Table 2.3 shows the average counts of buses observed at each site categorized by type while the map in Figure 2.3 depicts the average number of bus type as a percentage of all buses observed for each collection day.

TABLE 2.3: COMPOSITION OF BUSES AT ENTRY POINTS

Site Number	Entry Point Location	Average Number of Observed Bus Types per Collection Site							
		Transit	Commuter	Inner-City Coaches	D.C. Yellow School	All Other Yellow School Buses	College University	Church Buses	All Other Buses/ Motorcoaches
1	Key Bridge NW	53	1	0	0	2	28	0	42
2	Theodore Roosevelt Bridge NW	28	44	1	1	21	1	0	162
3	Arlington Memorial Bridge SW	17	18	19	21	23	25	29	32
4	14th Street Bridge (I-395 and US 1) Express Lanes	16	68	4	1	15	0	2	138
5	14th Street Bridge (I-395 and US 1) Local Lanes	28	7	2	7	15	1	1	113
6	Anacostia Freeway (I-295) and Laboratory Road	1	40	1	10	11	0	0	37
7	Suitland Parkway SE and Alabama Avenue SE	15	10	1	2	5	0	1	18
8	Pennsylvania Avenue SE and Southern Avenue	1	0	0	1	7	0	0	3
9	Kenilworth Avenue NE and Eastern Avenue	56	37	9	105	28	0	1	69
10	New York Avenue NE and South Dakota Avenue NE	33	5	26	72	20	2	1	70
11	New York Avenue NE and Montana Avenue NE	7	3	8	10	2	1	0	26
12	H Street NE and Florida Avenue NE	97	11	30	18	3	1	0	10
13	Maryland Avenue NE and 14th Street NE	28	0.5	0	3.5	0	0	1.5	33.5

FIGURE 2.3: COMPOSITION OF BUSES AT ENTRY POINTS



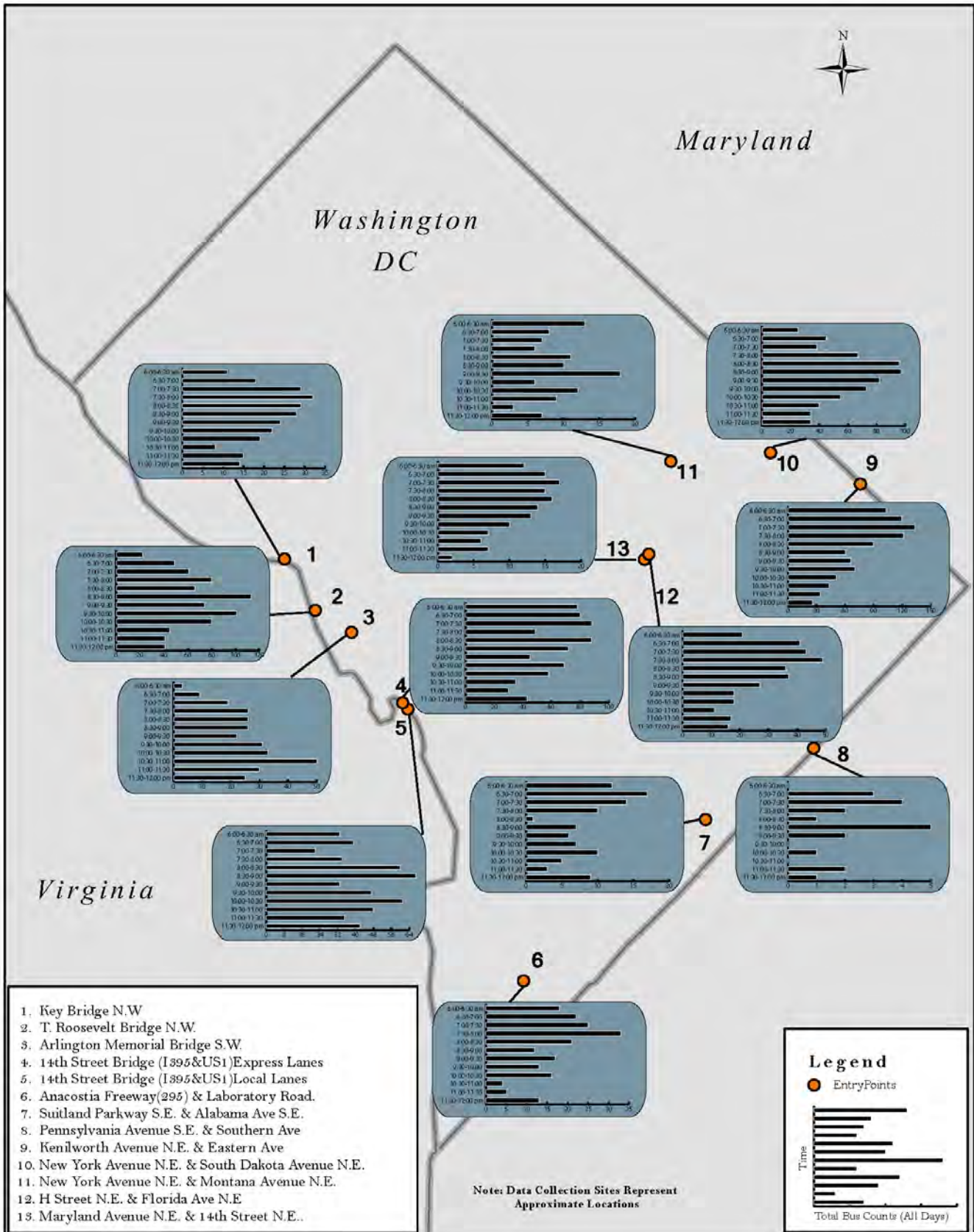
2.4.4 Peak Volume by Time

Table 2.4 and Figure 2.4 further break down the data to examine the volume by time trends at each location. The dataset was aggregated to include all collection days for each site and the table indicates the numbers of buses passing each location per half hour interval. A total bus count for each half hour interval was graphed (Figure 2.4) to further highlight spatial trends in the volume of buses passing each location per unit time. The collection period was between 6:00 a.m. and 12:00 noon on all collection days. Trends within the data indicate that certain locations are showing earlier peak bus volumes (i.e., locations 6, 7, 9, 12 and 13) while others are showing later peak volumes (i.e., locations 2, 3, 5 and 10). Comparing this trend with bus composition data, it can be concluded that peak bus times vary with the composition type. To clarify, entry point locations primarily comprised of transit, commuter, and school buses have peak volumes that occur earlier than those with a significant motorcoach composition.

TABLE 2.4: PEAK VOLUME BY TIME

Site Number	Entry Point Location	Average Volume by Time											
		6:00-6:30 a.m.	6:30-7:00	7:00-7:30	7:30-8:00	8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00 p.m.
1	Key Bridge NW	11	18	29	32	29	28	24	22	19	8	15	14
2	Theodore Roosevelt Bridge NW	22	49	61	80	66	113	74	101	80	45	41	41
3	Arlington Memorial Bridge SW	3	9	19	26	26	26	22	31	33	50	30	25
4	14th Street Bridge (I-395 and US 1) Express Lanes	78	80	88	49	88	72	45	69	58	35	30	43
5	14th Street Bridge (I-395 and US 1) Local Lanes	33	39	22	34	60	67	33	47	61	48	35	42
6	Anacostia Freeway (I-295) and Laboratory Road	18	22	25	33	21	12	17	13	16	4	5	13
7	Suitland Parkway SE and Alabama Avenue SE	12	17	14	10	1	7	6	7	10	5	3	9
8	Pennsylvania Avenue SE and Southern Avenue	0	3	4	2	1	5	2	0	1	0	2	1
9	Kenilworth Avenue NE and Eastern Avenue	103	119	133	121	90	60	66	70	51	43	34	26
10	New York Avenue NE and South Dakota Avenue NE	25	45	38	67	96	97	82	73	55	40	34	34
11	New York Avenue NE and Montana Avenue NE	13	8	7	6	11	10	18	6	12	9	3	7
12	H Street NE and Florida Avenue NE	21	41	43	49	36	37	27	18	18	11	17	16
13	Maryland Avenue NE and 14th Street NE	12	15	17	15	16	14	13	10	7	6	7	2

FIGURE 2.4: TEMPORAL TRENDS AT ENTRY POINTS



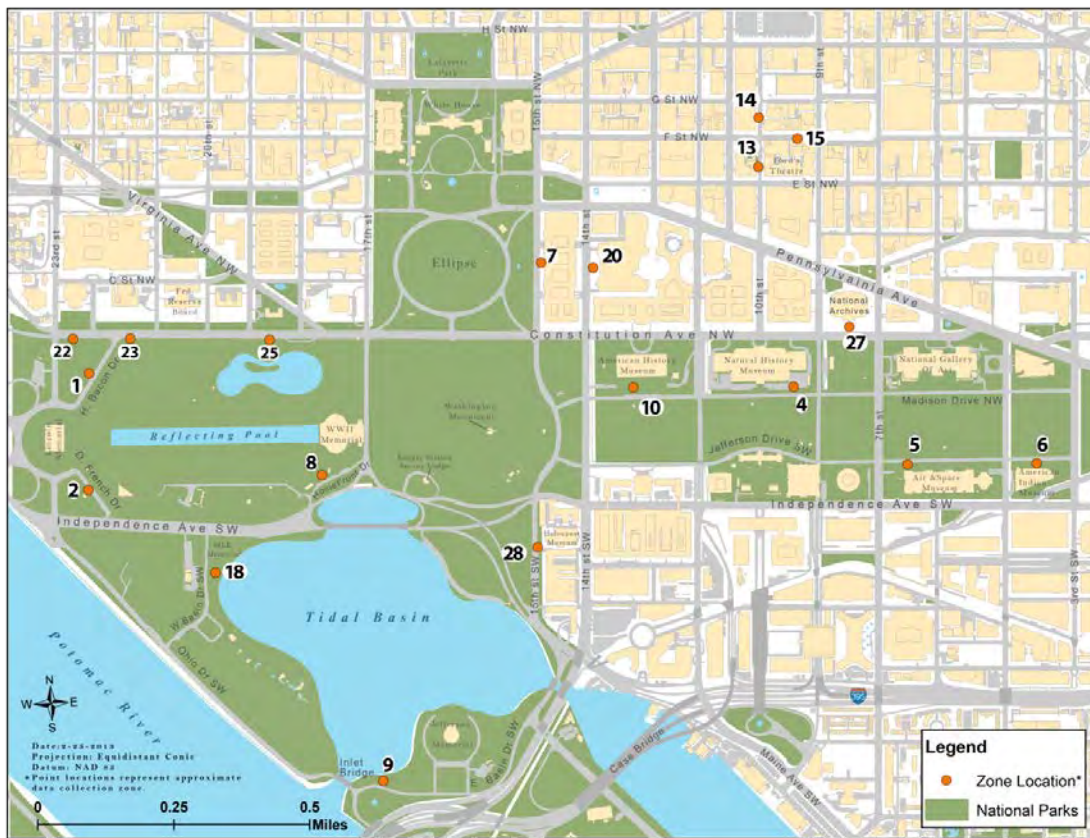
3. LOADING AND UNLOADING ZONES

3.1 STUDY OVERVIEW: LOADING AND UNLOADING ZONES

This section of the final report is linked to Phase I and Phase III of data collection, which were specific to off-bus data collection and photographic documentation at loading and unloading zones. Eight days of observational data were collected using a standardized instrument to systematically determine usage and associated operator and visitor behaviors at loading and unloading zones. Photographic documentation supplemented and validated observational findings. Twenty-eight zones were identified by NPS for possible inclusion in the phases of research identified above. Of these, 19 were selected for inclusion in the current study and a total of 1,457 buses were documented that had usable data, representing an estimated 37,265 passengers. The zones that were not selected for assessment maintained their original numbers, so there are gaps in the numbering sequence.

Figure 3.1 indicates the locations of the zones specific to this study. The findings and recommendations that follow are summarized by zone.

FIGURE 3.1: ZONES INCLUDED IN OFF-BUS DATA COLLECTION



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St.)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.2 SUMMARY OF FINDINGS: LOADING AND UNLOADING ZONES

3.2.1 Zone 1 (Lincoln Memorial, North): 6 Spaces for Loading/Unloading

Zone 1 (Lincoln Memorial, North on Henry Bacon Dr.) was found to be underutilized. Few buses were documented and those that did use the zone tended to park for extended periods of time, illustrated by the fact that 87.5% of the buses stopped in the zone beyond the time that would be needed to load/unload. Idling was also a problem in this zone, with 60.1% of buses left idling beyond the D.C. regulation of 3 minutes. Private vehicles also frequently came into the tour bus spaces to unload passengers. While eastbound traffic may have difficulty entering this zone due to the sharpness of the turn, westbound entry is easier. Lack of knowledge of this site was indicated as one potential cause for underuse. While restrictions do apply to this zone, they only apply during the evening rush hour period (4:00 p.m. – 6:30 p.m., Monday through Friday). Additional standardized signage is recommended to route buses to Zone 2 as a drop-off area and Zone 1 as a pick-up area. Routing for all buses fully around Lincoln Circle, going clockwise, should be considered. New routing patterns can also be communicated to operators through goDCgo, the ABA Newsletter and Destination D.C.

3.2.2 Zone 2 (Lincoln Memorial, South): 6 Spaces for Loading/Unloading

Zone 2 (Lincoln Memorial, South on Daniel French Dr.) is bustling in comparison to Zone 1, with a constant stream of tour buses evidenced during the exact same times when Zone 1 was empty. Due to the high volume of buses, many infractions were observed, such as double parking, unloading in nondesignated areas, pulling into traffic in dangerous ways and blocking pedestrian traffic. These problems were exacerbated by the fact that 38.1% of the buses stopped in the zone beyond the time that would be needed to load/unload, leading 22.1% of the drivers to use nondesignated areas to load/unload. Visitors were often noted jaywalking from the zone to get to a desired site. There was a consistent police presence witnessed in this zone, primarily moving buses along rather than issuing citations. No auto traffic is permitted in this zone except for visitors with disabilities. Further, a Capital Bikeshare station has been recently added to this zone. To increase the utility of Zone 1 and remove some congestion from Zone 2, additional standardized signage is recommended to route buses to Zone 2 as a drop-off area and Zone 1 as a pick-up area. New routing patterns can also be communicated to operators through goDCgo, the ABA Newsletter and Destination D.C. With an estimated 6.1 million visitors in 2012 (see <https://irma.nps.gov/Stats/>) a combination of 12 spaces can be sufficient if the 6 in Zone 1 are used more effectively. Alternatively, additional loading/unloading spaces are needed for Zone 2.

3.2.3 Zone 4 (National Museum of Natural History): 8 Spaces for Loading/Unloading

Zone 4 (National Museum of Natural History, Madison Dr. at 9th St.) has a relatively high proportion of buses that are parking while empty for long periods of time, with 53.6% of the buses stopped in the zone beyond the time that would be needed to load/unload. The failure to “move on” after unloading caused 38.1% of the drivers to use nondesignated areas to load/unload and resulted in congestion in the loading/unloading areas of this popular museum that had 8 million visitors in 2013 (see <http://newsdesk.si.edu/about/stats>). Also problematic in this zone is the high likelihood of private vehicles to pull into the zone for drop-off and pick-up. Additional signage for tour buses that addresses hours, activity designation, time restrictions, alternative loading areas and parking options is warranted in this zone. It is recommended that U.S. Park Police increase their presence in this zone and/or give DDOT the ability to enforce. Enforcement is not necessarily ticketing, as an informational brochure regarding alternative parking areas can be distributed onsite.

			Key for Loading / Unloading Zones		
1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

3.2.4 Zone 5 (National Air and Space Museum): 9 Spaces for Loading/Unloading

Zone 5 (National Air and Space Museum, Jefferson Dr. at 7th St.) struggles with congestion due to the popularity of the site, which had an estimated 7 million visitors in 2013 (see <http://newsdesk.si.edu/about/stats>). Operational infractions such as blocking pedestrian traffic and blocking the facility entrance were consistently documented at this zone. These problems were aggravated by the fact that 40.2% of the buses stopped in the zone beyond the time needed to load/unload, leading 31.7% of the drivers to use nondesignated areas to load/unload. Documented enforcement was primarily limited to the occasional officer waving buses on. Additional signage for tour buses that addresses hours, activity designation, time restrictions, alternative loading areas and parking options is warranted in this zone. It is recommended that U.S. Park Police increase their presence in this zone and/or give DDOT the ability to enforce. Enforcement is not necessarily ticketing, as an informational brochure regarding alternative parking areas can be distributed onsite. Additional loading and unloading options are also needed at this site, with new spaces located directly south of the museum on Independence Avenue recommended for development. Buses would have access to these spaces between 10:00 a.m. and 4:00 p.m. The availability of new spaces can be indicated through standardized signage and can be communicated to operators through goDCgo, the ABA Newsletter and Destination D.C.

3.2.5 Zone 6 (National Museum of the American Indian): 9 Spaces for Loading/Unloading

Zone 6 (National Museum of the American Indian, Jefferson Drive between 3rd and 4th Streets) is essentially a parking area, even though it is clearly marked for loading and unloading only. Buses stayed an average of close to 38 minutes, but often over two hours, with 87% of buses without passengers while in the zone. Zone 6 also acts as a social gathering place, with drivers consistently seen having conversations and occasionally approaching the researchers. Because Smithsonian counts (see <http://newsdesk.si.edu/about/stats>) indicate that the National Museum of American Indian has significantly lower rates of visitation than the adjacent National Air and Space Museum (e.g., 1.4 million in comparison to 7.0 million visitors in 2013, respectively), greater initiatives should be taken to have drivers pull up to this zone to load/unload for the National Air and Space Museum, thus alleviating some of the congestion in Zone 5. It is recommended that U.S. Park Police increase their presence in this zone and/or give DDOT the ability to enforce. Enforcement is not necessarily ticketing, as an informational brochure regarding alternative parking areas can be distributed onsite. Operators are encouraged to use the paid parking lots at Buzzard's Point, RFK Stadium and Union Station as directed on <http://goDCgo.com>. However, evidence collected in other phases of this study suggests a strong reluctance to pay for parking and an unwillingness to leave the immediate vicinity of NAMA to seek parking.

3.2.6 Zone 7 (Ellipse): 5 Spaces for Loading/Unloading

Zone 7 (Ellipse, 15th Street, NW between Pennsylvania Avenue and Constitution Avenue) 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 both bus parking and drop off areas as well as vendor parking; as such, the mixed use is leading to a considerable amount of double parking and nondesignated zone use with passenger cars and vendors seen in bus spaces. Buses were observed blocking traffic and pulling dangerously into traffic. In Zone 7, 38.9% of the buses were stopped in the zone beyond the time that would be needed to load/unload and 20.4% of the drivers used nondesignated areas to load/unload. In order to decrease confusion, the various uses should be consolidated into distinct areas, with standardized signage and color coding utilized to set forth the boundaries.

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

3.2.7 Zone 8 (World War II Memorial): 3 Spaces for Loading/Unloading

Zone 8 (World War II Memorial, Homefront Dr.) has significant seasonal variations. During pre-peak and post-peak data collection periods, few buses were observed and infractions were minimal. However, during the height of the school group season, buses were lined up on 17th Street trying to gain access to the World War II Memorial, leading to considerable problems with unloading in nondesignated areas, particularly in the evening when it is popular for school groups to visit the memorial. Zone 8 is also a frequent unloading area for Honor Flight veterans, leading to an increased observation of assistive devices in comparison to most other zones. In Zone 8, 39.3% of the buses were stopped in the zone beyond the time that would be needed to load/unload and 32.9% of the drivers used nondesignated areas to load/unload. Idling was also a problem in this zone, with 53.5% of buses left idling beyond the D.C. regulation of 3 minutes. With 4.2 million visitors in 2012 (see <https://irma.nps.gov/Stats/>), three spaces are frequently insufficient for this site.

3.2.8 Zone 9 (Thomas Jefferson Memorial): 7 Spaces for Loading/Unloading

Zone 9 (Thomas Jefferson Memorial, East Basin Dr.) evidenced significant problems with buses not pulling into the zone, with 61.7% loading and unloading in nondesignated areas. Because of the zone location along a busy one-way thoroughfare, the increased likelihood of pulling into traffic in a dangerous way appears to make this zone particularly susceptible to accidents. This site had an estimated 2.5 million visitors in 2012 (see <https://irma.nps.gov/Stats/>). While local sightseeing buses utilize this zone safely and efficiently, the same level of care was not observed when documenting many other buses, where the tendency to park and idle past the time needed to unload was witnessed, with 25.8% stopping beyond the time needed to load/unload. Idling was also a problem in this zone, with 58.8% of buses left idling beyond the D.C. regulation of 3 minutes.

3.2.9 Zone 10 (National Museum of American History): 3 Spaces for Loading/Unloading

Zone 10 (National Museum of American History, Madison Drive between 12th and 14th Streets) was not signed for tour bus loading/unloading during the first part of the study period; however, limited data were collected to determine the level of compliance. Three spaces for tour bus loading and unloading were added in a location previously used as a Tourmobile stop. Additional data were collected at this zone during Phase III data collection with infractions specific to blocking pedestrian traffic and the facility entrance noted. With an estimated 4.9 million visitors in 2013 (see <http://newsdesk.si.edu/about/stats>), three spaces for loading/unloading are inadequate. Any hesitancy or waiting caused a backup, leading to the noted blocking that occurred.

3.2.10 Zone 13 (Ford's Theatre, 500 Block 10th Street): 2 Spaces for Loading/Unloading

Zone 13 (Ford's Theatre, 500 block 10th Street) is located on a very narrow road in a highly congested area. The presence of a sightseeing company's operations coupled with the spring high season for school visitation at Ford's Theatre created at times a sense of pandemonium within this zone, with stopping on the wrong side of the road, blaring of vehicle horns, young students getting off in the middle of the road, double parking and buses pulling into traffic in a dangerous way. During 2012, Ford's Theatre had over 700,000 visitors (see <https://irma.nps.gov/Stats/>). The qualitative comments also illustrate that many buses are idling for long periods by default as they wait in the road to pull up to a space. In Zone 13,

			Key for Loading / Unloading Zones		
1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

37.8% of the buses were stopped in the zone beyond the time that would be needed to load/unload and 27.0% of the drivers used nondesignated areas to load/unload. Rerouting should be considered for this zone to decrease the congestion and associated safety concerns. It is recommended that US Park Police increase their presence in this zone and/or give DDOT the ability to enforce, particularly during peak months.

3.2.11 Zone 14 (Ford's Theatre, North, 600 Block 10th Street): 1 Space for Loading/Unloading

Zone 14 (Ford's Theatre, 600 Block 10th Street), while just a block away from Zone 13, is off the main path of tour buses and used almost exclusively as a parking site. Very few observations were made in this zone due to the lack of use in comparison to Zone 13. This zone is located within an easy walking distance to Ford's Theatre; accordingly bus traffic should be rerouted to this block to lessen the congestion in Zone 13. It is recommended that U.S. Park Police increase their presence in this zone and/or give DDOT the ability to enforce, particularly during peak months.

3.2.12 Zone 15 (Ford's Theatre, West, 1000 Block F Street): 1 Space for Loading/Unloading

Zone 15 (Ford's Theatre, 1000 Block F Street) is within close walking distance to the theatre, yet like Zone 14 is used almost exclusively as a parking site. Few documented observations were taken here, yet ad-hoc assessments confirmed that buses that pulled into this zone tended to utilize it as a parking location. Similar to Zone 14, consideration should be given as to how to better utilize this zone to reduce the burden on Zone 13.

3.2.13 Zone 18 (Franklin Delano Roosevelt Memorial / Martin Luther King, Jr. Memorial): 5 Spaces for Loading/Unloading

Zone 18 (Franklin Delano Roosevelt Memorial / Martin Luther King, Jr. Memorial, West Basin Drive) was subject to significant violations due to the temporary suspension of tour bus loading/unloading during the National Cherry Blossom Festival, which coincided with the first phase of data collection. The lack of enforcement was particularly noticeable in this area, as there was a strong police presence yet no ticketing was witnessed. Because the Martin Luther King Jr. Memorial is the latest addition to NAMA holdings, this zone is likely to continue to have high visitation for years to come, with 3.7 million visitors documented in 2012 while the Franklin Delano Roosevelt Memorial hosted 2.8 million visitors that same year (see <https://irma.nps.gov/Stats/>). In Zone 18, 62.1% of the buses were stopped in the zone beyond the time that would be needed to load/unload, often because drivers waited while visitors viewed the Martin Luther King, Jr. Memorial. Lack of available space resulted in 28.1% of the drivers using non-designated areas to load/unload. Five spaces are insufficient for the combined needs of the two memorials.

3.2.14 Zone 20 (14th Street, West Side of Ronald Reagan Building): Loading/ Unloading for Cars and Commuter Buses Only; Nondesignated for Tour Bus Loading/Unloading

Zone 20 (14th Street, west side of Ronald Reagan Building) evidenced significant problems due to the traffic congestion typical of 14th Street, a major D.C. arterial. Buses consistently blocked traffic while unloading in nondesignated areas, double parking and pulling out in dangerous ways. The fact that

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

commuter buses are the designated users of this zone complicates the navigation as tour buses encroach upon the area. Drivers did not appear to be aware of the restricted use, necessitating better signage. During the spring high season for student tours, the Ronald Reagan Building is a primary spot for students to eat lunch, leading to chaotic drop off and pick up with many buses arriving at the same time and 24.1% staying beyond the time needed to load/unload. Idling was also a problem in this zone, with 54.7% of buses left idling beyond the D.C. regulation of 3 minutes. A minimum of two spaces clearly designated for tour bus loading/unloading should be added to this zone.

3.2.15 Zone 22 (Constitution Avenue, Eastbound between 23rd and Henry Bacon Drive): 3 Spaces for Loading/Unloading

Zone 22 (Constitution Avenue, eastbound between 23rd and Henry Bacon Drive) is within walking distance of the Vietnam Veterans Memorial and is commonly used by sightseeing buses. The primary infraction witnessed in this zone was the frequency with which buses were observed stopping in the zone beyond the time needed to load/unload, with 76.5% of the buses doing so. Because Zone 1 is underutilized and even closer to the Vietnam Veterans Memorial, it is suggested that the sightseeing buses use Zone 1 instead of Zone 22, allowing Zone 22 to be converted to a 2-hour parking zone during available hours. Constitution Avenue is rush hour restricted with the curb lane closed from 7:00 a.m. to 9:30 a.m. and again from 4:00 p.m. to 6:30 p.m.

3.2.16 Zone 23 (Constitution Avenue, Eastbound between Henry Bacon Drive and 21st): 1 Space for Loading/Unloading

Zone 23 (Constitution Avenue, eastbound between Henry Bacon Drive and 21st) was seldom utilized during the observation period, with only three buses documented during a two-hour period. Similar to Zone 22, Zone 23 is within walking distance of the Vietnam Veterans Memorial. Because Zone 1 is underutilized and even closer to the Vietnam Veterans Memorial, it is suggested that the sightseeing buses use Zone 1 instead of Zone 23, allowing Zone 23 to be converted to a 2-hour parking zone during available hours. . Constitution Avenue is rush hour restricted with the curb lane closed from 7:00 a.m. to 9:30 a.m. and again from 4:00 p.m. to 6:30 p.m.

3.2.17 Zone 25 (Constitution Avenue, Eastbound between 19th and 18th and between 18th and 17th): 5 Spaces for Loading/Unloading

Zone 25 (Constitution eastbound between 19th and 18th and Constitution eastbound between 18th and 17th) is within close walking distance to Constitution Gardens. This area was almost exclusively used by sightseeing buses, as designated, during the observation period with very few infractions observed. With 5 spaces available, at least two of them should be converted to a 2-hour parking area during available hours. Constitution Avenue is rush hour restricted with the curb lane closed from 7:00 a.m. to 9:30 a.m. and again from 4:00 p.m. to 6:30 p.m.

3.2.18 Zone 27 (Constitution Avenue, Westbound in Front of National Archives): 0 Spaces for Unloading/Loading

Zone 27 (Constitution westbound in front of National Archives) is not an official loading/unloading zone. Instead, there is a "tow away zone" with no standing permitted as well as adjacent spaces designated for 2-hour general parking from 9:30 a.m. to 4:00 p.m., following the rush hour restriction with the curb lane closed from 7:00 a.m. to 9:30 a.m. and again from 4:00 p.m. to 6:30 p.m. Drivers were observed unloading

			Key for Loading / Unloading Zones		
1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

passengers in the road near the tow away zone rather than pulling into the area, thus causing traffic jams. Due to a lack of alternative loading/unloading zones in the immediate vicinity, at least one of the designated parking spaces should be converted to a loading/unloading space.

3.2.19 Zone 28 (U.S. Holocaust Memorial Museum, 100 Raoul Wallenberg Place Northbound): 2 Spaces for Loading/Unloading

Zone 28 (U.S. Holocaust Memorial Museum, 100 Raoul Wallenberg Place northbound) was subject to loading/unloading in nondesignated areas marked by "government vehicle only" and "no standing zone," with 53.6% of the buses doing so. The fact that 39.3% of the buses stopped in the zone longer than the time needed to load/unload exacerbated the problem. Raoul Wallenberg Place is positioned between multiple intersections with one of the more complex egress areas heading southbound. As such, unloading roadside would be particularly dangerous, leading drivers to instead utilize nondesignated areas. The nondesignated areas should be carefully reviewed to determine if an additional loading/unloading space can be designated to decrease the likelihood of accidents in this zone.

3.3 STUDY METHODS: LOADING AND UNLOADING ZONES

3.3.1 Zone Determination

Twenty-eight zones were identified by NPS for possible inclusion in the phases of research identified above. Of these, 19 were selected for inclusion in the current study. The zones that were not selected for analysis maintained their original numbers, so there are gaps in the numbering sequence. Zones were excluded due to overlap with other zones, zone modifications or inclusion in other phases of the research project. Table 3.1 lists the zones and the data collection dates and times for each.

TABLE 3.1: DATA COLLECTION SCHEDULE

Zone	Location	Estimated No. of Spaces (Based on 60 feet per bus)	Data Collection Dates / Times
1	Lincoln Memorial, North, Henry Bacon Dr. between Constitution Avenue and Lincoln Circle	6	Sat., 03/24/12, 8:30 a.m. – 11:00 a.m. Fri., 04/06/12, 11:45 a.m. – 1:15 p.m. Wed., 05/22/13, 7:00 p.m. – 9:30 p.m.
2	Lincoln Memorial, South, Daniel French Dr. between Lincoln Circle and Independence	6	Sat., 03/24/12, 8:30 a.m. – 2:30 p.m. Fri., 04/06/12, 1:20 p.m. – 3:45 p.m. Wed., 05/22/13, 4:30 p.m. – 9:30 p.m.
4	National Museum of Natural History, Madison Dr. at 9th Street	8	Sat., 03/31/12, 11:15 a.m. – 2:15 p.m. Fri., 04/06/12, 11:30 a.m. – 4:00 p.m. Tues., 10/09/12, 9:00 a.m. – 2:00 p.m. Tues., 06/04/13, 1:30 p.m. – 4:00 p.m.
5	National Air and Space Museum, Jefferson Dr. at 7th Street	9	Wed., 04/04/12, 10:45 a.m. – 3:00 p.m. Fri., 04/06/12, 11:00 a.m. – 4:00 p.m.
6	National Museum of the American Indian, Jefferson Drive between 3rd and 4th Streets	9	Wed., 04/04/12, 10:30 a.m. – 3:00 p.m. Tues., 06/04/13, 1:30 p.m. – 4:00 p.m.
7	Ellipse, 15th Street, NW between Pennsylvania Avenue and Constitution Avenue	5	Sat., 03/31/12, 9:30 a.m. – 2:00 p.m. Tues., 10/09/12, 12:00 noon – 2:00 p.m.
8	World War II Memorial, Homefront Dr.	3	Fri., 04/06/12, 11:15 a.m. – 4:00 p.m. Tues., 10/09/12, 9:00 a.m. – 2:00 p.m. Wed., 05/22/13, 4:00 p.m. – 9:00 p.m. Tues., 06/04/13, 3:00 p.m. – 7:00 p.m.
9	Thomas Jefferson Memorial, East Basin Dr.	7	Wed., 05/22/13, 4:00 p.m. – 9:30 p.m. Thurs., 05/30/13, 10:00 a.m. – 3:00 p.m.
10	National Museum of American History, Madison Drive between 12th and 14th Street	3	Sat., 03/31/12, 9:30 a.m. – 11:05 a.m. Tues., 06/04/13, 1:30 p.m. – 3:30 p.m.

Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

Zone	Location	Estimated No. of Spaces (Based on 60 feet per bus)	Data Collection Dates / Times
13	Ford's Theatre, 500 block 10th Street	2	Sat., 03/31/12, 9:45 a.m. – 2:00 p.m. Fri., 04/06/12, 11:15 a.m. – 4:00 p.m. Tues., 10/09/12, 9:00 a.m. – 12:00 noon
14	Ford's Theatre, North, 600 Block 10th Street	1	Fri., 04/06/12, 11:15 a.m. – 4:00 p.m. Tues., 10/09/12, 9:00 a.m. – 12:00 noon
15	Ford's Theatre, West, 1000 block F Street	1	Tues., 10/09/12, 9:00 a.m. – 11:00 a.m.
18	Franklin Delano Roosevelt Memorial / Martin Luther King, Jr. Memorial, West Basin Drive	8	Sat., 03/24/12, 11:15 a.m. – 1:00 p.m. Sat., 03/31/12, 9:30 a.m. – 2:00 p.m. Wed., 05/22/13, 4:00 p.m. – 9:00 p.m.
20	14th Street, west side of Ronald Reagan Building	0	Thurs., 05/30/13, 10:00 a.m. – 3:00 p.m. Tues., 06/04/13, 4:00 p.m. – 7:00 p.m.
22	Constitution Avenue, eastbound between 23rd and Henry Bacon Drive	3	Thurs., 05/30/13, 10:00 a.m. – 3:00 p.m. Tues., 06/04/13, 1:00 p.m. – 3:00 p.m.
23	Constitution Avenue, eastbound between Henry Bacon Drive and 21 st	1	Tues., 06/04/13, 1:00 p.m. – 3:00 p.m.
25	Constitution Avenue, eastbound between 19th and 18th and Constitution eastbound between 18th and 17th	5	Thurs., 05/30/13, 10:00 a.m. – 3:00 p.m.
27	Constitution Avenue, westbound in front of National Archives	0	Thurs., 05/30/13, 10:00 a.m. – 3:00 p.m. Tues., 06/04/13, 1:00 p.m. – 3:30 p.m.
28	U.S. Holocaust Memorial Museum, 100 Raoul Wallenberg Place	2	Tues., 06/04/13, 1:00 p.m. – 4:30 p.m.

3.3.2 Instrument Development

The off-bus instrument was constructed with significant input from NPS, the D.C. Department of Transportation (DDOT) and Destination D.C. Variables pertained to bus style, bus information including company name, DOT number, last three digits of the license plate, loading information, pull-in/pull-out time, idling time, passenger information, activities that took place at the zone and operational issues. Space was also designated for researchers to add qualitative comments and observations. Researchers photographed each bus that was documented using disposable or digital cameras. Each researcher filled out one cover sheet per day to indicate researcher name, date, data collection start and end time, day of week, weather conditions, weather comments and zone. A total of 36 variables were indicated for each bus documented. The cover sheet and full instrument can be found in appendix A and appendix B.

3.3.3 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 3.1. 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 or visitor behaviors. The steady movement of visitors close to the zones of interest allowed for data collection to occur somewhat unobtrusively. However, because researchers were holding clipboards and taking photographs, they did receive some inquiries regarding the study. All researchers carried a letter signed by the Superintendent of NAMA that described the study should any concerns be raised. When researchers did receive questions, they noted it on the instrument in the space designated for comments and observations.

Researchers attempted to document all buses that entered the designated zones during the systematically selected time periods. In zones where there was only one entry point, independent tallies were taken by a separate researcher to assist in the determination of the percentage of buses that were captured. Tallies

				Key for Loading / Unloading Zones	
1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

indicated that over 95% of buses that entered the designated zones were captured during data collection. Those that were missed typically drove through without stopping, seemingly cruising. Documentation took between 1 and 10 minutes per bus, based on whether the bus was full or empty and the time needed for visitors to load or unload, if applicable. If a bus parked for an extended period of time, the researcher continued to document other buses but would indicate the pull-out time of the parked bus.

3.3.4 Sample Size

Using the methods outlined above, a total of 1457 buses were documented that had usable data. Not all buses had applicable information to all variables or data was “missed” due to short stops or researcher error; accordingly, the sample size is indicated by variable in the findings.

3.3.5 Data Analysis

Quantitative data were analyzed using SPSS statistical package software. 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.

3.4 QUANTITATIVE RESULTS: LOADING AND UNLOADING ZONES

3.4.1 Bus Style

Seven bus styles (Variable 1) were observed during the data collection period (Table 3.2, Figure 3.2, Photos 3.1-3.8). Private large buses with the capacity to carry more than 40 passengers (n=1007) were most frequently observed followed by sightseeing buses (n=211), private small tour buses carrying between 1-15 passengers (n=86), private medium tour buses carrying 16-40 passengers (n=82), public transportation buses (n=37), school buses (n=20) and NPS authorized visitor transit (i.e. NPS Visitor Bus) (n=14). The total number of buses observed by zone differed significantly based primarily on the popularity of the sites associated with the zone. The totals were also influenced by the relative amount of time spent documenting each zone. Zones with assumed carrying capacity concerns were analyzed more frequently so that presumptions regarding conditions could be validated or refined.

TABLE 3.2: TOTAL NUMBER OF EACH TOUR BUS STYLE OBSERVED BY ZONE

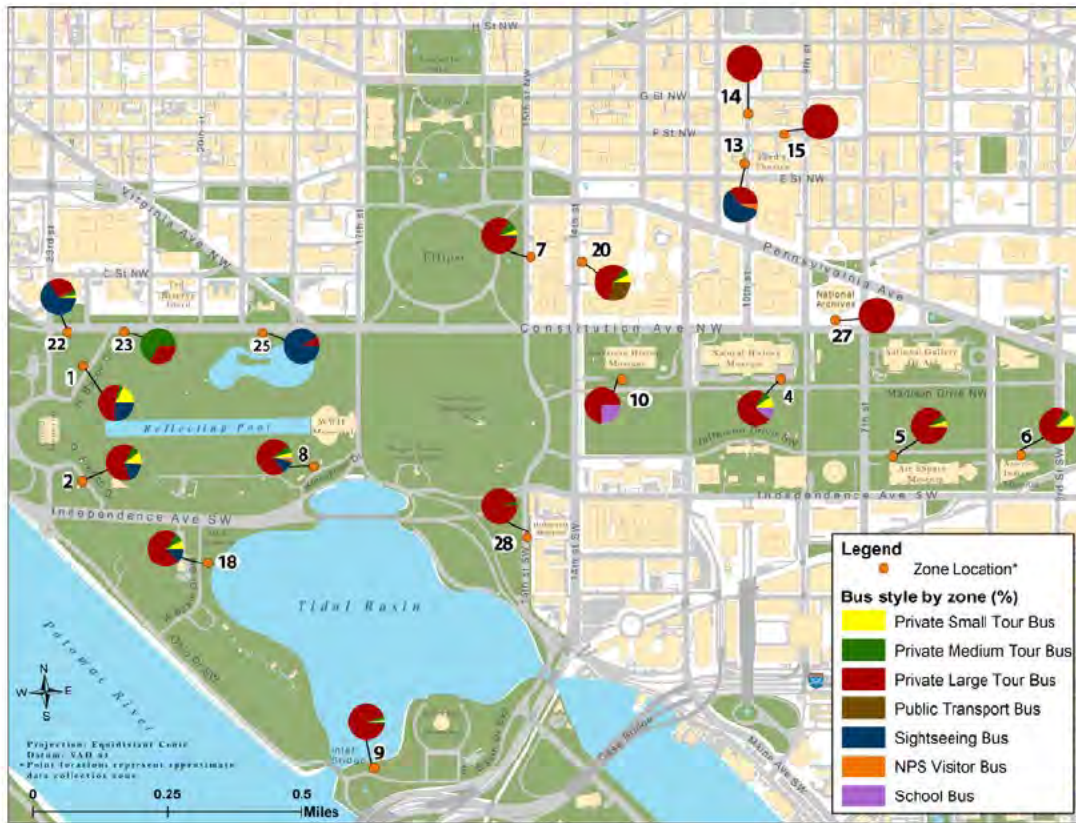
Zone	No. of Private Small Tour Buses: 1–15 Passengers	No. of Private Medium Tour Buses: 16–40 Passengers	No. of Private Large Tour Buses: 41+ Passengers	No. of Public Transport Buses	No. of Sightseeing Buses: Open-Top, 2-Deck Trolleys	No. of NPS Authorized Visitor Transit	No. of School Buses	Total
1	5	1	15	0	7	0	0	28
2	25	17	155	1	45	4	0	247
4	10	7	70	1	0	0	10	98
5	6	9	116	0	0	0	1	132
6	5	3	36	0	0	0	0	44
7	3	5	43	0	1	0	0	52
8	8	11	126	0	22	3	3	173
9	3	4	119	0	2	0	0	128
10	0	0	18	0	0	0	6	24
13	1	1	37	1	65	6	0	111
14	0	0	10	0	0	0	0	10
15	0	0	2	0	0	0	0	2
18	10	11	106	0	17	1	0	145

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

Zone	No. of Private Small Tour Buses: 1-15 Passengers	No. of Private Medium Tour Buses: 16-40 Passengers	No. of Private Large Tour Buses: 41+ Passengers	No. of Public Transport Buses	No. of Sightseeing Buses: Open-Top, 2-Deck Trolleys	No. of NPS Authorized Visitor Transit	No. of School Buses	Total
20	9	8	69	34	0	0	0	120
22	1	2	12	0	29	0	0	44
23	0	2	1	0	0	0	0	3
25	0	0	2	0	23	0	0	25
27	0	0	44	0	0	0	0	44
28	0	1	26	0	0	0	0	27
Total (N)	86	82	1007	37	211	14	20	1457
Total (%)	5.9%	5.6%	69.1%	2.5%	14.5%	1.0%	1.4%	100%

FIGURE 3.2: PERCENTAGE OF TOUR BUS STYLE OBSERVED BY ZONE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St.)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

PHOTO 3.1: PRIVATE SMALL TOUR BUS



PHOTO 3.2: PRIVATE MEDIUM TOUR BUS



PHOTO 3.3: PRIVATE LARGE TOUR BUS



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

PHOTO 3.4: PUBLIC TRANSPORT BUS



PHOTO 3.5: TROLLEY



PHOTO 3.6: SIGHTSEEING BUS



			Key for Loading / Unloading Zones		
1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

PHOTO 3.7: NPS AUTHORIZED VISITOR TRANSIT



PHOTO 3.8: SCHOOL BUS



3.4.2 Pulling into Loading Zone

Of the 1457 buses observed, 908 (62.3%) of those buses pulled in to the designated loading/unloading zone while the remaining 549 (37.7%) did not pull in to the zone (Variable 5, Table 3.3, Figure 3.3). Instead, those buses stopped at an area close by but did not do so within the actual designated loading/unloading area.

TABLE 3.3: PULLING IN TO LOADING ZONE

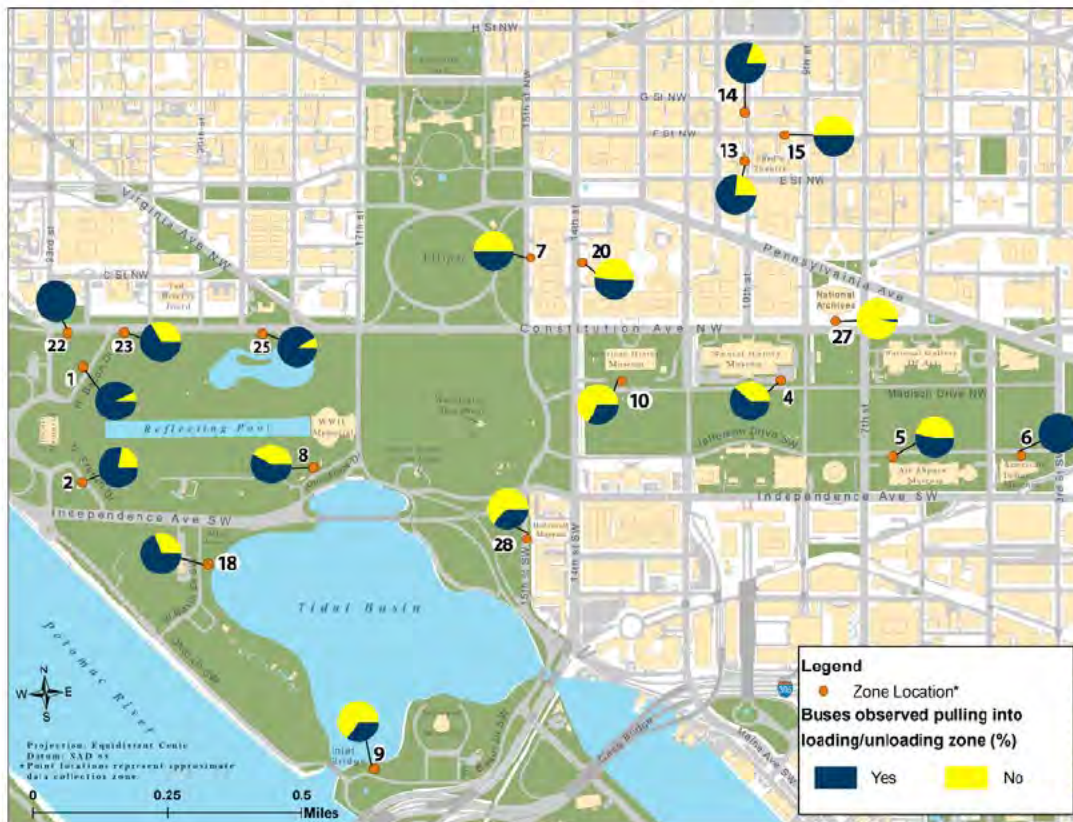
Zone	Did Bus Pull In within the Loading Zone?	
	No	Yes
1	2	26
2	54	193
4	38	60
5	62	70
6	0	44
7	26	26
8	73	100
9	84	44
10	16	8
13	26	85

Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

Zone	Did Bus Pull In within the Loading Zone?	
	No	Yes
14	2	8
15	1	1
18	44	101
20	58	62
22	0	44
23	1	2
25	2	23
27	43	1
28	17	10
Total	549	908

FIGURE 3.3: PULLING INTO LOADING ZONE



3.4.3 Passenger Loading

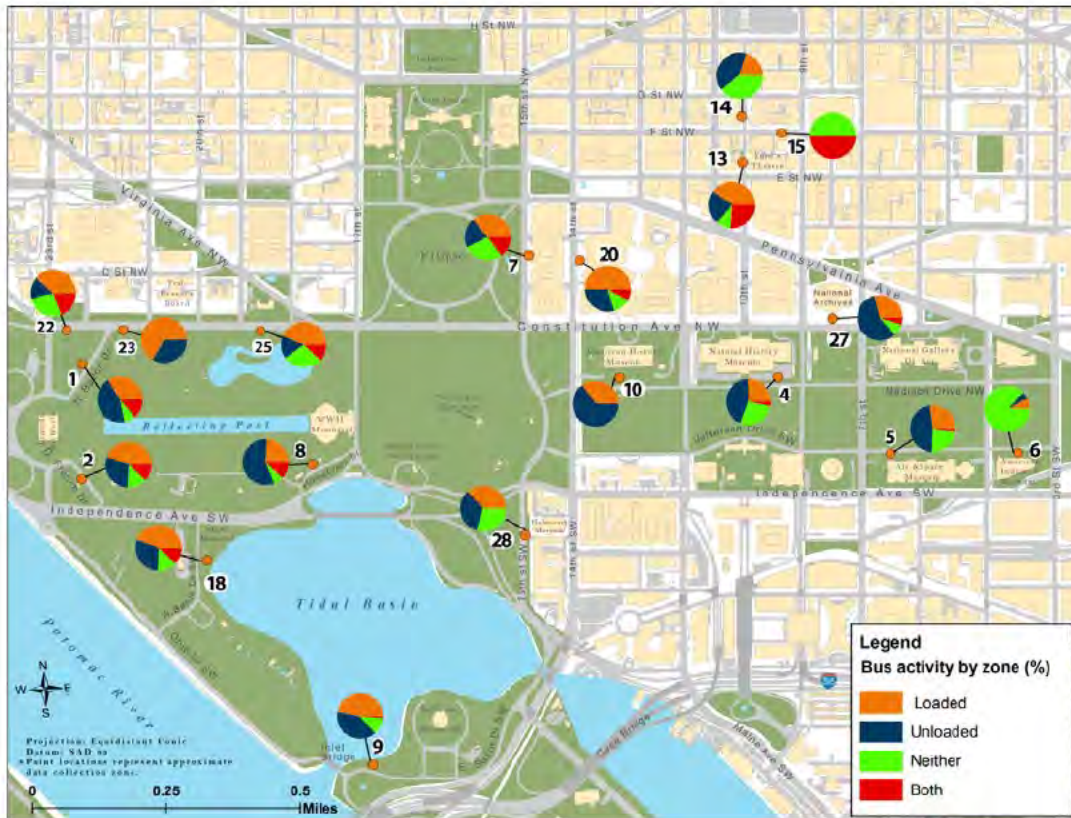
At some point during their stay within the zone, 495 (33.9%) of the buses loaded passengers, 544 (37.3%) unloaded passengers, and 149 (10.2%) both unloaded and unloaded passengers (Variable 6, Table 3.4, Figure 3.4). The remaining 236 buses were not seen engaging in these activities at any time during the observation period.

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	27	Constitution Ave (westbound in front of National Archives)
9	Jefferson Memorial	28	U.S. Holocaust Museum

TABLE 3.4: PASSENGER LOADING

Zone	Bus Loading			
	Loaded (n)	Unloaded (n)	Neither (n)	Both (n)
1	10	4	7	5
2	82	108	19	34
4	24	42	26	3
5	34	59	29	3
6	3	2	34	0
7	17	10	13	7
8	41	98	11	21
9	59	50	15	2
10	8	15	0	0
13	44	26	11	29
14	2	4	4	0
15	0	0	1	1
18	64	43	20	17
20	59	35	14	10
22	12	8	13	12
23	2	1	0	0
25	11	4	7	3
27	13	26	4	2
28	10	9	8	0
Total	495	544	236	149

FIGURE 3.4: PASSENGER LOADING



Key for Loading / Unloading Zones

- | | | |
|--|---|---|
| 1 Lincoln Memorial, North | 10 American History Museum | 22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.) |
| 2 Lincoln Memorial, South | 13 Ford's Theatre (500 block 10th St.) | 23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st) |
| 4 National Museum of Natural History | 14 Ford's Theatre (North 600 block 10th St.) | 25 Constitution Ave. (eastbound between 19th and 17th) |
| 5 National Air and Space Museum | 15 Ford's Theater (West, 1000 block F St.) | 27 Constitution Ave (westbound in front of National Archives) |
| 6 National Museum of the American Indian | 18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials | 28 U.S. Holocaust Museum |
| 7 Ellipse | 20 14th St. (west side of Ronald Reagan Building) | |
| 8 World War II Memorial | | |
| 9 Jefferson Memorial | | |

3.4.4 Loading / Unloading at Curb

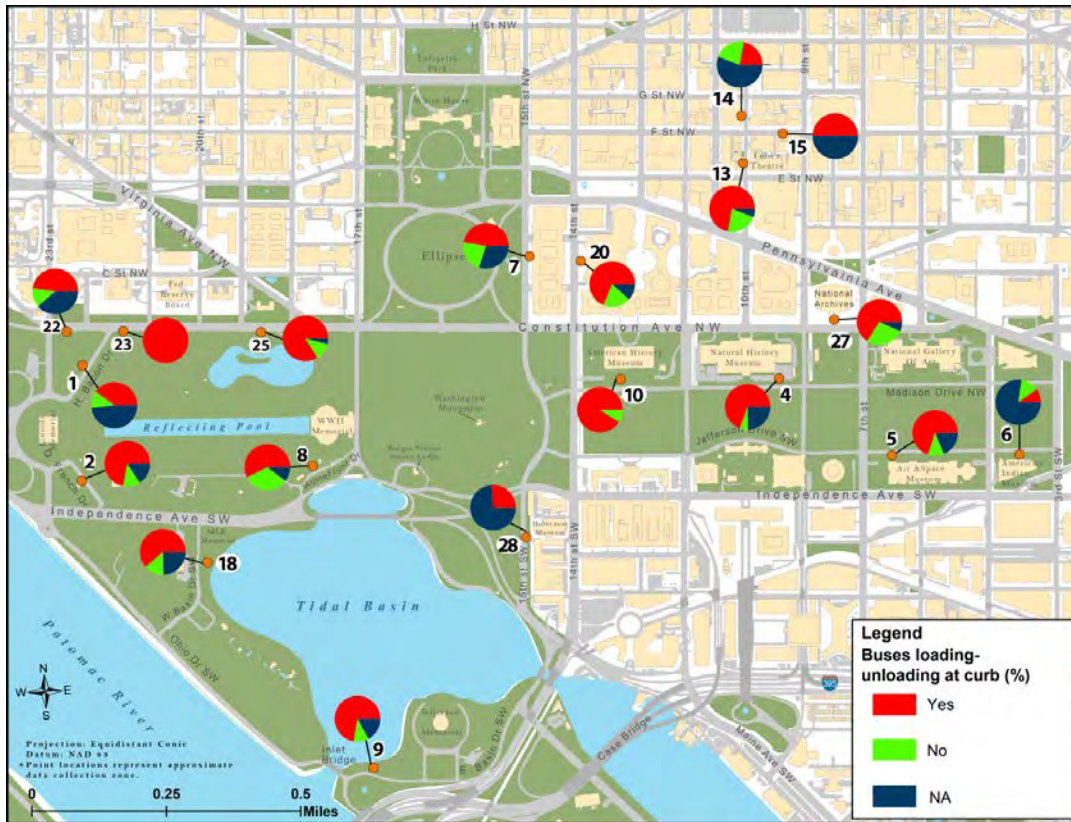
Among the buses where passengers loaded or unloaded, the majority (79.8%) did so at the designated curb (n = 871), (Variable 7, Table 3.5, Figure 3.5). However, in looking at applicable cases (n = 1091), 20.2% of buses unloaded at a point other than the curb suggesting a significant number of passengers were unloaded in a potentially unsafe manner.

TABLE 3.5: LOADING / UNLOADING AT CURB

Zone	Did Bus Load or Unload at Curb?		
	No	Yes	N/A
1	3	10	12
2	29	174	38
4	5	59	21
5	14	86	23
6	5	4	31
7	9	19	12
8	53	95	17
9	12	81	19
10	2	20	0
13	23	75	6
14	2	2	5
15	0	1	1
18	19	83	33
20	23	81	14
22	6	21	17
23	0	3	0
25	3	21	1
27	12	29	3
28	0	7	20
Total	220	871	273

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.5: LOADING / UNLOADING AT CURB



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5 Unsafe / Illegal Actions

In each zone, buses engaged in unsafe or illegal activities (Variable 23, Table 3.6, Figure 3.6). The most frequently observed illegal activity was the bus staying beyond the time needed to load or unload ($n = 500$). The second most frequently observed illegal activity was buses loading/unloading in nondesignated zones ($n = 438$). Additional violations, in order of frequency, included roadside loading/unloading ($n = 108$), double parking ($n = 54$), blocking pedestrian traffic ($n = 51$), buses pulling into traffic in a dangerous way ($n = 30$), blocking the adjacent facility entrance ($n = 21$), and blocking bicycle use ($n = 14$). Table 3.6 presents the actions in the order they were presented in the data collection instrument (see appendix B). Figure 3.6 indicates the percentage of observed infractions by zone. In this figure, percentages over 100% indicate that the average across all buses within that zone was greater than one infraction per bus.

Following the summary information, each infraction is presented separately. Subsequently, the unsafe / illegal actions are illustrated by zone.

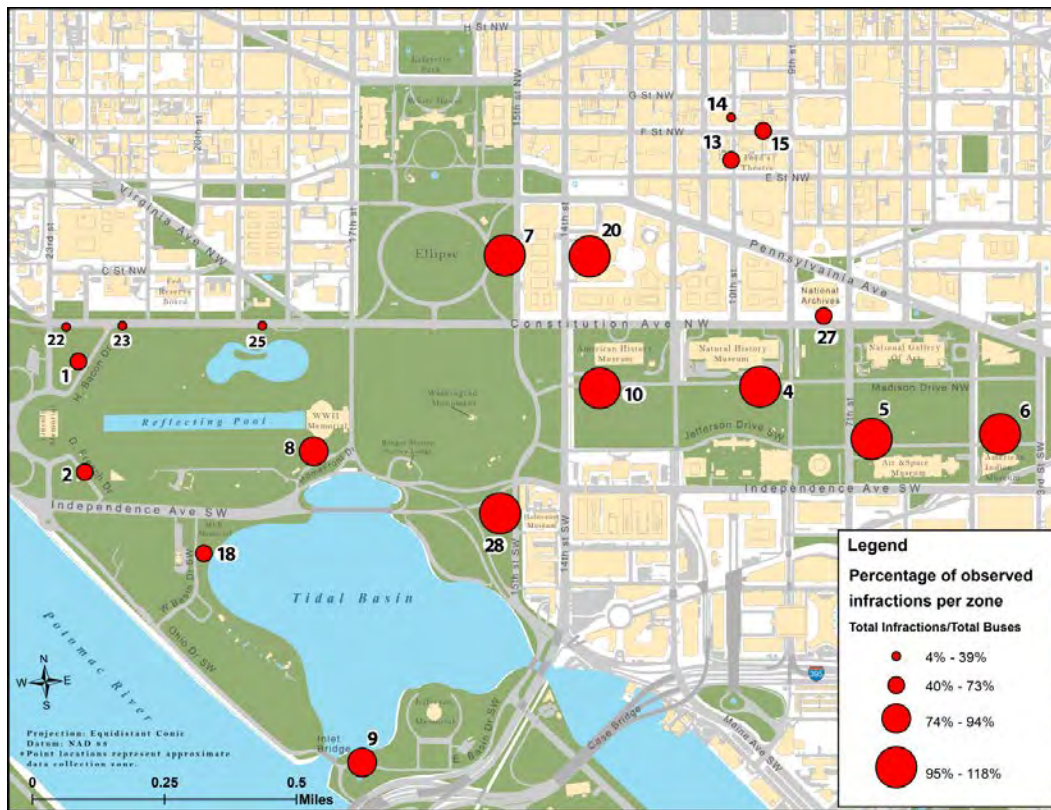
TABLE 3.6: BUSES OBSERVED ENGAGING IN UNSAFE / ILLEGAL ACTIONS

Zone	No. of Buses Staying beyond Time Needed to Load/ Unload	No. of Buses Pulling into Traffic in a Dangerous Way	No. of Buses Blocking Pedestrian Traffic	No. of Buses Blocking Bicycle Use	No. of Buses Blocking Facility Entrance	No. of Buses Double Parking	No. of Buses Unloading/ Loading in Nondesignated Zones	No. of Buses Roadside Loading/ Unloading	Total No. of Infractions Observed
1	14	0	0	0	0	0	1	1	16
2	69	10	17	1	0	17	40	27	181
4	52	0	4	0	0	2	37	2	97
5	56	3	12	9	10	0	44	5	139
6	41	0	5	0	0	0	2	0	48
7	21	1	0	0	0	9	11	11	54
8	55	1	5	0	0	7	46	26	140
9	31	3	2	3	3	1	74	3	120
10	2	0	1	0	2	0	20	0	25
13	28	5	4	0	5	5	20	7	74
14	3	0	0	0	0	0	0	0	3
15	1	0	0	0	0	0	0	0	1
18	64	1	1	1	1	1	29	5	103
20	34	5	0	0	0	10	77	15	141
22	13	0	0	0	0	1	2	1	17
23	1	0	0	0	0	0	0	0	1
25	1	0	0	0	0	0	0	0	1
27	3	1	0	0	0	1	20	3	28
28	11	0	0	0	0	0	15	2	28
Total	500	30	51	14	21	54	438	108	1,213

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

FIGURE 3.6: PERCENTAGE OF OBSERVED INFRACTIONS BY ZONE



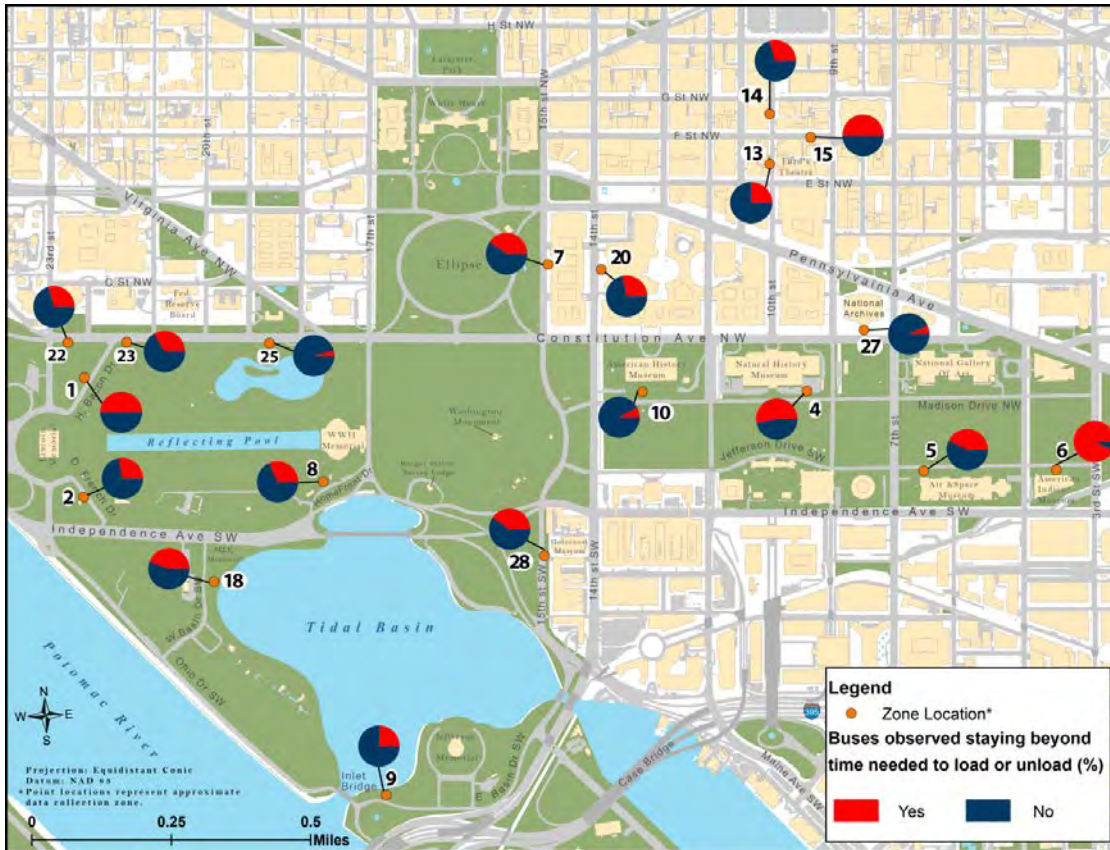
Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse		
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5.1 Buses Staying in Zones beyond the Time Needed to Load or Unload

Operational issues are responsible for much of the disruption in the parking system around NAMA. The most prevalent issue is specific to buses staying in zones beyond the time needed to load or unload (Variable 23a). Validating the data specific to wait time and empty buses, buses in Zone 1, Zone 4 and Zone 6 were most likely to stay beyond the time needed (Figure 3.7).

FIGURE 3.7: PERCENTAGE OF BUSES STAYING IN ZONE BEYOND TIME NEEDED TO LOAD / UNLOAD

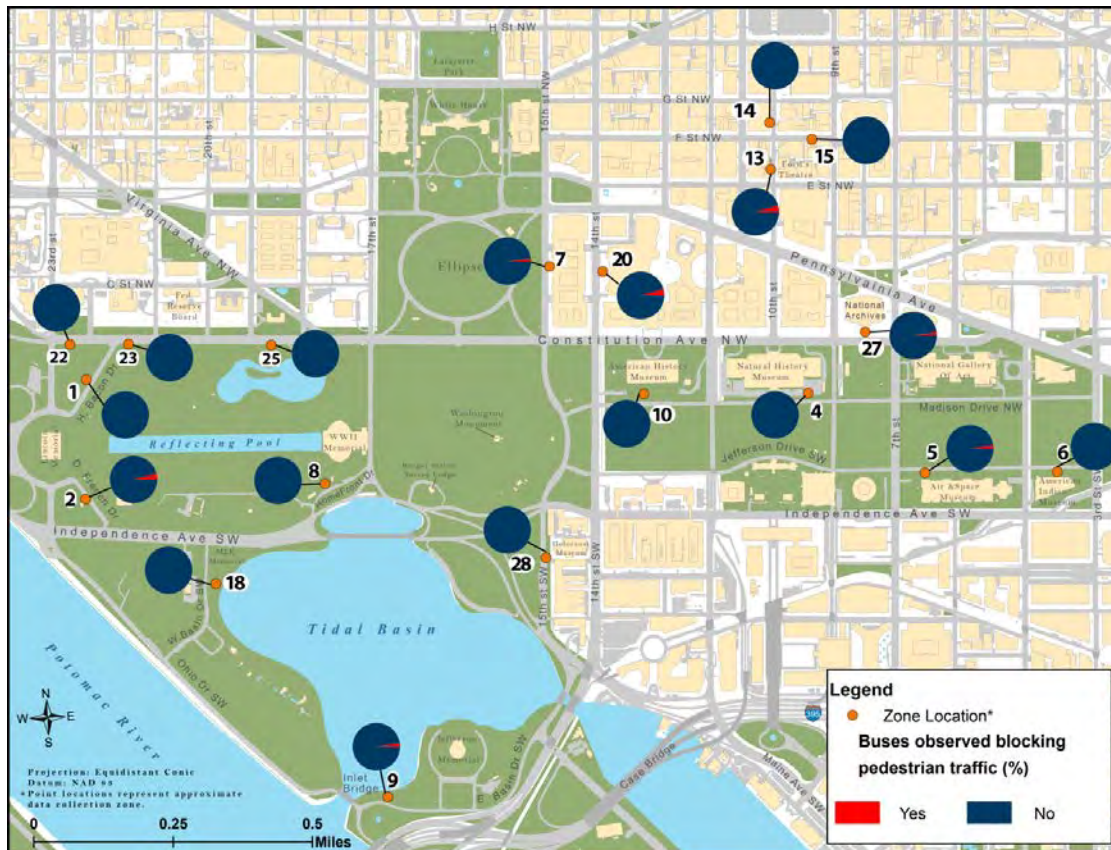


Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St.)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

3.4.5.2 Buses Pulling into Traffic in a Dangerous Way

Instances of buses pulling into traffic in a dangerous way (Variable 23b) were minimal. Drivers seem to be cognizant of this important safety precaution. Cases of pulling into traffic dangerously were observed most frequently in Zone 2, Zone 13 and Zone 20 (Figure 3.8).

FIGURE 3.8: PERCENTAGE OF BUSES PULLING INTO TRAFFIC IN A DANGEROUS WAY



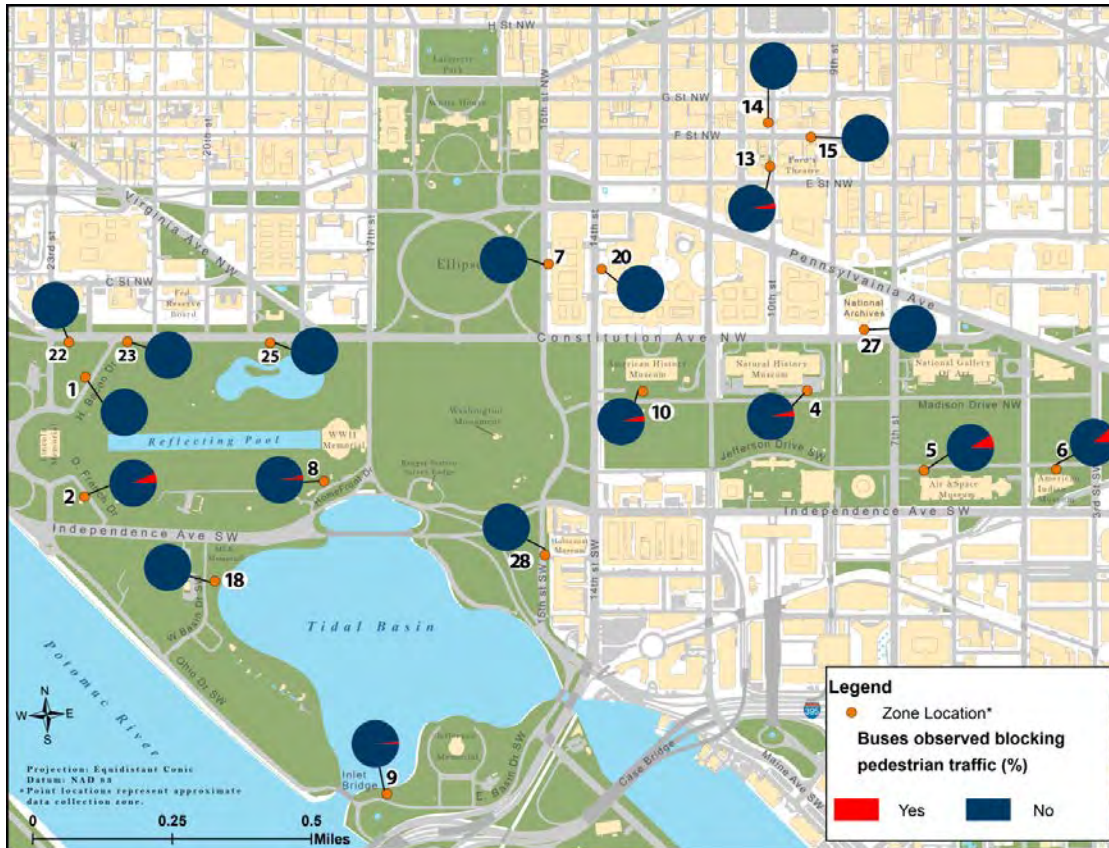
Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5.3 Buses Blocking Pedestrian Traffic

Few instances of buses blocking pedestrian traffic (Variable 23c) were recorded. Drivers and pedestrians seem to be aware of each other and drivers avoided stopping at marked pedestrian crossings for the most part. Cases of blocking pedestrian traffic were observed most frequently in Zone 2, Zone 5 and Zone 6 (Figure 3.9). Buses would block pedestrian walkways when they could not locate a space to pull in (Photo 3.9 and Photo 3.10).

FIGURE 3.9: PERCENTAGE OF BUSES BLOCKING PEDESTRIAN TRAFFIC



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
11	Ford's Theatre (500 block 10th St.)		
12	Ford's Theatre (North 600 block 10th St.)		
13	Ford's Theater (West, 1000 block F St.)		
14	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
15	14th St. (west side of Ronald Reagan Building)		
16			
17			
18			
19			
20			
21			

PHOTO 3.9: BUS BLOCKING PEDESTRIAN TRAFFIC (ZONE 4)



PHOTO 3.10: BUS BLOCKING PEDESTRIAN TRAFFIC (ZONE 9)



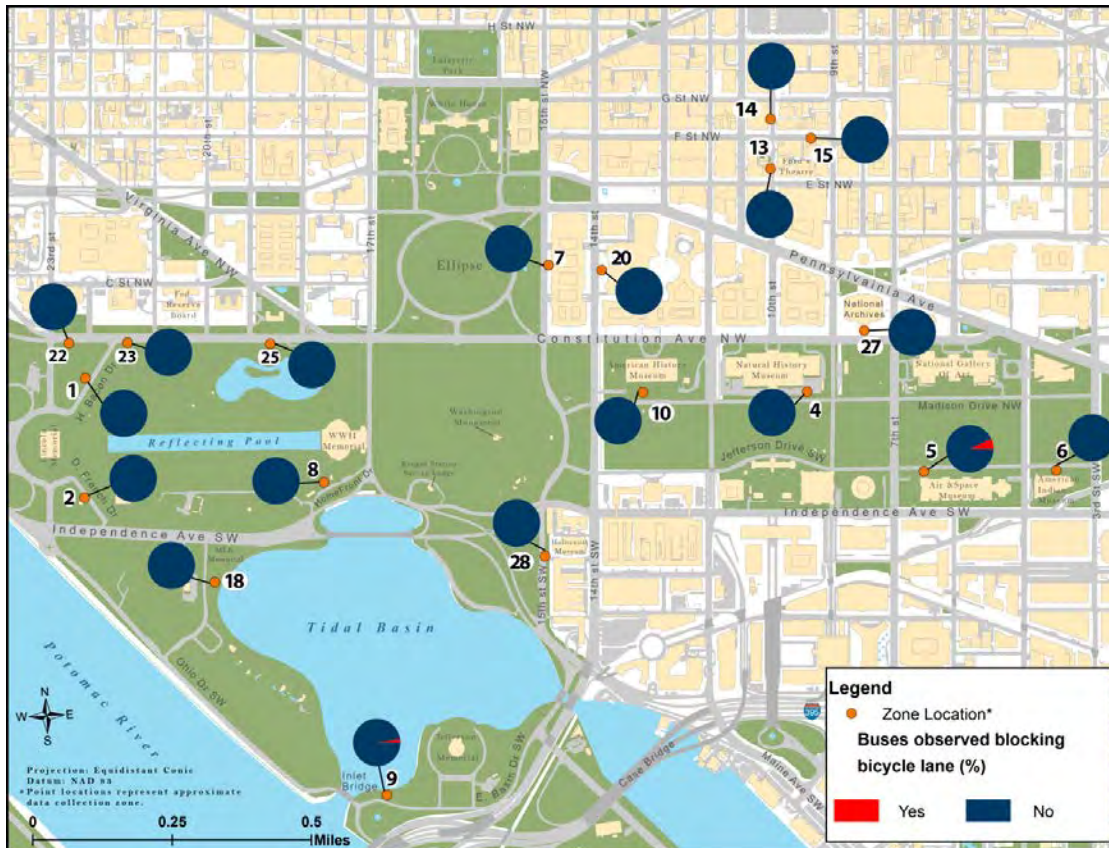
Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5.4 Buses Blocking a Bicycle Use

Instances of buses blocking bicycle riders (Variable 23d) were exceptionally rare. Cyclists seem to avoid areas designated for bus pull-in. Cases of buses blocking bicycle use were almost exclusive to Zone 5 (Figure 3.10).

FIGURE 3.10: PERCENTAGE OF BUSES THAT BLOCKED A BICYCLE USE

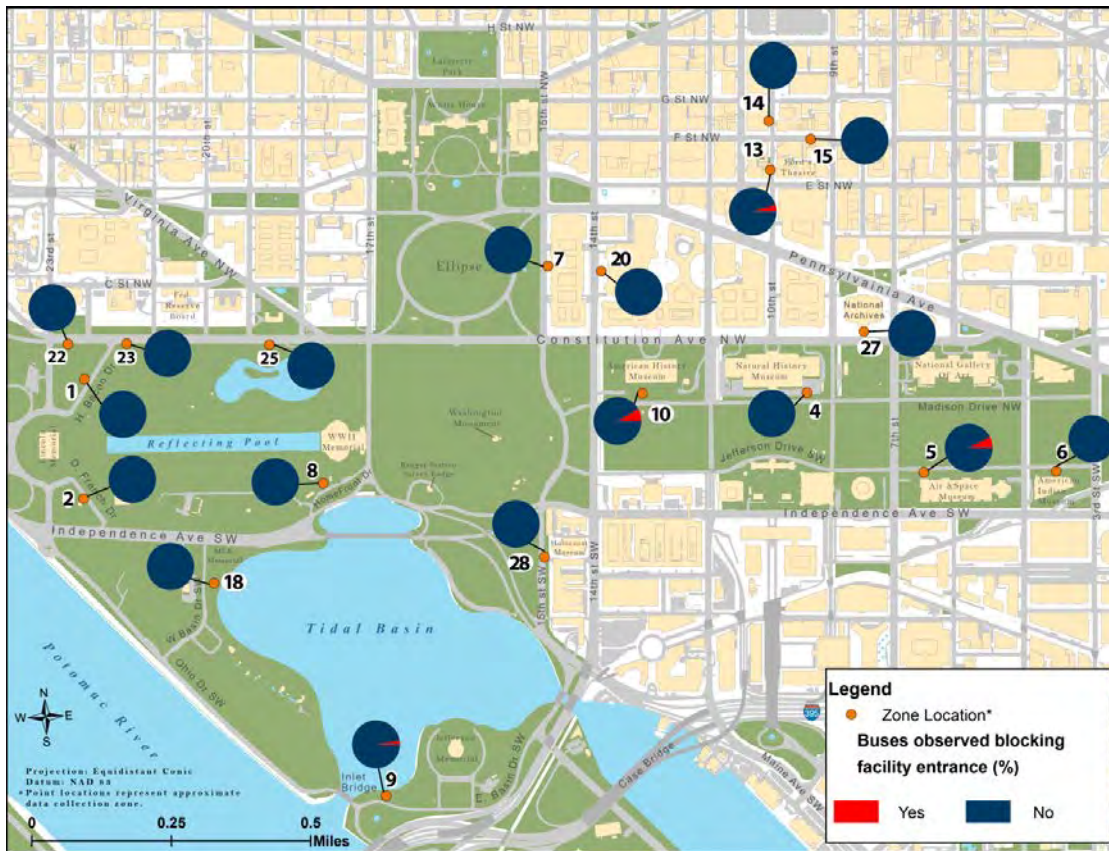


Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between 19th and 17th)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

3.4.5.5 Buses Blocking a Facility Entrance

Cases of blocking a facility entrance (Variable 23e) were observed most frequently in Zone 5, Zone 10 and Zone 13 (Figure 3.11). When a facility entrance was blocked, this frequently coincided with blocking pedestrian traffic. Visitors were seen dodging between or around buses in unsafe manners in order to get to a desired site.

FIGURE 3.11: PERCENTAGE OF BUSES THAT BLOCKED A FACILITY ENTRANCE



Key for Loading / Unloading Zones

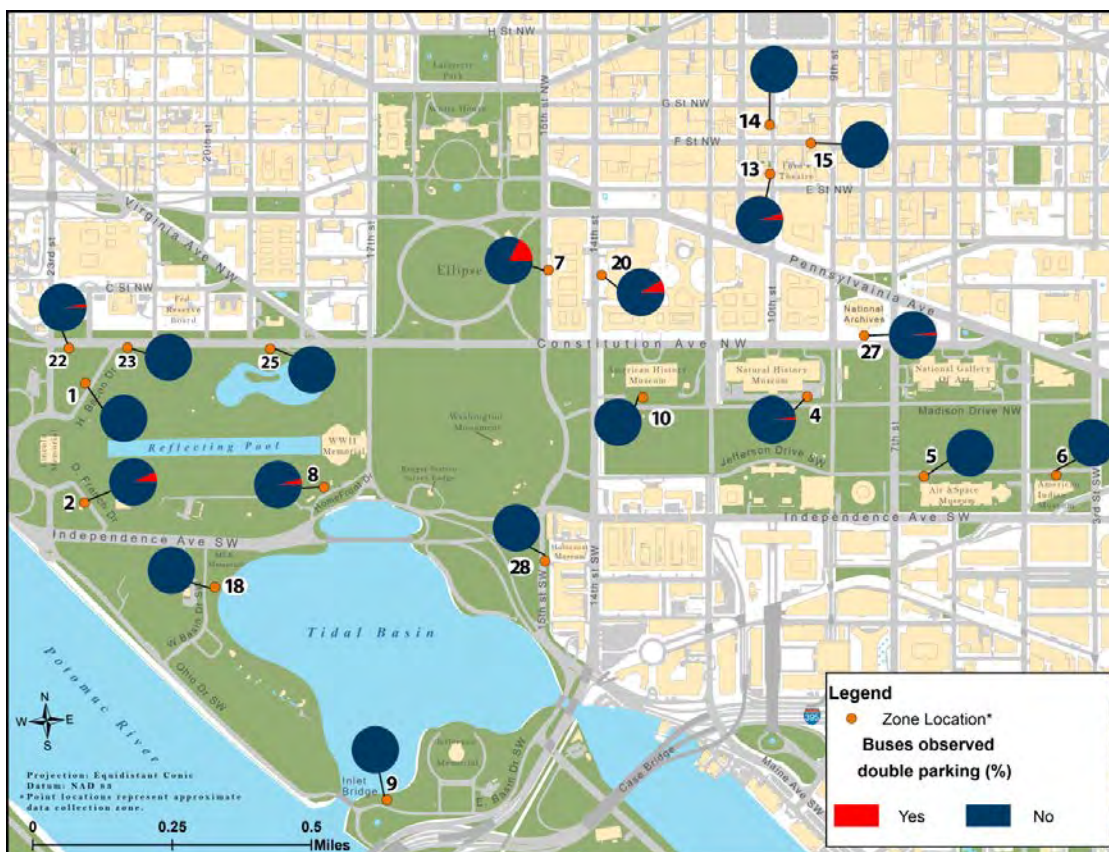
1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5.6 Double Parking

Double parking (Variable 23f, Figure 3.12) occurred primarily in Zone 2, Zone 7, Zone 13 and Zone 20. Zone 2 was prone to double parking based on the sheer volume of buses coming through, some of which would stop in the middle of the road to unload, thereby blocking traffic and creating dangerous pedestrian pathways (Photo 3.11). Zone 7 has designated parking areas that are also used for loading and unloading due to the proximity to the White House, creating confusion and causing buses to stop anywhere close to the Zone (Photo 3.12). Zone 13 has too few loading and unloading spaces, in particular during the high season of student group visitation, and double parking exacerbates the problem. However, sightseeing buses and others that quickly unload or load just a few passengers often double parked even when a proper space was available (Photo 3.13).

Due partly to the varying sizes of motor coaches and partly to poor parking practices, such as when buses did not pull up far enough into the zone to allow room for another bus, some parking spaces were not quite big enough for a bus to use without blocking the traffic lane. Partial spaces were often used as passenger marshaling areas for buses that double-parked within the zone. An “almost big enough” loading space seemed to encourage double parking for loading and unloading (Photo 3.14). In the evening, the double parking was particularly hazardous as cars and buses attempted to maneuver around double parked buses with compromised visibility (Photo 3.15).

FIGURE 3.12: PERCENTAGE OF BUSES THAT DOUBLE PARKED



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St.)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

PHOTO 3.11: DOUBLE PARKING (ZONE 2)



PHOTO 3.12: DOUBLE PARKING (ZONE 7)



PHOTO 3.13: DOUBLE PARKING (ZONE 7)



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

PHOTO 3.14: DOUBLE PARKING (ZONE 13)



PHOTO 3.15: DOUBLE PARKING (ZONE 9)



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

3.4.5.7 Loading and Unloading in a Nondesignated Zone

Loading and unloading in nondesignated loading zone (Variable 23g; Figure 3.13) was a prevalent problem with violations reported across NAMA, often contributing to congestion in and around these areas. In most cases, out-of-zone loading/unloading was done adjacent to a designated zone rather than in an area far from it. Out-of-zone loading and unloading was typically in response to lack of available or navigable space within the designated zones at the time the bus arrived. When examined by zone, the areas which experienced the highest percentage of nondesignated zone use were Zones 4, 5, 8, 9, 10, 20, 27 and 28.

There are multiple possibilities for why particular zones incurred more loading/unloading challenges. Zone 4, i.e. the National Museum of Natural History, had a high proportion of drivers that would stop for long periods of time with an empty bus, leaving other buses no space to pull in and drivers opting to double park rather than circle back. Zone 5, the National Air and Space Museum, historically has the one of the highest levels of visitation of the Smithsonian holdings, with 7 million guests in 2013 (see <http://newsdesk.si.edu/about/stats>), meaning that a steady stream of buses come through searching for one of the nine spaces to unload directly in front of the museum. Exacerbating the problem is that some drivers prefer remaining while their passengers visit the museum rather than negotiating travel to one of the designated bus parking areas or paid parking areas. The travel time to/from the paid parking areas coupled with frequent construction reroutes and a less than direct route were noted by several drivers as deterrents to relocating during the period of time their passengers were touring the museum.

Further complicating the matter is that drivers are unwilling or unable to load/unload in the spaces found in front of the adjacent National Museum of the American Indian (Zone 6), which also has nine spaces yet had 1.4 million visitors in 2013, (see <http://newsdesk.si.edu/about/stats>). Two facts lead to the conclusion that Zone 6 is being treated as a parking area rather than a loading / unloading zone: 1) 87% of observed buses in Zone 6 were empty; and 2) this zone experienced the longest wait time of all zones, with an average of 38 minutes. With the exception of buses carrying passengers with specialized needs, drivers should be encouraged to load / unload at Zone 6 and allow their passengers to make the short walk to the National Air and Space Museum.

Zone 13, the area near Ford's Theatre, also experienced a relatively high frequency of nondesignated zone loading and unloading. The primary passengers were students in the K-12 system visiting during the spring for school field experiences. As such, the problems in this area appear to be seasonal in nature due to spikes in visitation. Data collection during the fall season resulted in the documentation of far fewer violations than were observed during the spring.

Notable violations took place at Zone 18, the Franklin Delano Roosevelt Memorial and the Martin Luther King, Jr. Memorial areas. The loading/unloading area was temporarily closed during the first phase of data collection, coinciding with the National Cherry Blossom Festival. Tour bus drivers were either not aware of this policy change or elected to ignore it. During the festival, this zone was clearly marked as a media only area and was frequently populated by security vehicles.

Considering all zones, when loading/unloading in a nondesignated area, drivers tended to stop before the zone, rather than beyond it (Photo 3.16 and Photo 3.17), often blocking roads and therefore slowing traffic (Photo 3.18).

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

FIGURE 3.13: PERCENTAGE OF BUSES THAT LOADED / UNLOADED IN A NONDESIGNATED ZONE

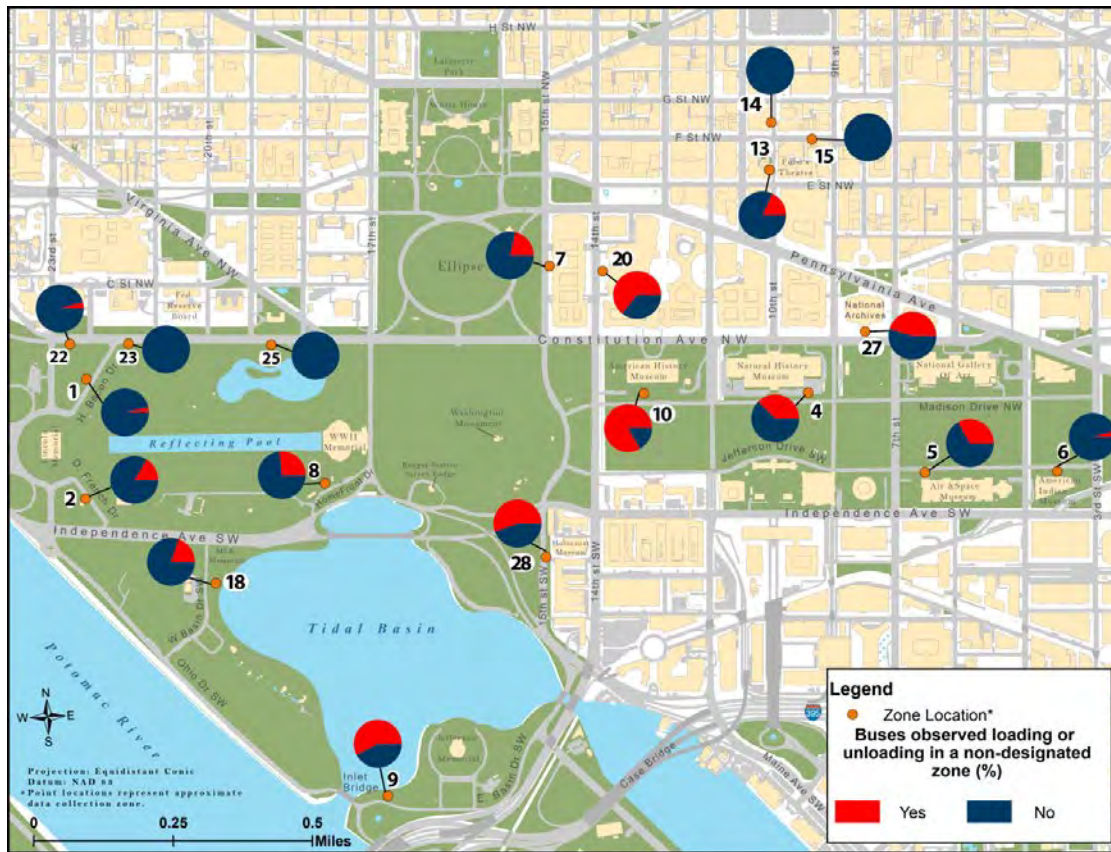


PHOTO 3.16: PARKING IN A NONDESIGNATED ZONE (ZONE 8)



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St.)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

PHOTO 3.17: PARKING IN A NONDESIGNATED ZONE (ZONE 18)



PHOTO 3.18: PARKING IN A NONDESIGNATED ZONE (ZONE 9)



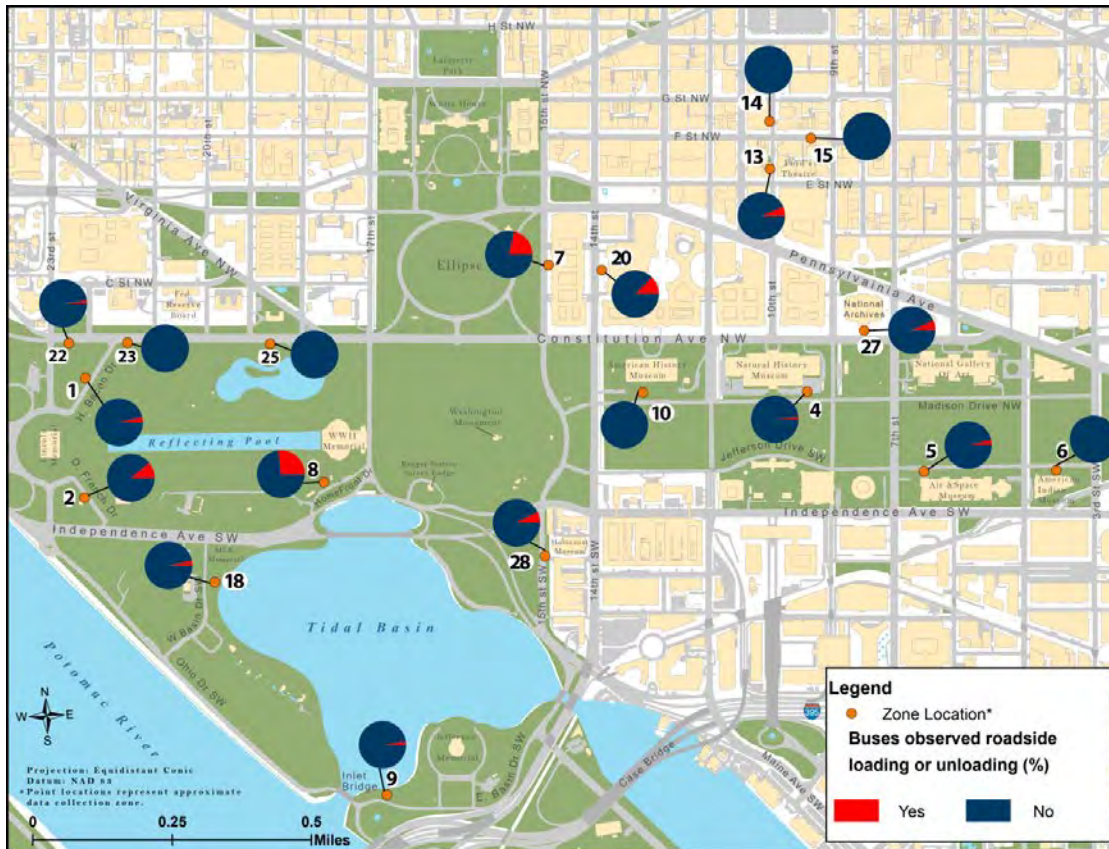
Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5.8 Loading/Unloading on Roadside Rather than Curbside

Loading and unloading of buses on the roadside rather than the curbside (Variable 23h; Figure 3.14) was most likely to be observed in Zones 2, 7, 8 and 13. Many tour bus drivers who were heading to the World War II Memorial and backed up on 17th Street gave up on reaching the zone and instead loaded or unloaded on 17th Street (Photo 3.19). The middle of the road was often close enough (Photo 3.20) and some drivers resorted to using stoplights near the zone of interest (Photo 3.21). In all cases of roadside usage, traffic flow is impeded and passenger safety is compromised.

FIGURE 3.14: PERCENTAGE OF BUSES LOADING / UNLOADING ON ROADSIDE RATHER THAN CURBSIDE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St.)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

PHOTO 3.19: ROADSIDE BACKUP ON 17TH STREET (NEAR ZONE 8)



PHOTO 3.20: ROADSIDE LOADING AND UNLOADING (NEAR ZONE 9)



PHOTO 3.21: ROADSIDE LOADING AND UNLOADING AT STOPLIGHT



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.5.9 Unsafe / Illegal Actions, Summarized by Zone

Figure 3.15 through Figure 3.34 offer a summary of the eight unsafe / illegal actions by zone. This information mimics the data in Table 3.6 yet presents the findings in a way that is more visually accessible.

FIGURE 3.15: INFRACTIONS BY ZONE, ZONE 1, LINCOLN MEMORIAL, NORTH

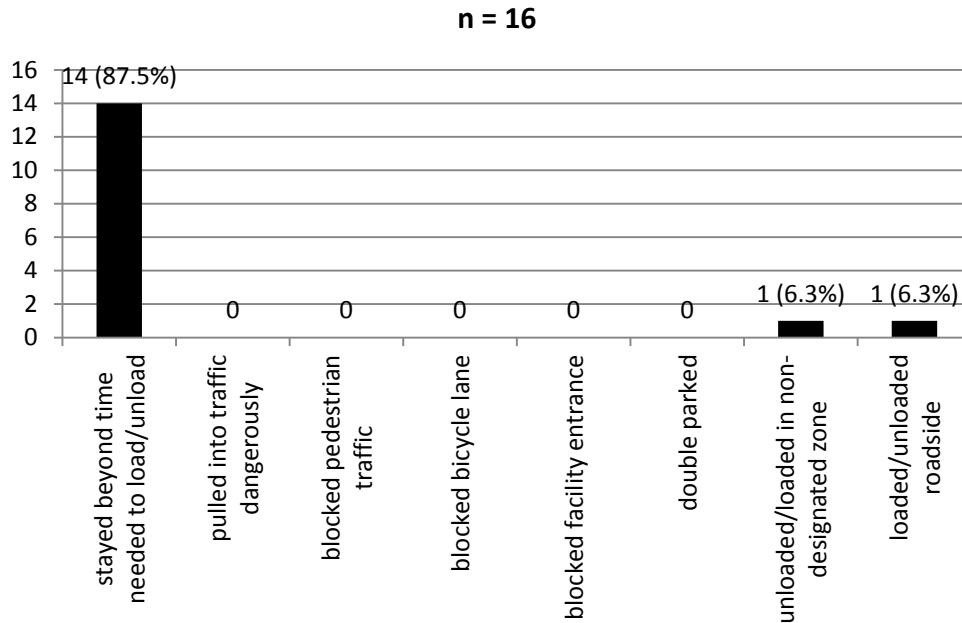
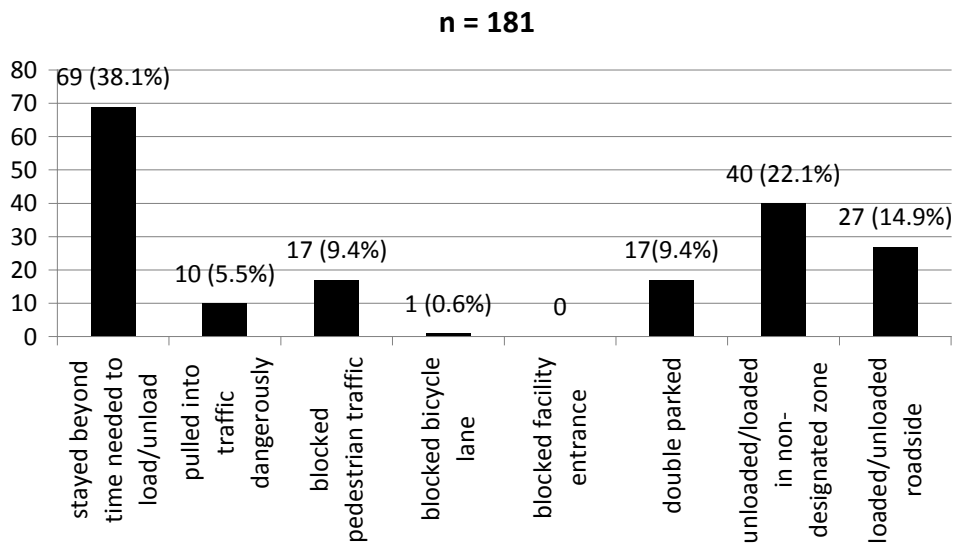


FIGURE 3.16: INFRACTIONS BY ZONE, ZONE 2, LINCOLN MEMORIAL, SOUTH



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.17: INFRACTIONS BY ZONE, ZONE 4, NATIONAL MUSEUM OF NATURAL HISTORY

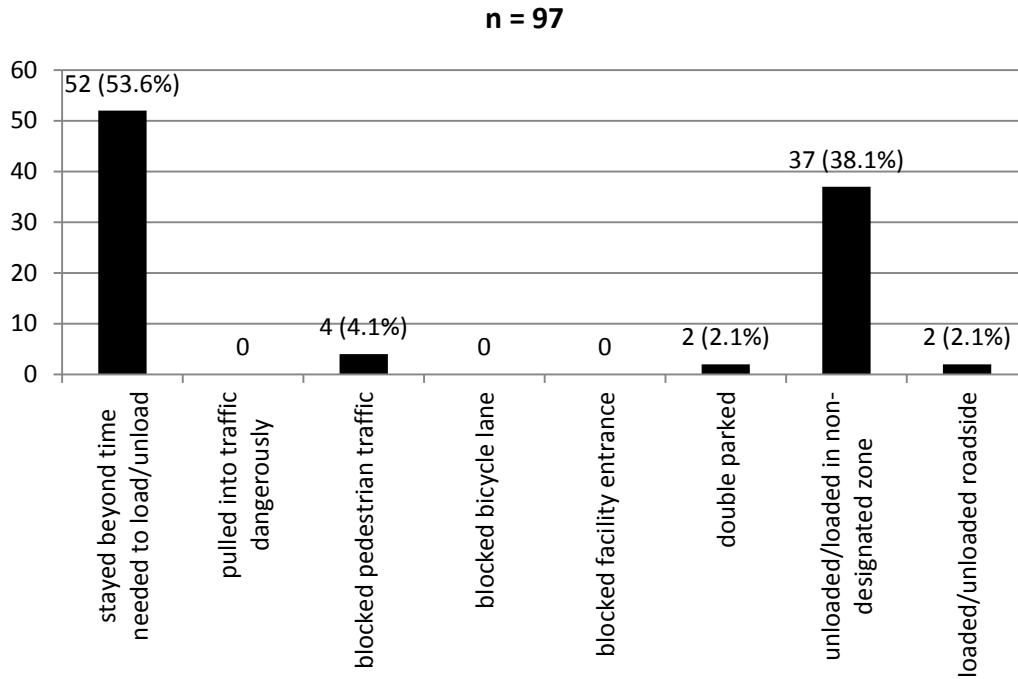
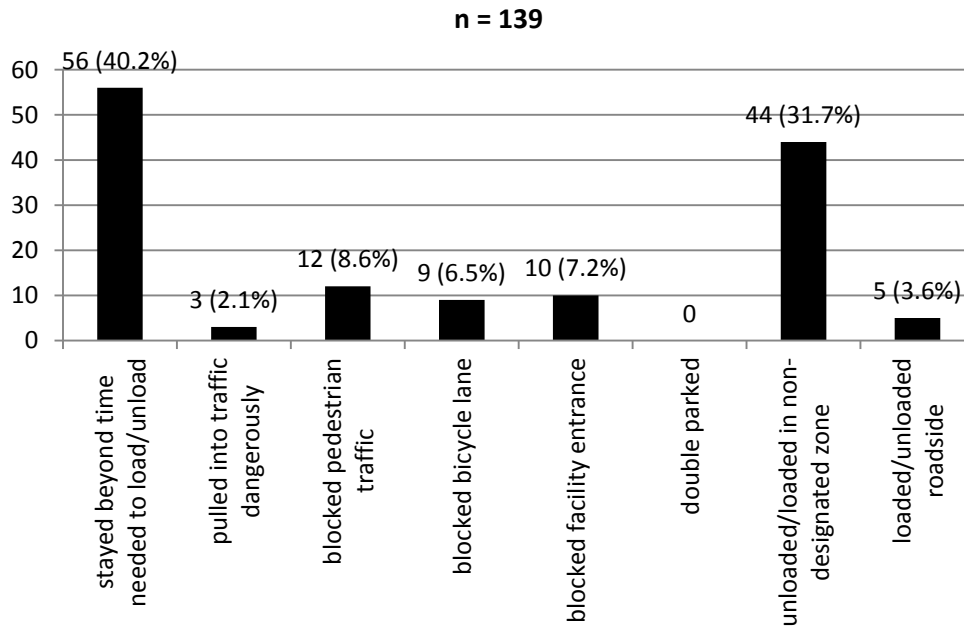


FIGURE 3.18: INFRACTIONS BY ZONE, ZONE 5, NATIONAL AIR AND SPACE MUSEUM



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.19: INFRACTIONS BY ZONE, ZONE 6, NATIONAL MUSEUM OF THE AMERICAN INDIAN

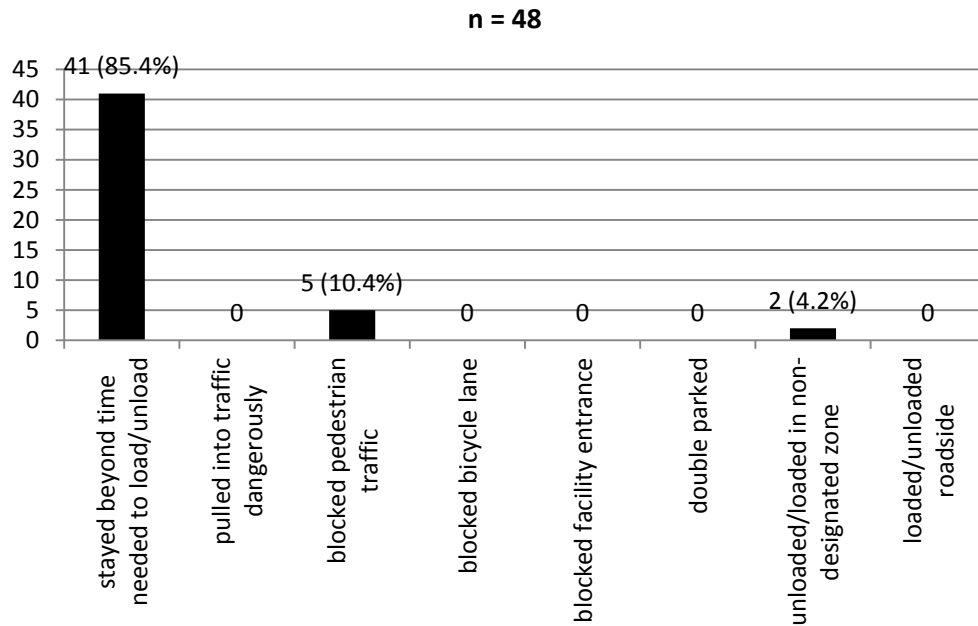
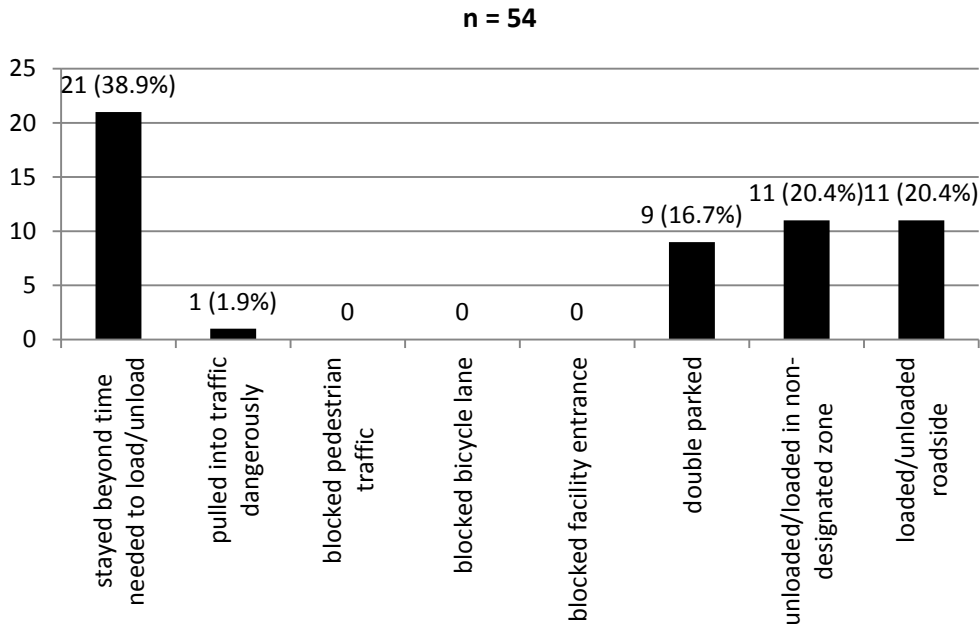


FIGURE 3.20: INFRACTIONS BY ZONE, ZONE 7, ELLIPSE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.21: INFRACTIONS BY ZONE, ZONE 8, WORLD WAR II MEMORIAL

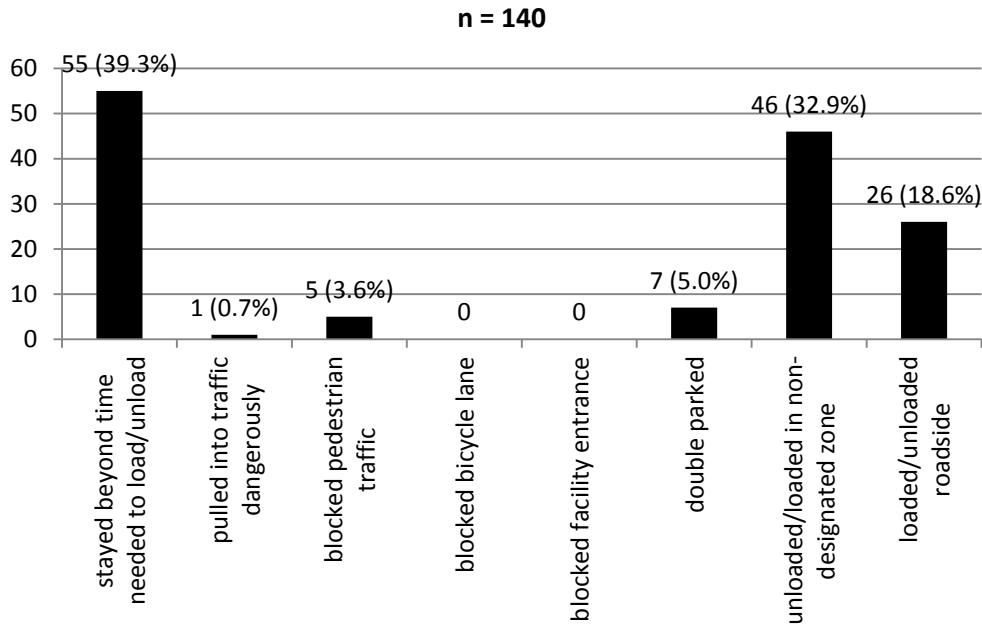
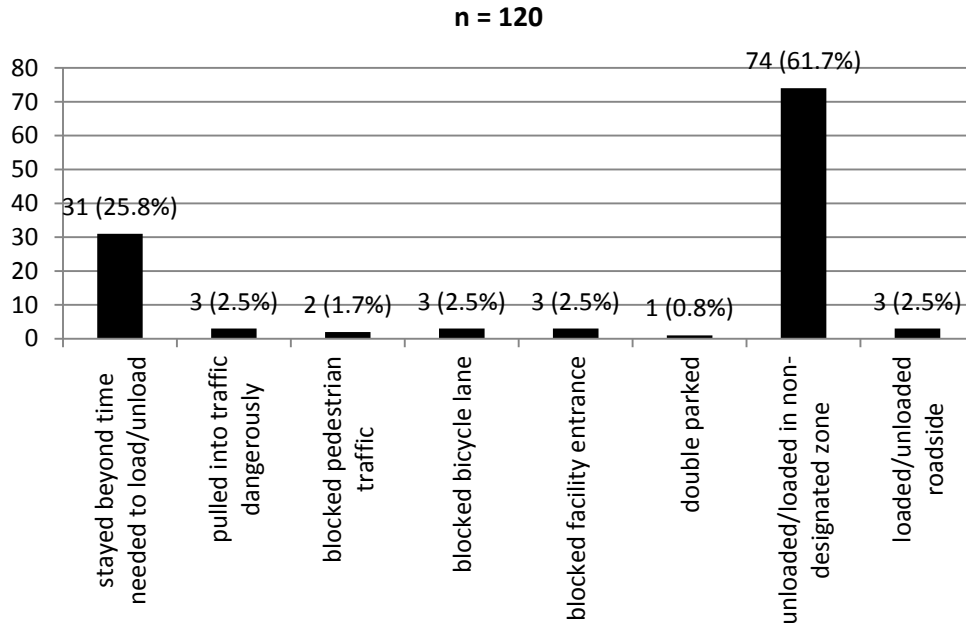


FIGURE 3.22: INFRACTIONS BY ZONE, ZONE 9, THOMAS JEFFERSON MEMORIAL



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.23: INFRACTIONS BY ZONE, ZONE 10, NATIONAL MUSEUM OF AMERICAN HISTORY

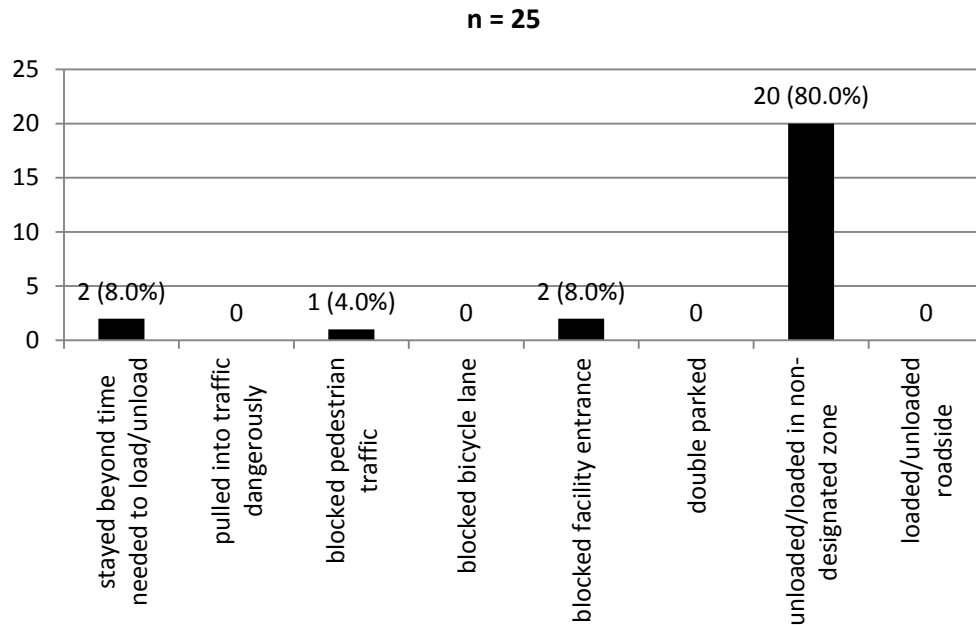
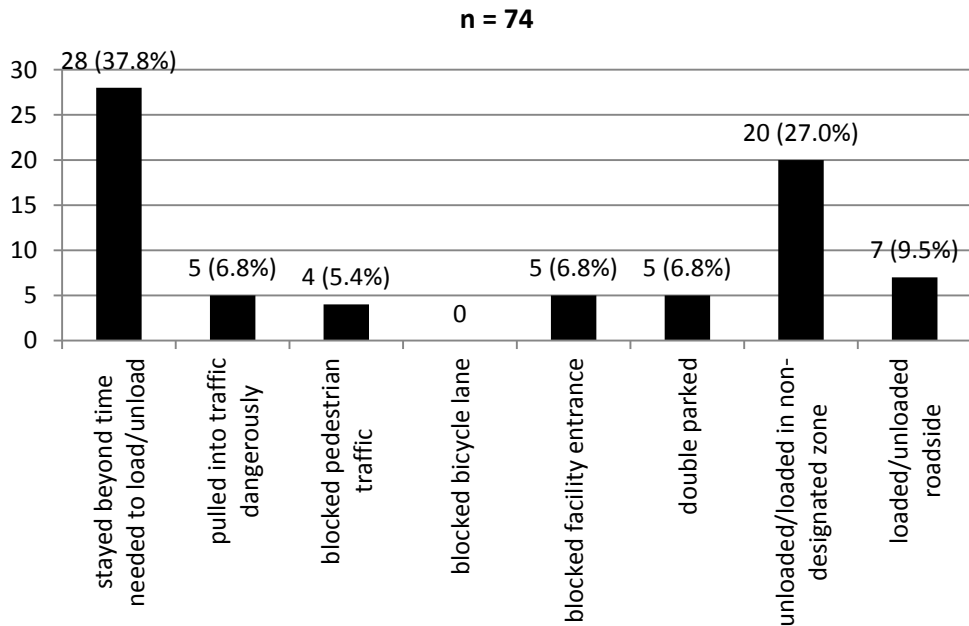


FIGURE 3.24: INFRACTIONS BY ZONE, ZONE 13, FORD’S THEATRE, 500 BLOCK 10TH STREET



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.25: INFRACTIONS BY ZONE, ZONE 14, FORD’S THEATRE, NORTH, 600 BLOCK 10TH STREET

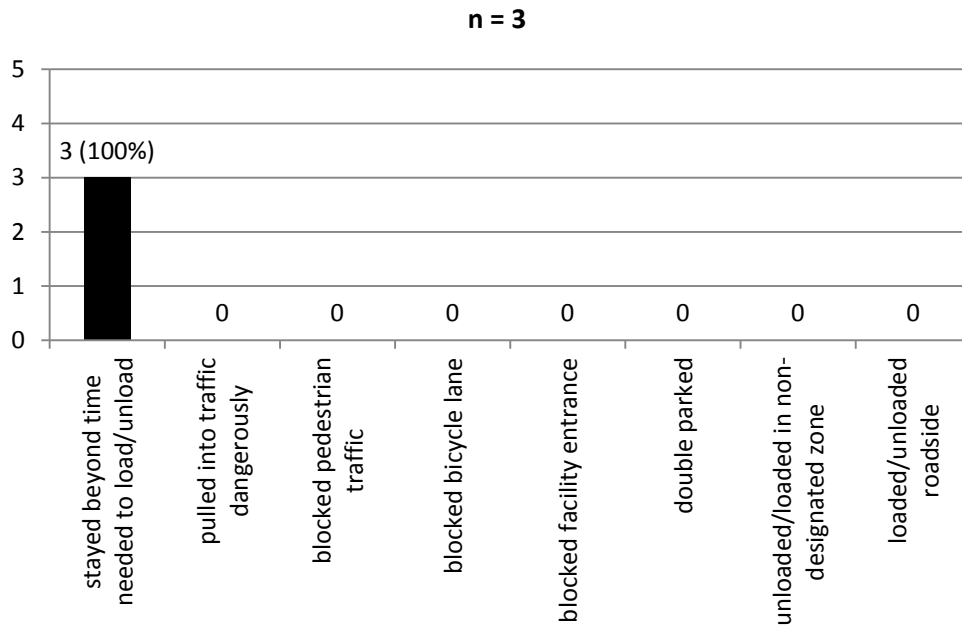
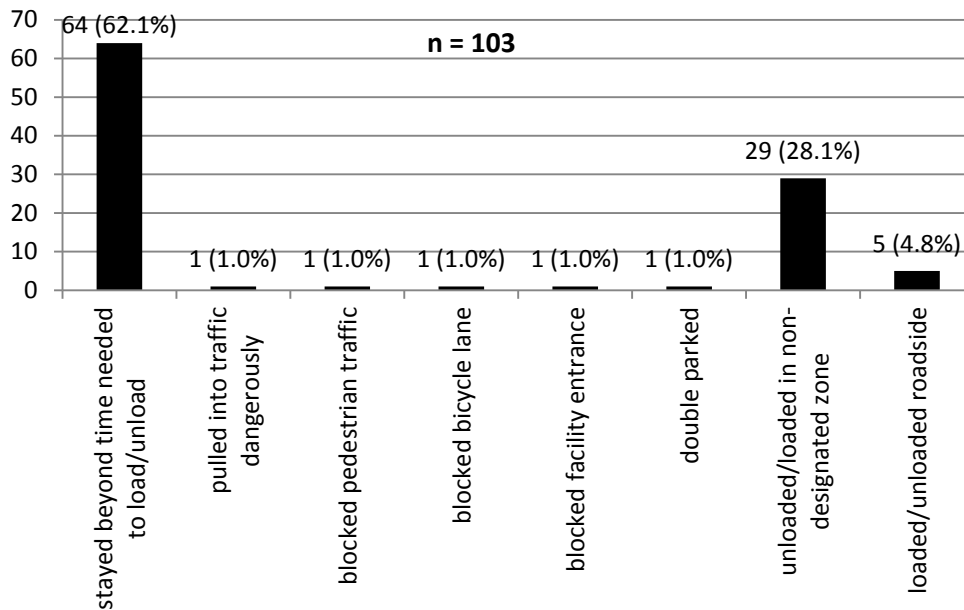


FIGURE 3.26: INFRACTIONS BY ZONE, ZONE 15, FORD’S THEATRE, WEST, 1000 BLOCK F STREET



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford’s Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford’s Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford’s Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.27: INFRACTIONS BY ZONE, ZONE 18, FRANKLIN DELANO ROOSEVELT MEMORIAL / MARTIN LUTHER KING JR. MEMORIAL

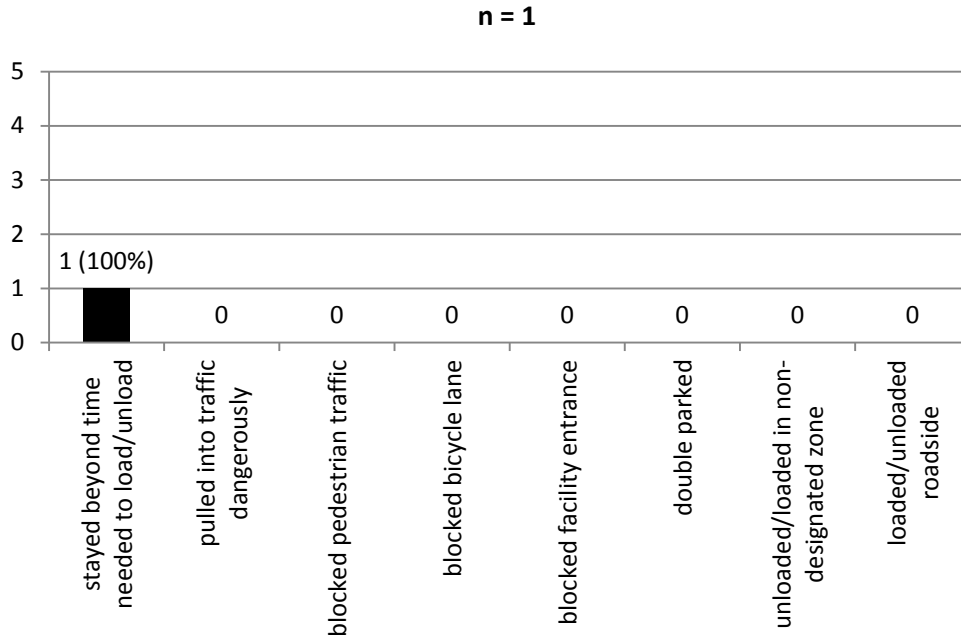
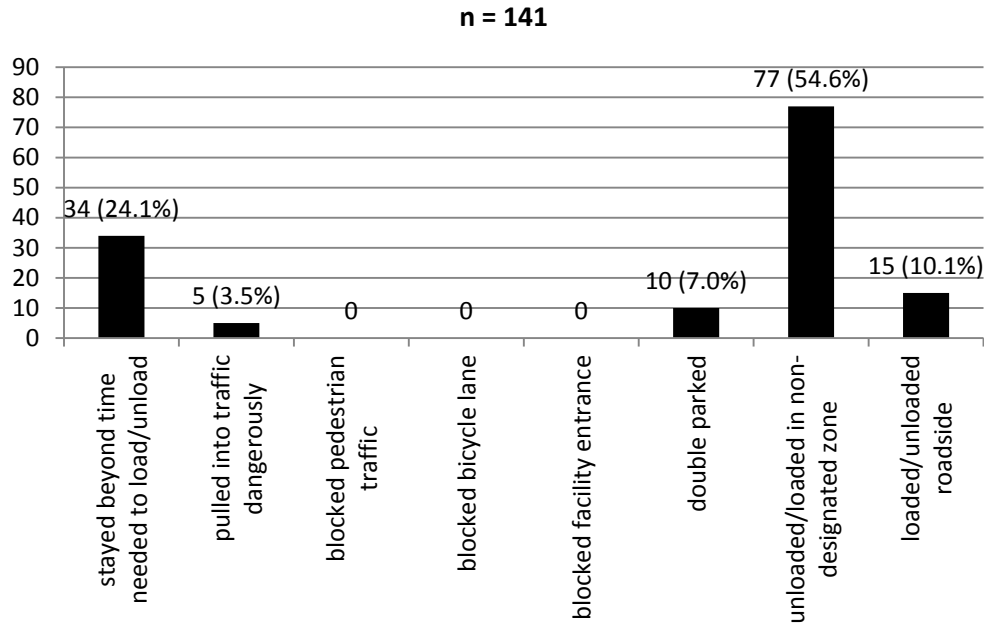


FIGURE 3.28: INFRACTIONS BY ZONE, ZONE 20, RONALD REAGAN BUILDING



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.29: INFRACTIONS BY ZONE, ZONE 22, CONSTITUTION AVENUE, EASTBOUND BETWEEN 23RD AND HENRY BACON DRIVE

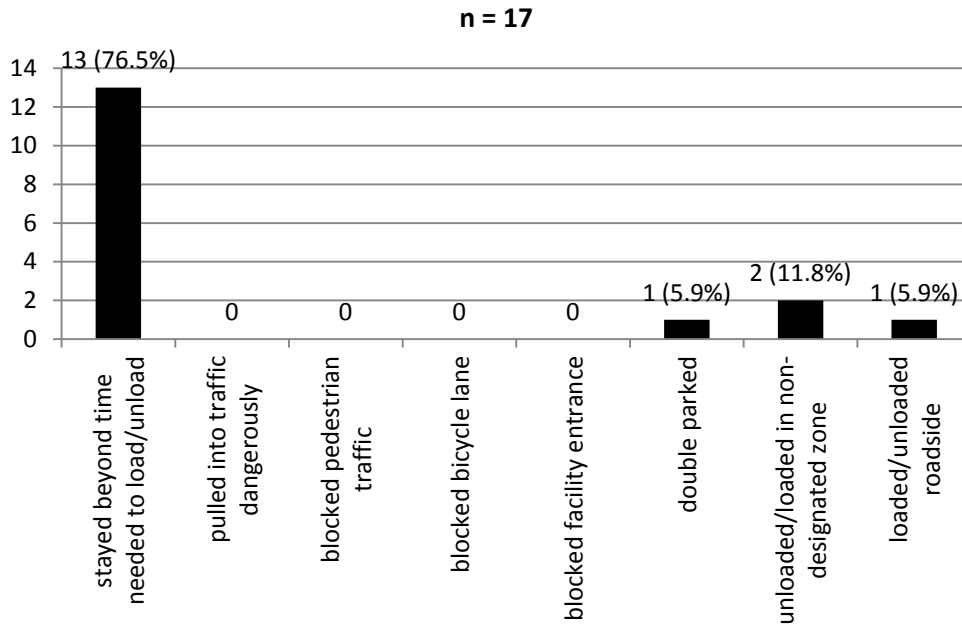
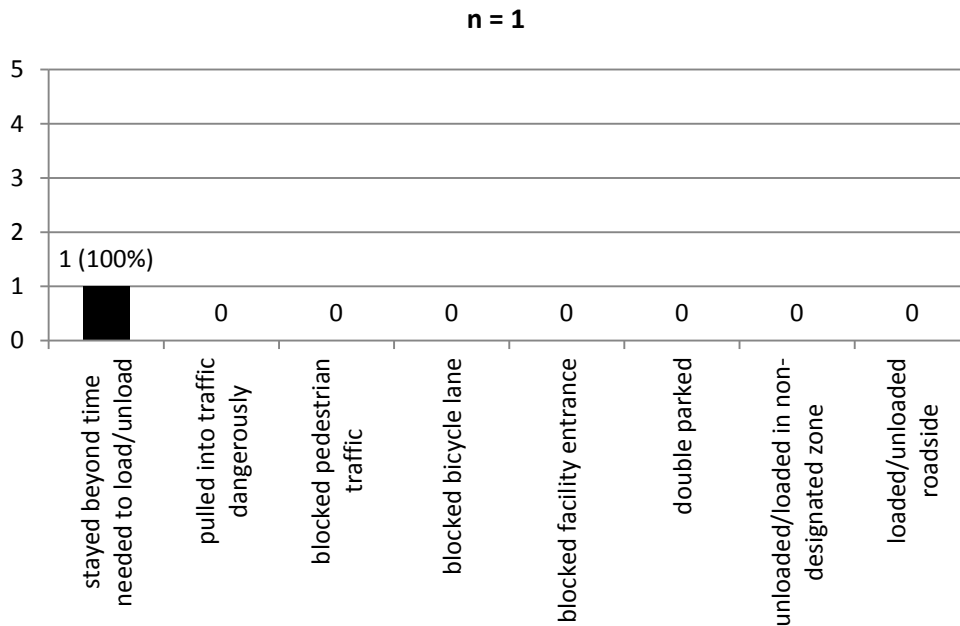


FIGURE 3.30: INFRACTIONS BY ZONE, ZONE 23, CONSTITUTION AVENUE, EASTBOUND BETWEEN HENRY BACON DRIVE AND 21ST



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.31: INFRACTIONS BY ZONE, ZONE 25, CONSTITUTION AVENUE, EASTBOUND BETWEEN 19TH AND 18TH AND BETWEEN 18TH AND 17TH

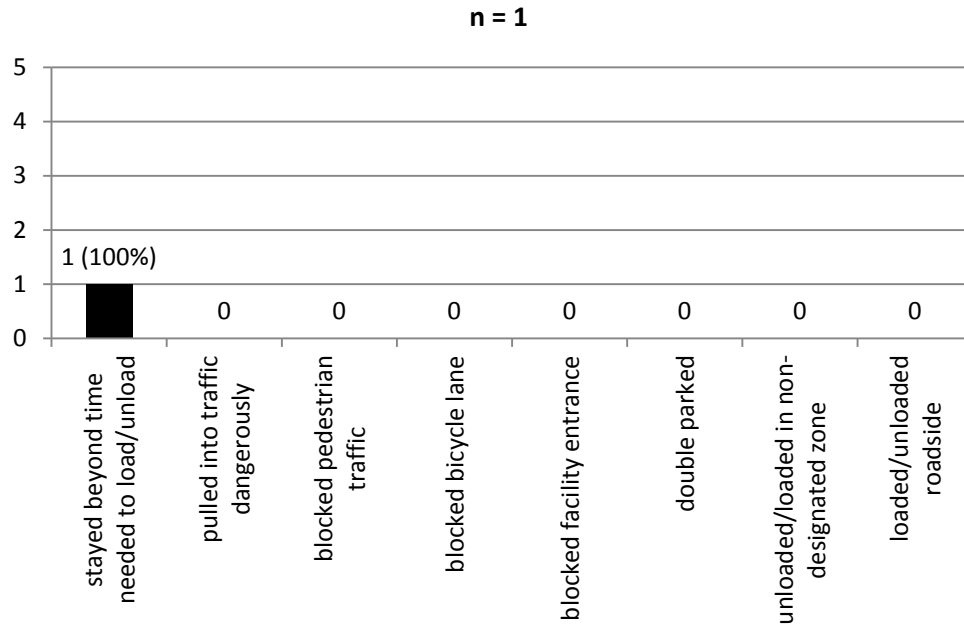
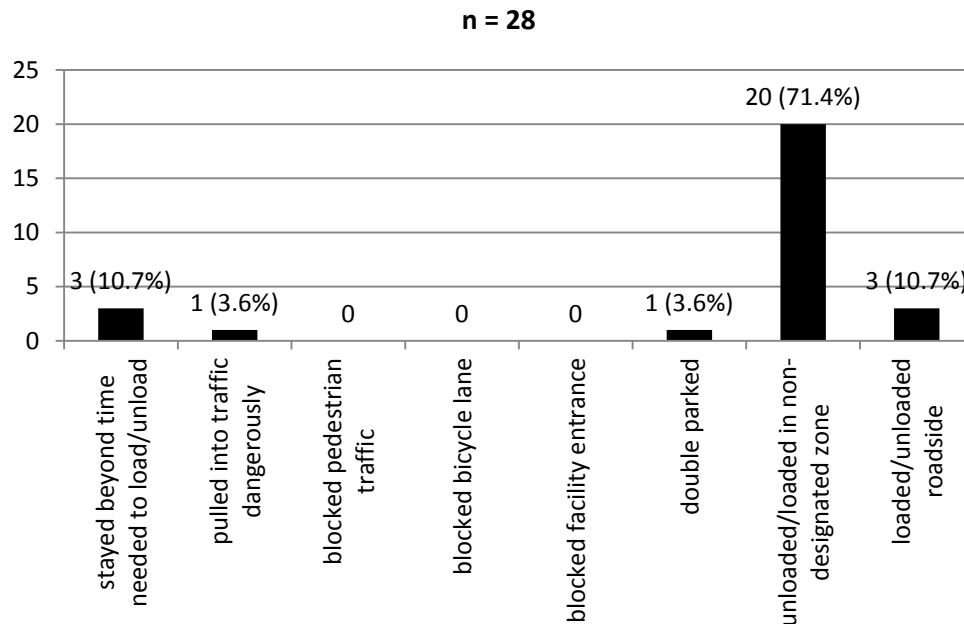


FIGURE 3.32: INFRACTIONS BY ZONE, ZONE 27, CONSTITUTION AVENUE, WESTBOUND IN FRONT OF NATIONAL ARCHIVES



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.33: INFRACTIONS BY ZONE, ZONE 28, U.S. HOLOCAUST MEMORIAL MUSEUM

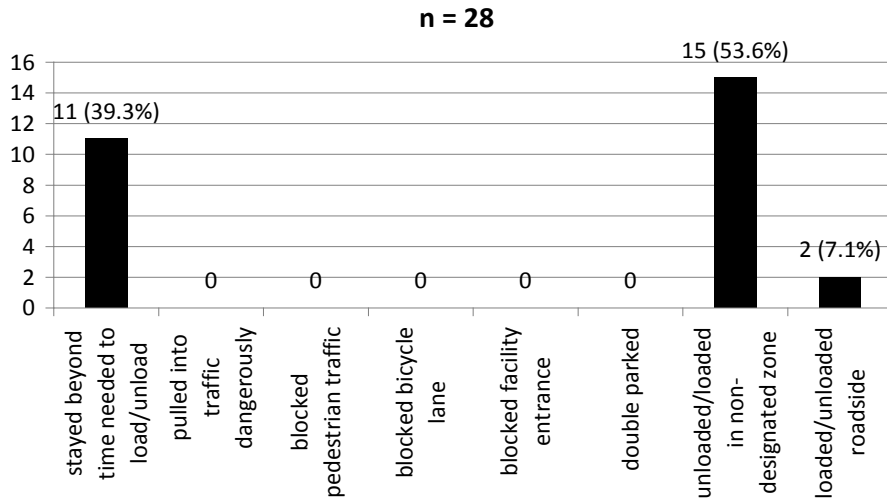
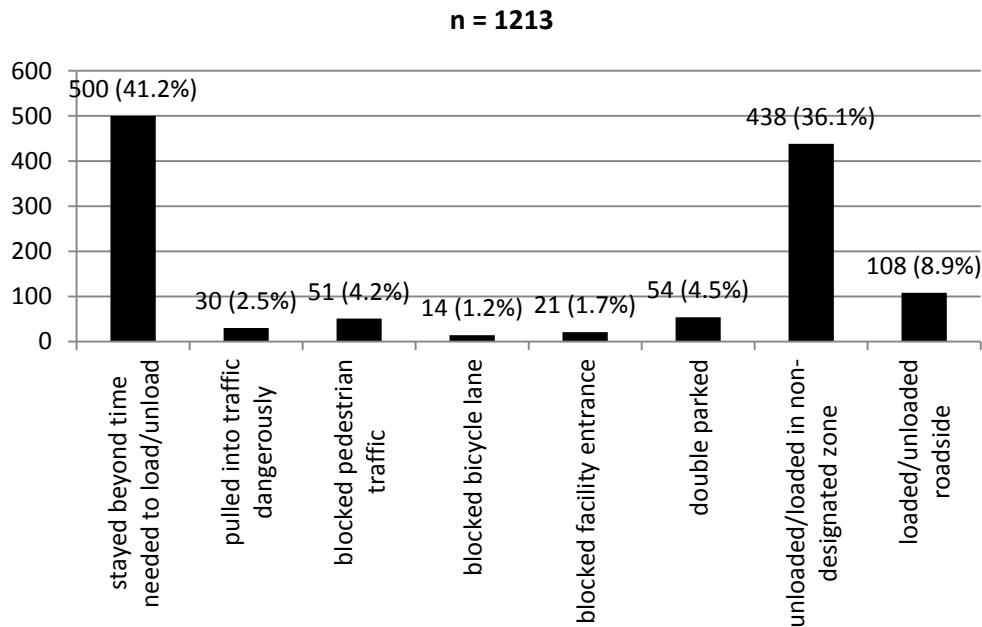


FIGURE 3.34: INFRACTIONS BY ZONE, ALL ZONES



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.6 Average Time Spent in Zone

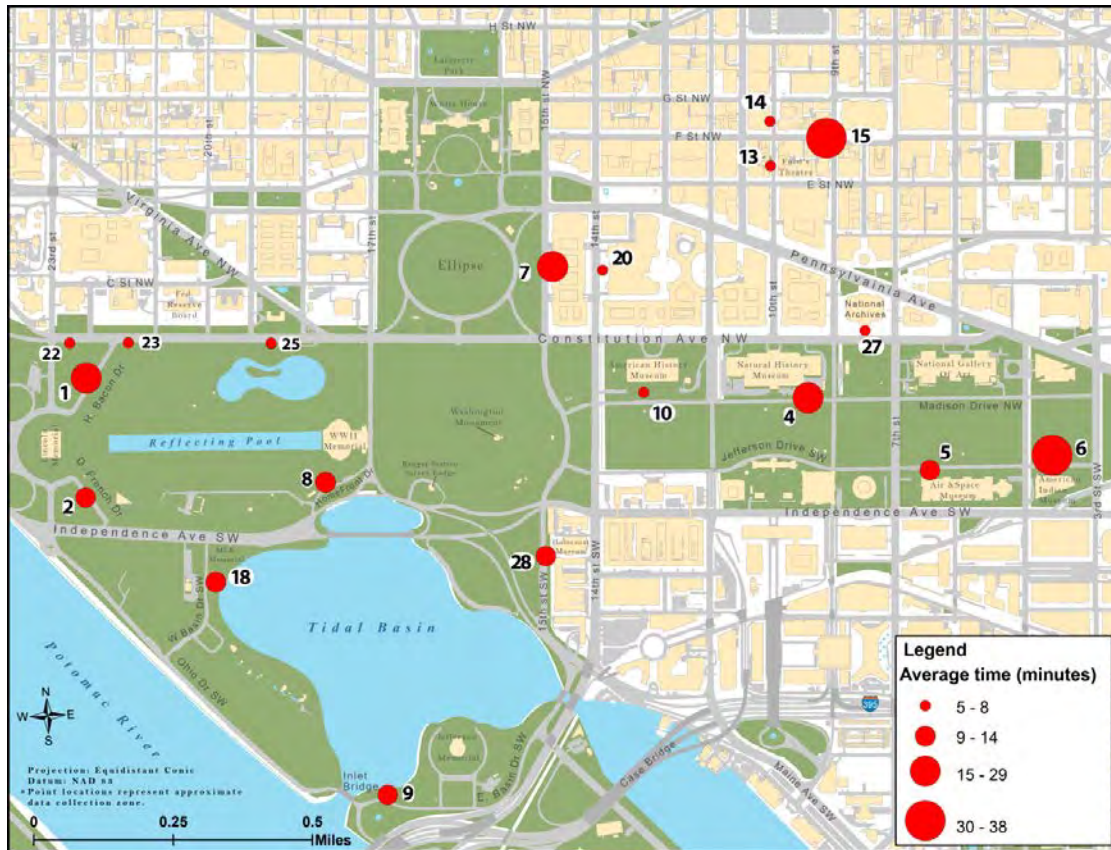
The range of time buses spent in place was documented by determining the difference between bus pull-in time (Variable 9) and bus pull-out time (Variable 10, Figure 3.35). The average length of stay at a given zone varied greatly among the 1429 buses where the time spent in the zone was documented, with each bus remaining in place anywhere from less than 1 minute to 157 minutes (Table 3.7). Collectively, the average time buses spent in a zone was 12.1 minutes (standard deviation = 19.0). Buses in Zone 6 stayed the longest (average time = 37.7 minutes). It is worth noting that bus drivers were generally unaware that their driving activity was being observed during data collection; thus, it is unlikely their wait time was significantly influenced by the researchers' presence.

TABLE 3.7: AVERAGE TIME SPENT IN ZONE

Zone	Average Time Buses Spent in Zone (mean)	Standard Deviation	Minimum – Maximum Time Buses Spent in Zone
1	28.9 minutes	27.0	0–101 minutes
2	10.6 minutes	17.4	0–133 minutes
4	18.8 minutes	26.6	1–135 minutes
5	13.6 minutes	22.6	1–143 minutes
6	37.7 minutes	41.1	1–157 minutes
7	23.2 minutes	23.6	1–85 minutes
8	10.1 minutes	13.2	1–82 minutes
9	10.1 minutes	10.4	1–50 minutes
10	7.2 minutes	5.4	1–21 minutes
13	6.4 minutes	13.8	1–100 minutes
14	7.2 minutes	5.8	1–17 minutes
15	36.0 minutes	36.8	10–62 minutes
18	13.9 minutes	16.1	0–76 minutes
20	4.9 minutes	5.2	0–41 minutes
22	7.6 minutes	10.8	1–45 minutes
23	6.0 minutes	7.8	1–15 minutes
25	4.5 minutes	12.9	1–66 minutes
27	5.4 minutes	6.9	1–37 minutes
28	12.8 minutes	12.7	2–49 minutes
Total	12.1 minutes	19.0	0–157 minutes

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.35: AVERAGE TIME SPENT IN ZONE



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.7 Engine Idling Time

The majority (62.2%) of buses adhered to D.C. regulations regarding engine idling time (Variable 11) by idling for less than 3 minutes (n=856), while 403 (29.2%) buses idled from 3-10 minutes and 119 (8.6%) idled for more than 10 minutes (Figure 3.36). Temperatures during the data collection period ranged from 46°F to 90°F; thus, in many cases bus drivers were idling in order to heat or cool the bus interiors.

When comparing zones, idling time varied significantly (Table 3.8, Figure 3.37). Drivers in zones 1, 2, 4, 5, 8, 9, 13, 18 and 20 were frequently documented disregarding the regulations and idling for more than 3 minutes. Over 50% of the bus engines were left idling for more than 3 minutes in Zones 1 (60.1%), 8 (53.5%), 9 (58.8%) and 20 (54.7%).

FIGURE 3.36: ENGINE IDLING TIME, ALL ZONES

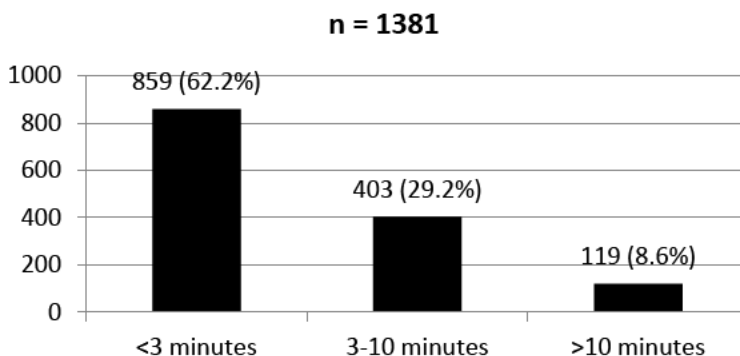
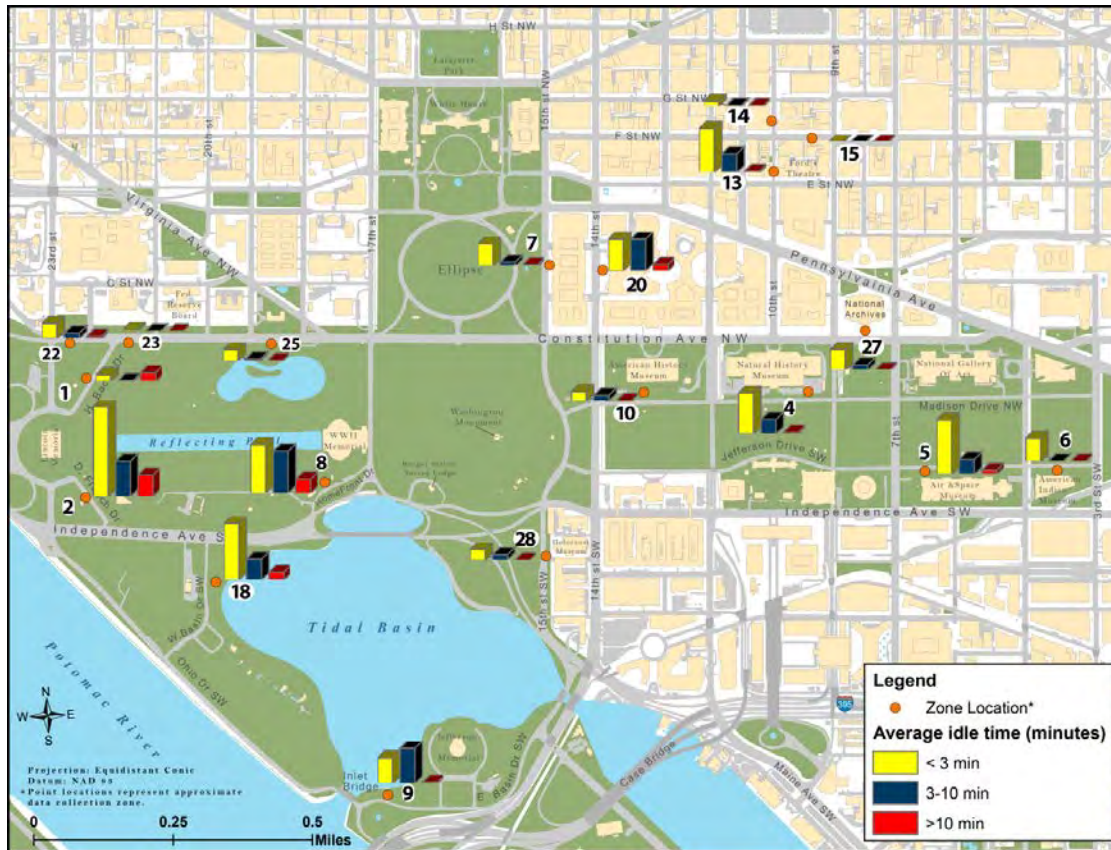


TABLE 3.8: ENGINE IDLING TIME BY ZONE

Zone	Engine Idling Time		
	<3 minutes (n)	3-10 minutes (n)	>10 minutes (n)
1	11	2	15
2	148	58	35
4	68	24	3
5	90	25	7
6	38	0	0
7	38	7	3
8	80	69	23
9	42	58	2
10	15	9	0
13	73	31	2
14	8	1	1
15	0	1	1
18	95	35	13
20	53	53	11
22	25	9	4
23	3	0	0
25	19	3	1
27	35	9	1
28	18	9	0
Total	859	403	119

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.37: ENGINE IDLING TIME BY ZONE



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.8 Groups of Buses from the Same Company

The Department of Transportation (DOT) identification number (Variable 3) and the last three digits of each bus's license plate (Variable 4) were documented for each bus. These data points allowed researchers to identify both individual buses and groups of buses from the same company. Of the 1457 buses observed, 127 did not have the DOT number recorded, in some cases because they arrived and left the data collection site too quickly and in others because no DOT number was visible on the bus. Therefore, DOT numbers were collected for 1377 of the 1457 buses observed. Of the 1377 buses for which DOT numbers were collected, 356 of the observations were buses which were observed more than once from the same group. Therefore, the 356 duplicate observations were not included in the calculation of bus group size. Thus, a total of 1021 unique buses were included when considering bus group size (Table 3.9).

It is important to note that DOT numbers from the same company did not necessarily denote those buses were in the same group. In some cases, buses from the same company could have formed multiple groups. For example, a bus group could have consisted of 3 buses, and another group consisted of 5 buses, but all buses could be from the same company. In such an example, the total group size would appear to consist of 8 buses based on grouping of DOT numbers. No attempt was made to differentiate actual groups based on any characteristic except DOT numbers.

TABLE 3.9: BUS GROUP SIZE DISTRIBUTION

Bus Group Size (No. of Buses in a Group)	No. of Groups	No. of Buses in this Group Size	Percentage of Buses in this Group Size
1	448	448	43.9%
2	83	166	16.3%
3	24	72	7.1%
4	14	56	5.4%
5	11	55	5.4%
6	8	48	4.7%
7	4	28	2.7%
8	2	16	1.6%
9	0	0	0%
10 or more	9	132	12.9%
Total		1,021	100%

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

3.4.9 Buses with and without Passengers, by Zone

The number of buses observed with passengers varied significantly by zone with over 80% of buses documented with passengers in observed in Zones 2, 5, 8, 9, 10, 13, 18, 20, 23 and 25. Zone 6 was by far the most likely area to be observed without passengers, with 87.2% of the buses noted as empty (Table 3.10, Figure 3.38, and Figure 3.39).

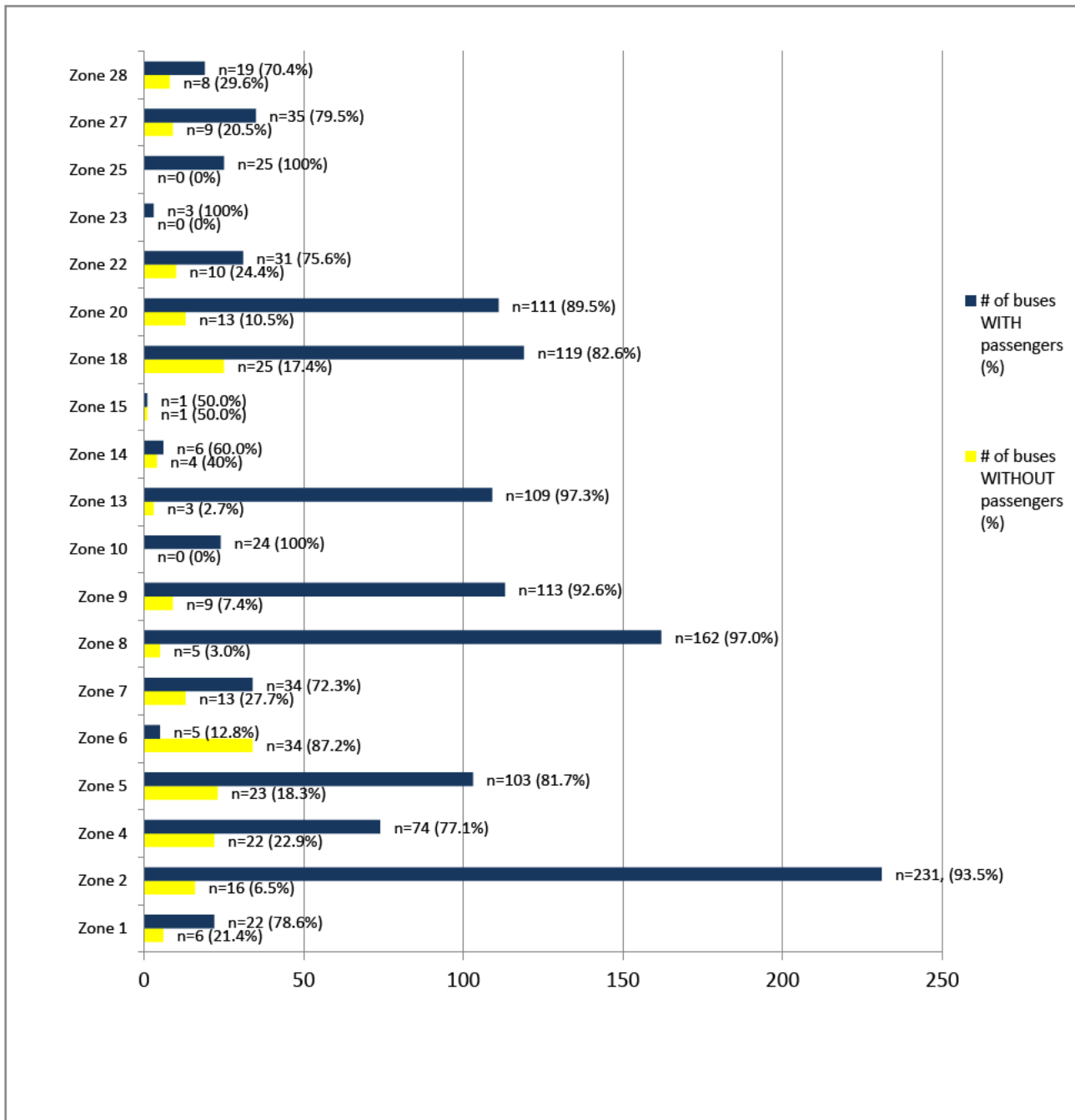
TABLE 3.10: BUSES WITH AND WITHOUT PASSENGERS, BY ZONE

Zone	No. of Buses Observed	Buses WITH Passengers		Buses WITHOUT Passengers	
		No. of Buses	Percentage	No. of Buses	Percentage
1	28	22	78.6%	6	21.4%
2	247	231	93.5%	16	6.5%
4	96	74	77.1%	22	22.9%
5	126	103	81.7%	23	18.3%
6	39	5	12.8%	34	87.2%
7	47	34	72.3%	13	27.7%
8	167	162	97.0%	5	3.0%
9	122	113	92.6%	9	7.4%
10	24	24	100%	0	0%
13	112	109	97.3%	3	2.7%
14	10	6	60.0%	4	40.0%
15	2	1	50.0%	1	50.0%
18	144	119	82.6%	25	17.4%
20	124	111	89.5%	13	10.5%
22	41	31	75.6%	10	24.4%
23	3	3	100%	0	0%
25	25	25	100%	0	0%
27	44	35	79.5%	9	20.5%
28	27	19	70.4%	8	29.6%
Total	1,428	1,227	85.9%	201	14.1%

Key for Loading / Unloading Zones

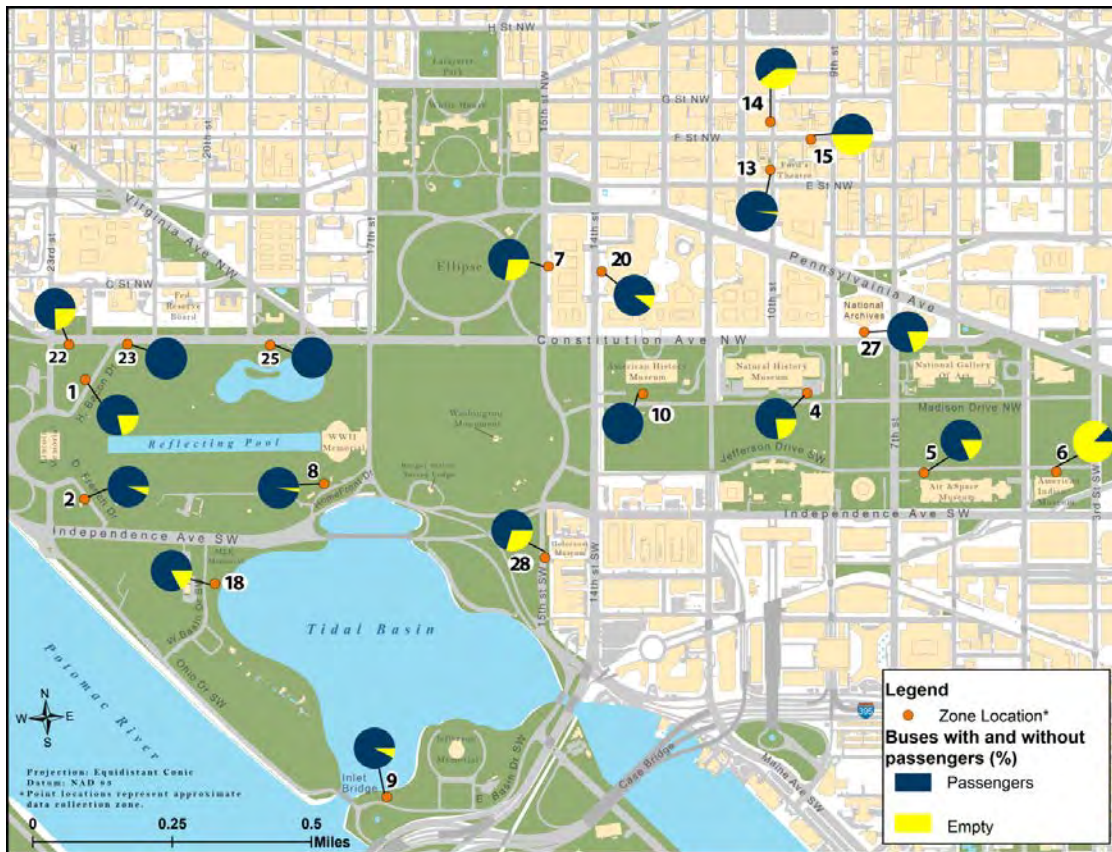
1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

FIGURE 3.38: BUSES WITH AND WITHOUT PASSENGERS, BY ZONE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	25	Constitution Ave. (eastbound between 19th and 17th)
9	Jefferson Memorial	27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.39: BUSES WITH AND WITHOUT PASSENGERS, BY ZONE



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave. (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.10 Orderliness of Passenger Loading and Unloading

Passenger loading and unloading proceeded in a generally orderly manner with only 5.7% (n = 67) of the observances showing evidence of chaos (Variable 14). Most chaotic loading and unloading occurred in three zones: Lincoln Memorial South (n = 19); the Thomas Jefferson Memorial (n = 10); and, on 14th Street in front of the Ronald Reagan Building (n = 17), (Table 3.11, Figure 3.40, and Figure 3.41). Lincoln Memorial South is a consistently busy zone leading to occasional chaotic loading / unloading behavior. The Thomas Jefferson Memorial area was subject to frequent loading / unloading in nondesignated areas, resulting in chaos. The zone in front of the Ronald Reagan Building is not designated for tour buses and is on a congested street with significant commuter traffic.

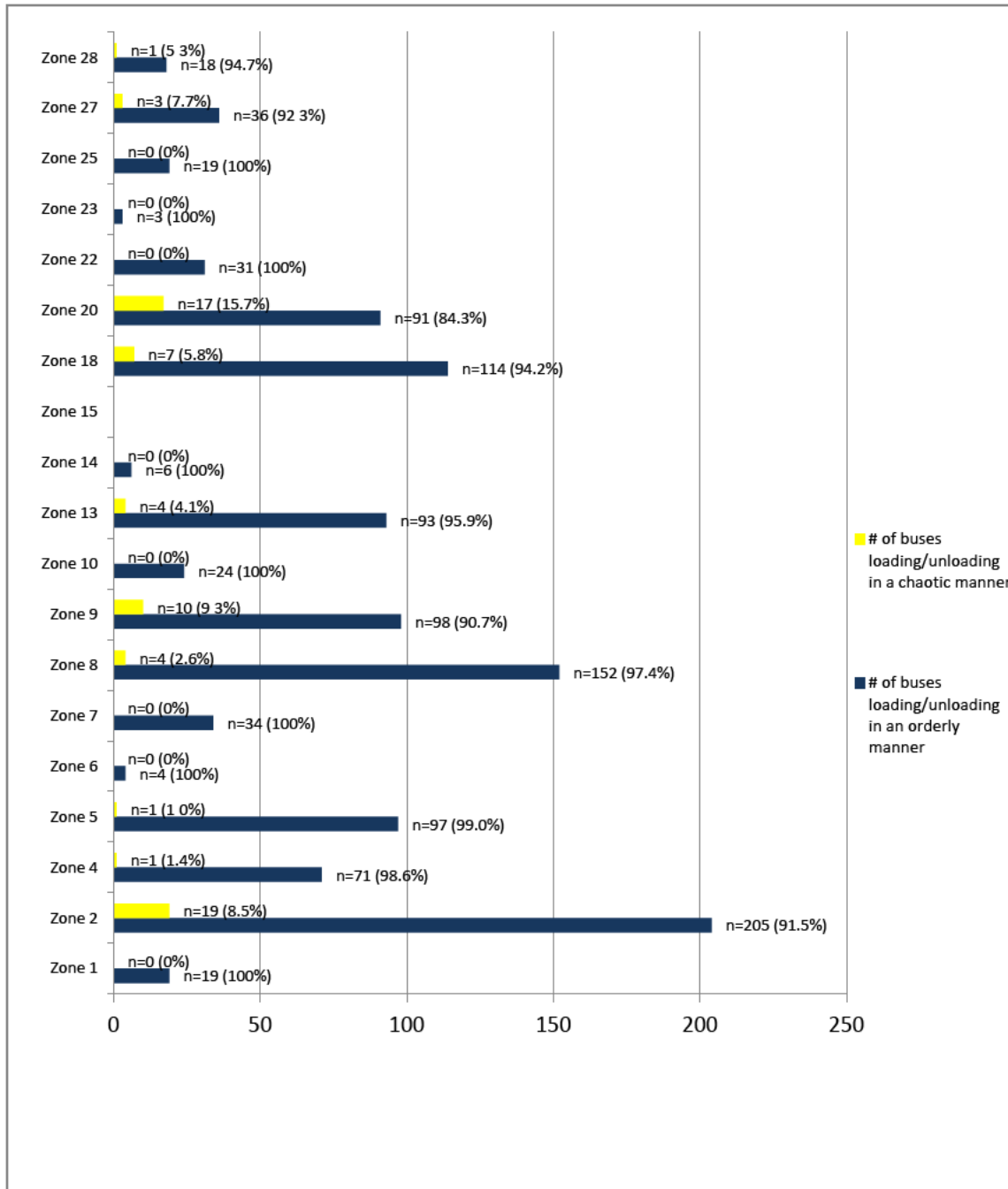
TABLE 3.11: ORDERLINESS OF PASSENGERS BY ZONE

Zone	Buses Loading/Unloading in an Orderly Manner		Buses Loading/Unloading in a Chaotic Manner	
	No. of Buses	Percentage of Buses	No. of Buses	Percentage of Buses
1	19	100%	0	0%
2	205	91.5%	19	8.5%
4	71	98.6%	1	1.4%
5	97	99.0%	1	1.0%
6	4	100%	0	0%
7	34	100%	0	0%
8	152	97.4%	4	2.6%
9	98	90.7%	10	9.3%
10	24	100%	0	0%
13	93	95.9%	4	4.1%
14	6	100%	0	0%
15	*		*	
18	114	94.2%	7	5.8%
20	91	84.3%	17	15.7%
22	31	100%	0	0%
23	3	100%	0	0%
25	19	100%	0	0%
27	36	92.3%	3	7.7%
28	18	94.7%	1	5.3%
Total	1,115	94.3%	67	5.7%

*No data were gathered regarding orderly or chaotic loading/unloading for Zone 15.

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

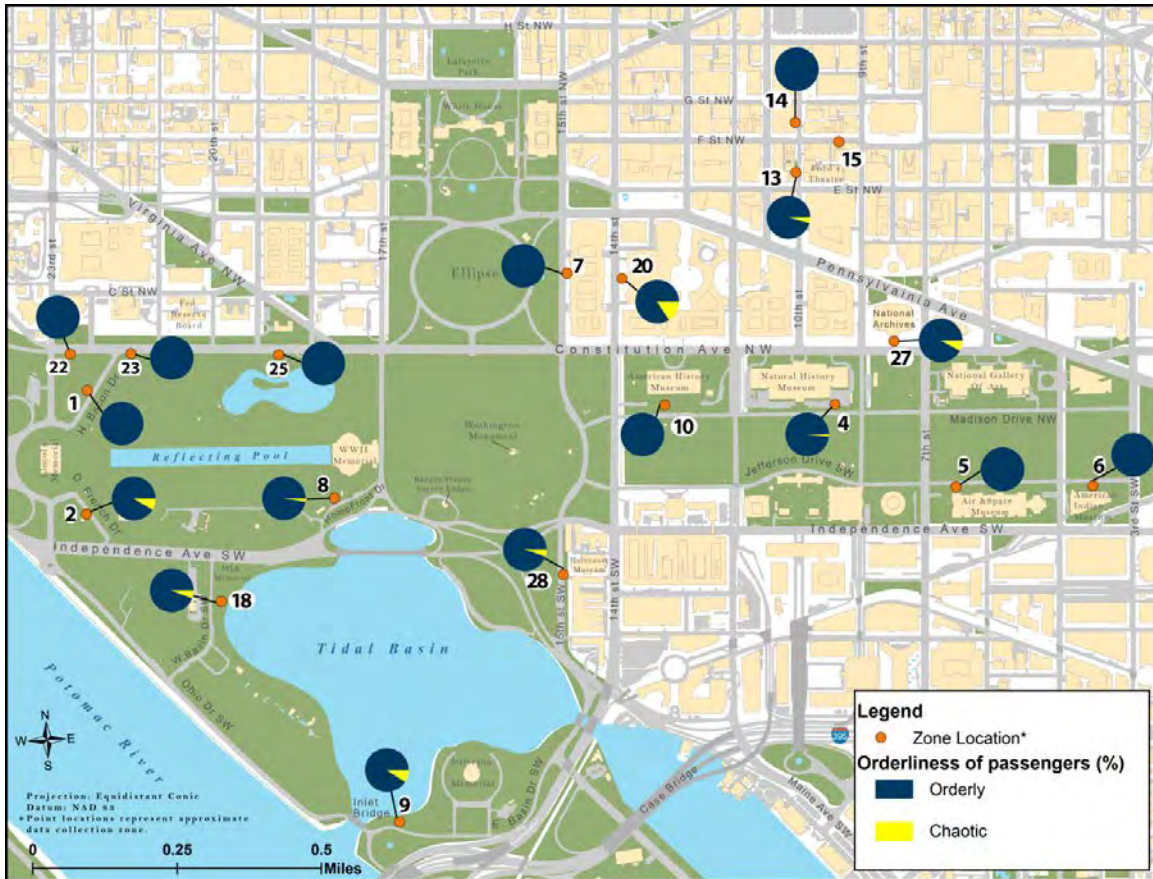
FIGURE 3.40: ORDERLINESS OF PASSENGER LOADING AND UNLOADING, BY ZONE



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St.)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.41: ORDERLINESS OF PASSENGER LOADING AND UNLOADING, BY ZONE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	28	U.S. Holocaust Museum
7	Ellipse		
8	World War II Memorial		
9	Jefferson Memorial		
10	American History Museum		
13	Ford's Theatre (500 block 10th St.)		
14	Ford's Theatre (North 600 block 10th St)		
15	Ford's Theater (West, 1000 block F St.)		
18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials		
20	14th St. (west side of Ronald Reagan Building)		

3.4.11 Use of Assistive Devices

Ninety-three buses (7.5%) had at least one passenger who was observed using an assistive device such as crutches, a cane or a wheelchair (Variable 16). In considering frequency, at least 10 buses were observed with passengers using assistive devices in Zones 2, 4, 8 and 13 (Table 3.12, Figure 3.42, and Figure 3.43). Zone 8 is a frequent visitation site for World War II Honor Flight veterans, leading to an increased observation of assistive devices in comparison to other zones. While in other zones, researchers might document one cane or wheelchair, it was not uncommon for 20 or more wheelchairs to be utilized during Honor Flight tours (Photo 3.22), necessitating additional time for loading/unloading.

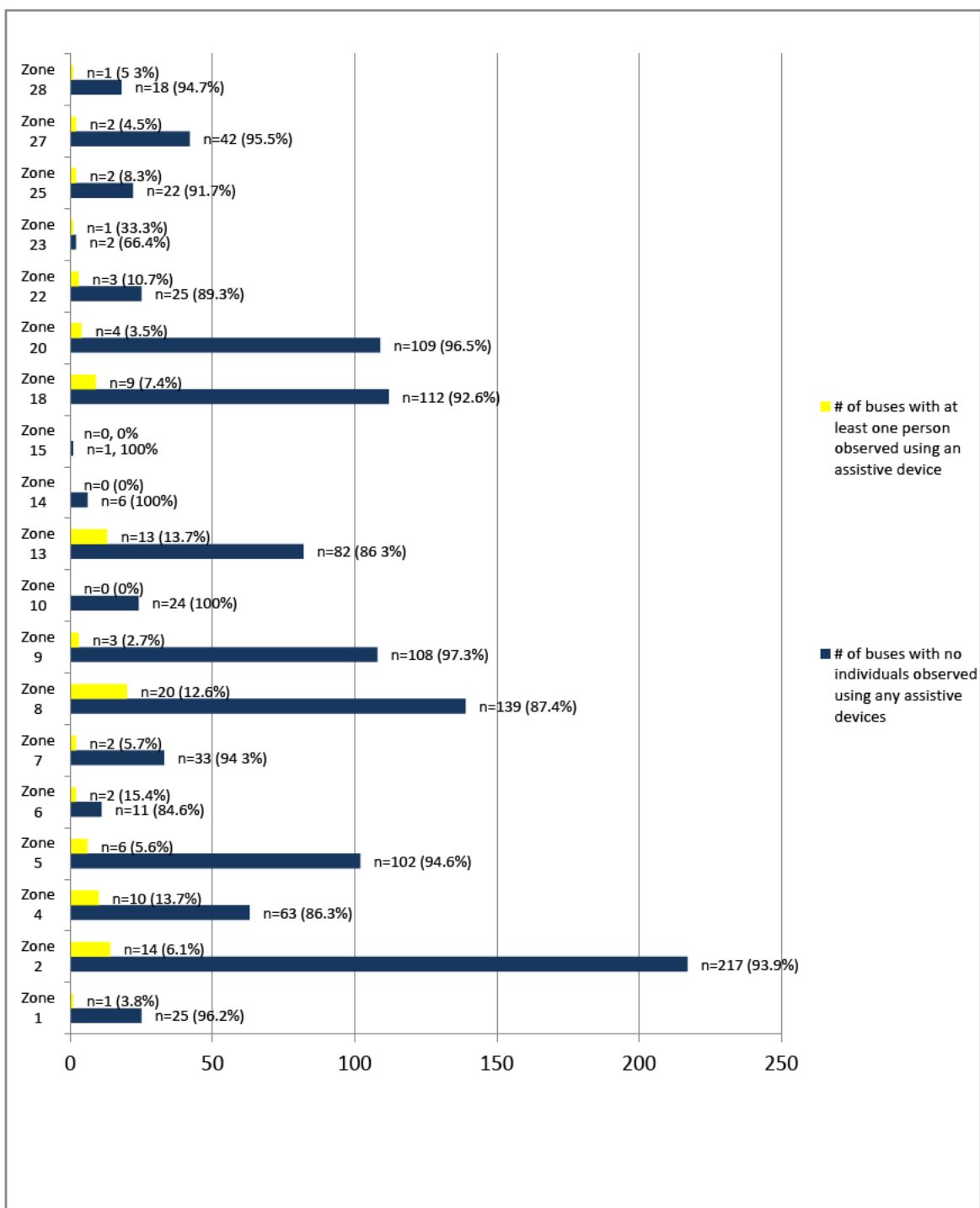
TABLE 3.12: PASSENGER USE OF ASSISTIVE DEVICES, BY ZONE

Zone	No. of Buses Observed for this Characteristic	No. of Buses Observed with at Least One Person Using an Assistive Device	Percentage of Individuals Observed using Assistive Devices
1	26	1	3.8%
2	231	14	6.1%
4	73	10	13.7%
5	108	6	5.6%
6	13	2	15.4%
7	35	2	5.7%
8	159	20	12.6%
9	111	3	2.7%
10	24	0	0.0%
13	95	13	13.7%
14	6	0	0.0%
15	1	0	0.0%
18	121	9	7.4%
20	113	4	3.5%
22	28	3	10.7%
23	3	1	33.3%
25	24	2	8.3%
27	44	2	4.5%
28	19	1	5.3%
Total	1,234	93	7.5%

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

FIGURE 3.42: BUSES OBSERVED WITH AT LEAST ONE PASSENGER USING AN ASSISTIVE DEVICE, BY ZONE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	25	Constitution Ave. (eastbound between 19th and 17th)
9	Jefferson Memorial	27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

FIGURE 3.43: BUSES OBSERVED WITH AT LEAST ONE PASSENGER USING AN ASSISTIVE DEVICE, BY ZONE

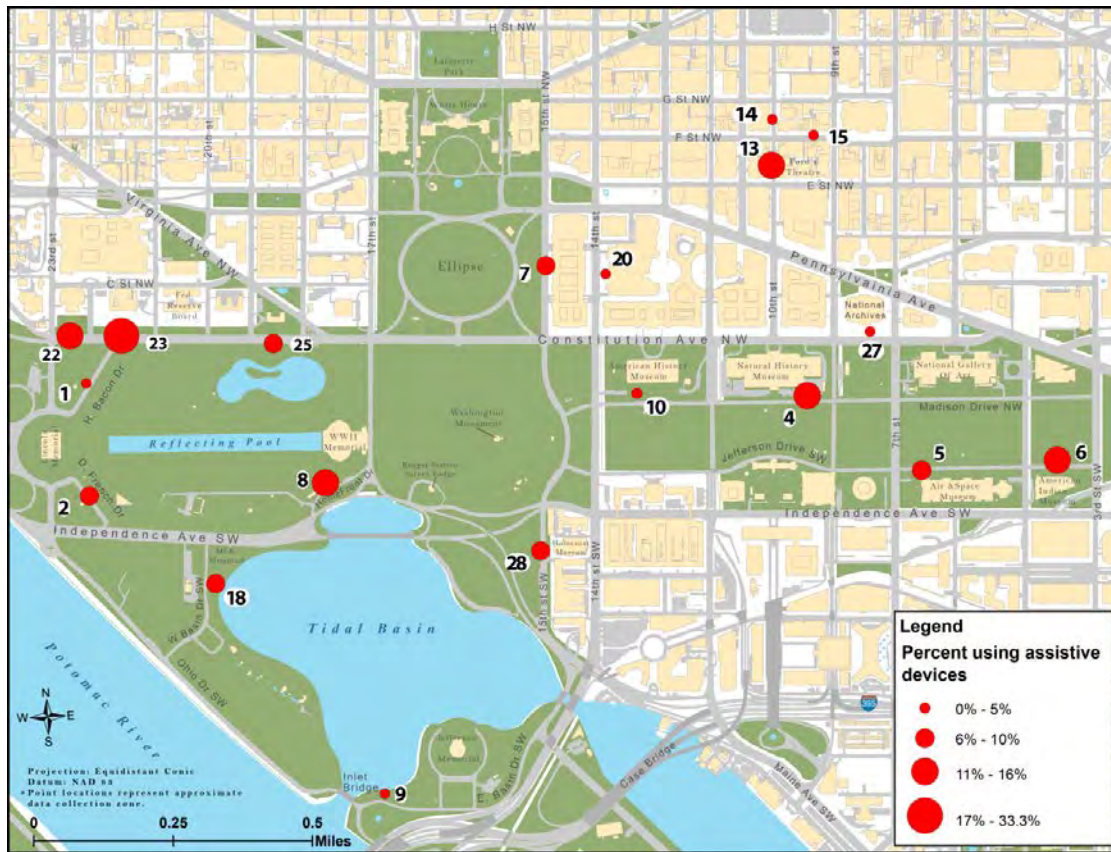


PHOTO 3.22: HONOR FLIGHT VETERANS UNLOADING AT ZONE 8



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.4.12 Passengers Overheard Speaking a Language Other than English

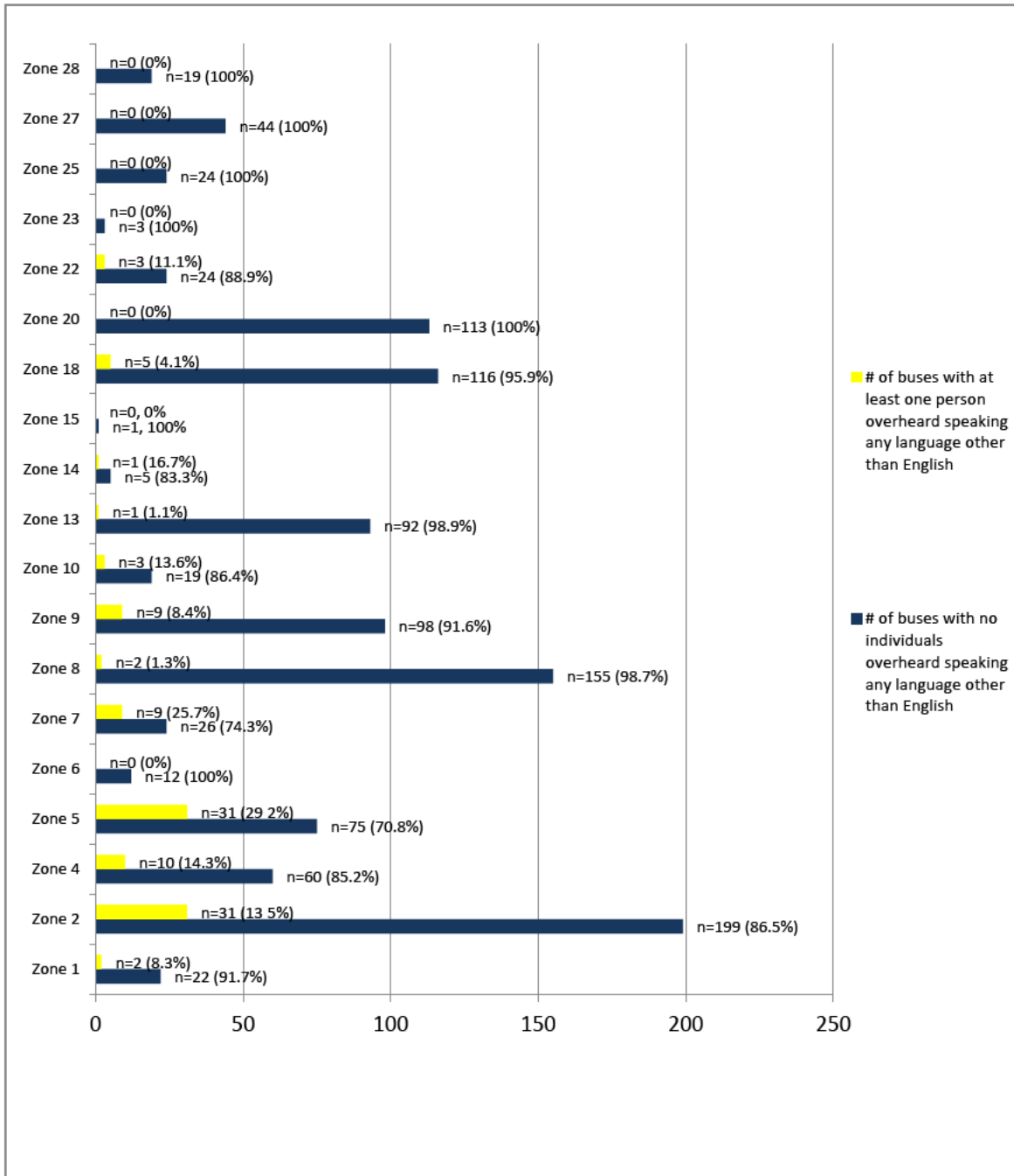
In 107 cases (8.8%), a language other than English was overheard (Variable 17, Table 3.13, Figures 3.44-3.45). However, no attempt was made to determine dominant language or country of origin for any group, as researchers did not interact with visitors.

TABLE 3.13: PASSENGERS OVERHEARD SPEAKING A LANGUAGE OTHER THAN ENGLISH, BY ZONE

Zone	No. of Buses Observed for this Characteristic	No. of Buses Observed with at Least One Person Overheard Speaking a Language Other than English	Percentage of Individuals Overheard Speaking a Language Other than English
1	24	2	8.3%
2	230	31	13.5%
4	70	10	14.3%
5	106	31	29.2%
6	12	0	0.0%
7	35	9	25.7%
8	157	2	1.3%
9	107	9	8.4%
10	22	3	13.6%
13	93	1	1.1%
14	6	1	16.7%
15	1	0	0.0%
18	121	5	4.1%
20	113	0	0.0%
22	27	3	11.1%
23	3	0	0.0%
25	24	0	0.0%
27	44	0	0.0%
28	19	0	0.0%
Total	1,214	107	8.8%

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

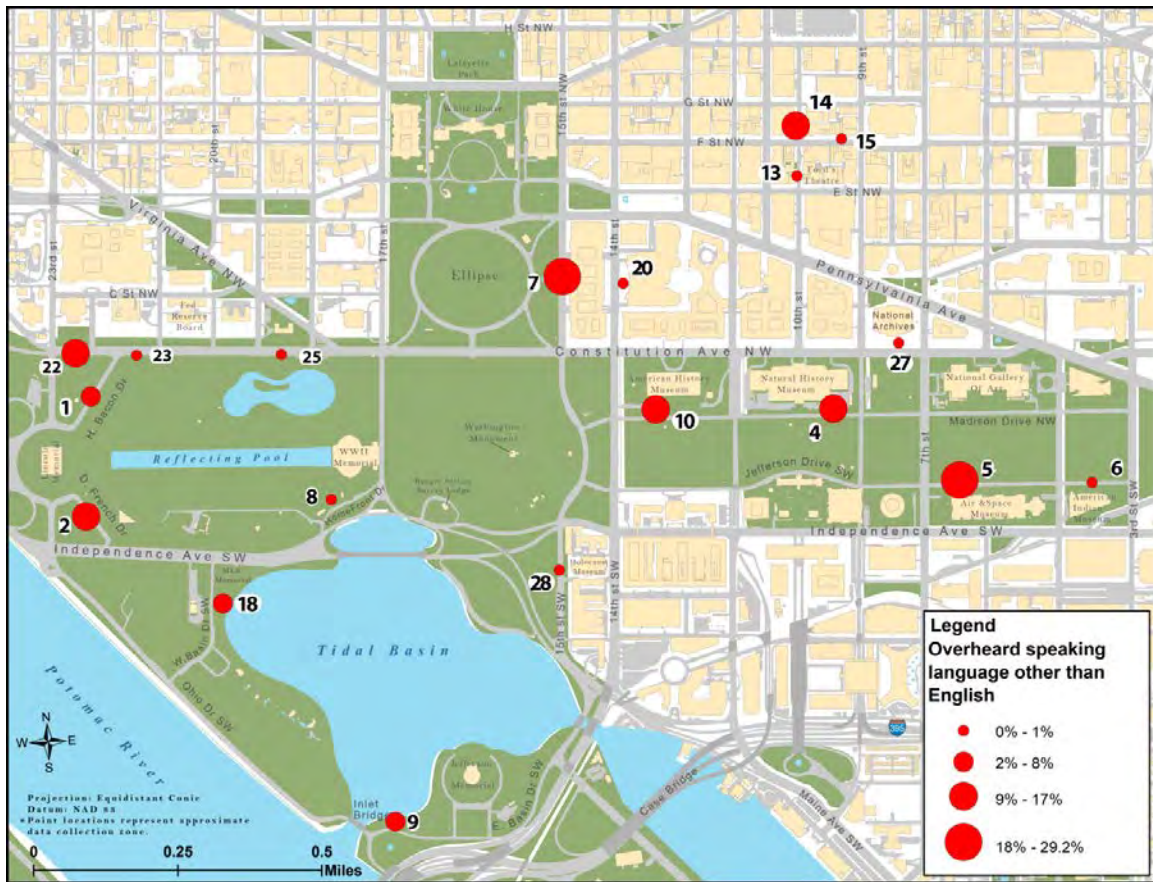
FIGURE 3.44: PASSENGERS OVERHEARD SPEAKING A LANGUAGE OTHER THAN ENGLISH, BY ZONE



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.45: PASSENGERS OVERHEARD SPEAKING A LANGUAGE OTHER THAN ENGLISH, BY ZONE



Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	27	Constitution Ave (westbound in front of National Archives)
9	Jefferson Memorial	28	U.S. Holocaust Museum

3.4.13 Approximate Number of Passengers by Age Group

In estimating the age of passengers (Variable 15), four groups were identified: pre-teens (individuals under 13 years old), teens (individuals 13-18 years old), adults (individuals 19-65 years old), and seniors (individuals older than 65 years). Because the data were collected via observation only, assessment of individual passenger ages was approximate (Table 3.14, Table 3.15, Figure 3.46, Figure 3.47).

TABLE 3.14: APPROXIMATE NUMBER OF PASSENGERS BY AGE GROUP AMONG ALL BUSES FOR WHICH PASSENGERS WERE OBSERVED

Passenger Type	Average No. of Passenger Type (mean)	Standard Deviation	Minimum – Maximum of Passengers in Groups*	Median No. of Passengers in Each Group	No. of Buses with Passenger Type
Pre-teens	17.92/group	16.32	1 – 56 people	12	287 buses
Teens	26.95/group	16.00	1 – 60 people	30	643 buses
Adults	12.16/group	10.33	1 – 60 people	10	1,043 buses
Seniors	10.09/group	10.60	1 – 50 people	6	210 buses
Overall	32.63/group	17.99	1 – 60 people	35	*1,142 buses

*This analysis is based on the number of individuals from multiple age groups, where most buses had representation from more than one age group. As such, summing the number of buses over all passenger types would exceed the number buses actually observed; therefore, the overall number of buses with any passengers observed is noted here.

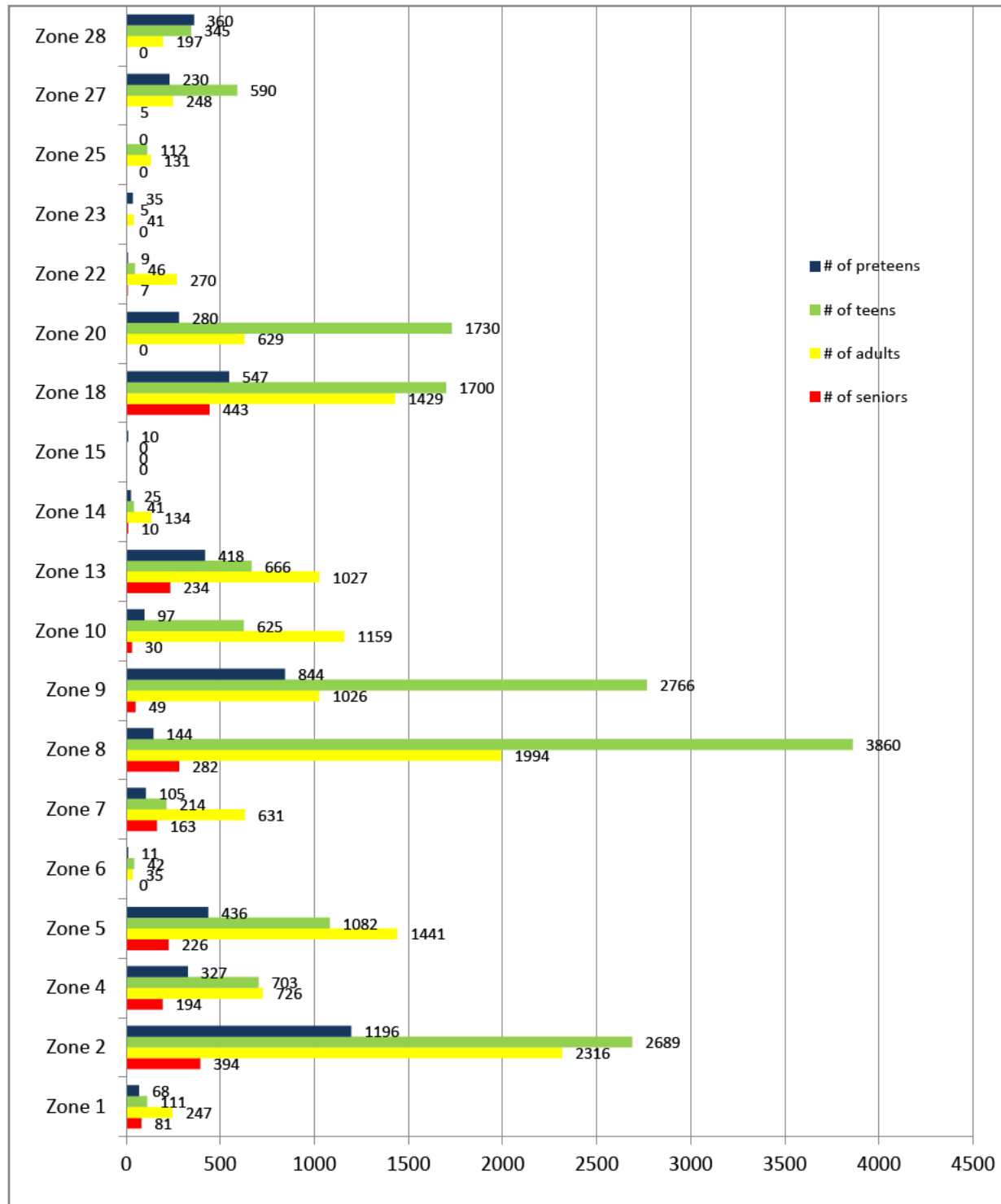
TABLE 3.15: ESTIMATED NUMBER OF BUS PASSENGERS IN EACH AGE GROUP, BY ZONE

Zone	No. of Preteens	No. of Teens	No. of Adults	No. of Seniors	Total No. of Passengers
1	68	111	247	81	507
2	1,196	2,689	2,316	394	6,595
4	327	703	726	194	1,950
5	436	1,082	1,441	226	3,181
6	11	42	35	0	89
7	105	214	631	163	1,113
8	144	3,860	1,994	282	6,280
9	844	2,766	1,026	49	4,685
10	97	625	1,159	30	911
13	418	666	1,027	234	2,345
14	25	41	134	10	210
15	10	0	0	0	10
18	547	1,700	1,429	443	4,119
20	280	1,730	629	0	2,639
22	9	46	270	7	332
23	35	5	41	0	81
25	0	112	131	0	243
27	230	590	248	5	1,073
28	360	345	197	0	902
Total	5,142	17,327	12,681	2,119	37,265

Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

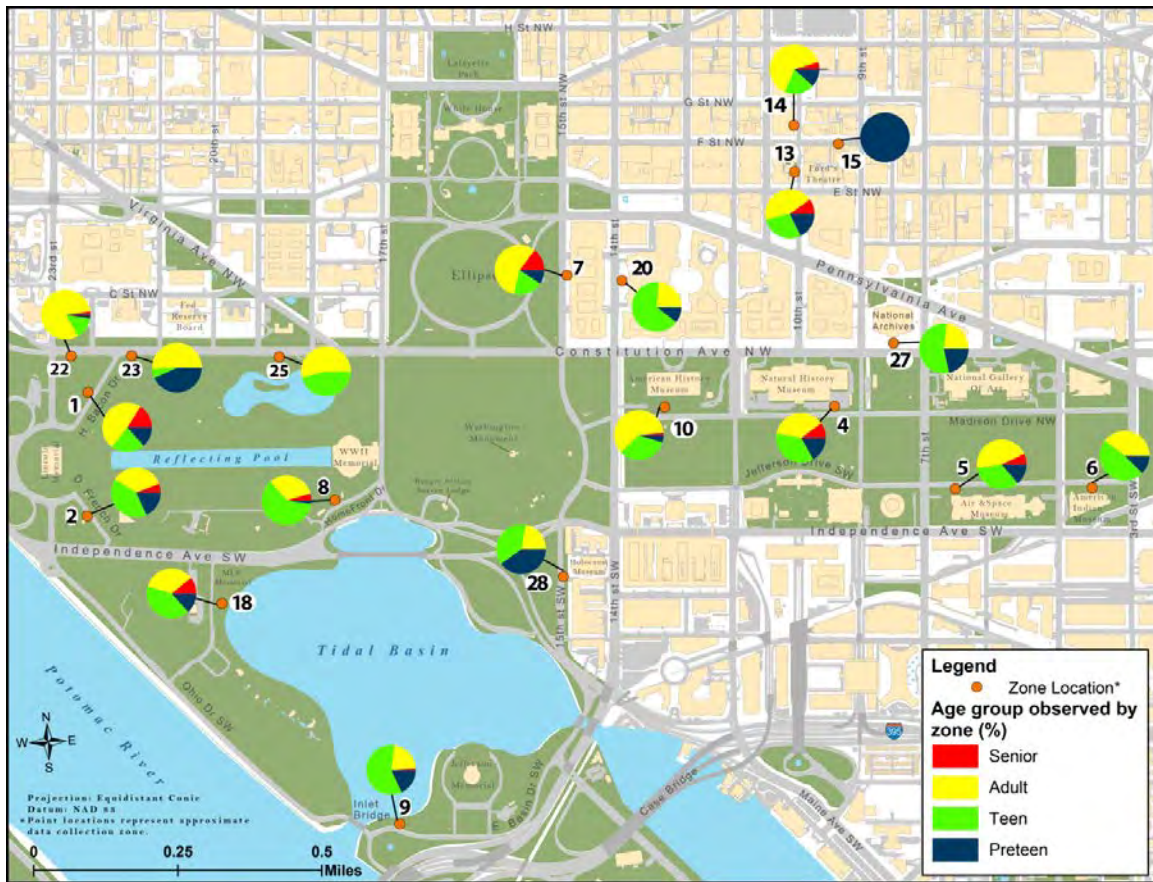
FIGURE 3.46: ESTIMATED NUMBER OF BUS PASSENGERS IN EACH AGE GROUP, BY ZONE



Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St.)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

FIGURE 3.47: ESTIMATED NUMBER OF BUS PASSENGERS IN EACH AGE GROUP, BY ZONE



3.4.14 Trash Disposal

Trash disposal by either the drivers or passengers was rarely observed with only 13 instances observed during data collection (Variable 19). The locations where trash disposal was observed included Zones 2 (n = 2), 4 (n = 2), 8 (n = 1), 13 (n = 2), and 18 (n = 6). Trash disposal generally occurred within acceptable guidelines, with one drink observed being poured on the ground and 11 items documented as being disposed of in existing trash or recycle receptacles. Only one item was observed being thrown on the sidewalk by a bus passenger. No other waste was observed being left at any of the data collection sites.

Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st St)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

3.5 QUALITATIVE RESULTS: LOADING AND UNLOADING ZONES

3.5.1 Number of Written Observations, by Zone

Researchers were given three open areas on the data collection instrument (Variables 12, 18, and 26) to note observations and overheard comments. These variables are indistinguishable in that researchers could note any comments or observations in any available space. Thus the findings from these three variables were combined for analysis. Researchers were not required to comment and only made notations as deemed relevant.

A total of 926 usable written observations were analyzed. Table 3.16 indicates the frequency of the written observations by each zone. Table 3.17 presents the number of written observations by data collection date. Table 3.18 includes the number of written observations by zone and date.

TABLE 3.16: NUMBER OF WRITTEN OBSERVATIONS, BY ZONE

Zones	No. of Written Observations
Zone 1: Lincoln Memorial North	37
Zone 2: Lincoln Memorial South	167
Zone 4: Natural History Museum	86
Zone 5: Air and Space Museum	123
Zone 6: National Museum of American Indian	50
Zone 7: Ellipse	51
Zone 8: WWII Memorial	117
Zone 9: Thomas Jefferson Memorial	29
Zone 10: National Museum of American History	9
Zone 13: Ford's Theatre 500 Block 10th St.	105
Zone 14: Ford's Theatre 600 Block 10th St.	9
Zone 15: Ford's Theatre 1000 Block F St.	2
Zone 18: FDR/MLK West Basin Drive	67
Zone 20: 14th Street in front of Ronald Reagan Building	18
Zone 22: Constitution eastbound between 23rd and Henry Bacon Drive	15
Zone 23: Constitution eastbound between Henry Bacon Drive and 21st	5
Zone 24: Constitution westbound between 20th and 21st	3
Zone 25: Constitution eastbound between 19th and 18th and Constitution eastbound between 18th and 17th	8
Zone 27: Constitution westbound in front of National Archives	4
Zone 28: U.S. Holocaust Memorial Museum – 100 Raoul Wallenberg Place	21
Total	926

TABLE 3.17: NUMBER OF WRITTEN OBSERVATIONS, BY DATE

Date	Total
24 Mar 2012	98
31 Mar 2012	194
04 Apr 2012	103
06 Apr 2012	118
09 Oct 2012	88
22 May 2013	176
30 May 2013	65
04 Jun 2013	84
Total	926

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St.)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

TABLE 3.18: NUMBER OF WRITTEN OBSERVATIONS, BY ZONE AND DATE

Zone	24 Mar 2012	31 Mar 2012	04 Apr 2012	06 Apr 2012	09 Oct 2012	22 May 2013	30 May 2013	04 Jun 2013
1	17			8		12		
2	62			17		88		
4		39		20	8			19
5			71	52				
6			32					18
7		32			19			
8				6	55	44		12
9						4	25	
10		8						1
13		95		9	1			
14				6	3			
15					2			
18	19	20				28		
20							15	3
22							15	0
23								5
24								3
25							8	
27							2	2
28								21
Total	98	194	103	118	88	176	65	84

3.5.2 Primary Qualitative Themes

Observations and notes were recorded in terms of operator behaviors, passenger behaviors and other relevant issues that were not readily identifiable in the quantitative portions of the instrument. A total of 926 comments were analyzed, with 13 primary themes (excluding “Other”) identified. Table 3.19 presents the frequency of comments by theme.

TABLE 3.19: PRIMARY QUALITATIVE THEMES: FREQUENCY AND PERCENTAGE

Theme	Frequency	Percentage
Parking/standing in loading/unloading zone	260	28.1%
Idling	96	10.4%
Passenger behavior	67	7.2%
Blocking/double parking/crowding	67	7.2%
Passenger information	55	5.9%
Driver/tour operator behaviors	51	5.5%
Impact of police/researcher/park ranger existence	47	5.1%
Loading/unloading in undesignated areas	43	4.6%
Special assistance needed	40	4.3%
Loading/unloading in road	35	3.8%
Coming through (no loading/unloading) / Circulating	28	3.0%
Private car/taxi	13	1.4%
DOT number or license number	7	0.8%
Other	117	12.6%
Total	926	100%

As Table 3.19 demonstrates (excluding “Other”), illegal parking and standing in loading/unloading zone or nondesignated zone (e.g., parking for individuals with disabilities, government vehicle only zone) were the most frequently noted comments, followed by idling and passenger behavior (e.g., “Took forever to load bus,” “Exit was orderly but they went into the street to cross into oncoming traffic”) and idling.

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford’s Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford’s Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford’s Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

Illegal parking and standing in loading/unloading zones have direct and ripple impacts on tour bus operations in the area, initiating a chain reaction of other issues observed. As comments in the theme “Blocking/double parking/crowding” and the theme “Load/unload in undesignated areas” indicate, parking and standing buses blocked other buses to load/unload in the zone, therefore, those buses pulled up beyond loading/unloading zone. Comments indicated that there were crowding situations where multiple buses (e.g., “7 buses arrived and pulled up at the same time”) arrived simultaneously so that blocked and chaotic operations (e.g., “Loading/unloading in the middle of road”) took place. Illegal parking and standing cause the subsequent operational patterns among tour buses.

Other noteworthy observations were derived from the theme “Passenger behavior.” Some observational notes indicated that elongated standing and blocking are caused by passenger behaviors (e.g., “Passengers loaded sporadically over about an hour’s time”). Some notes demonstrated that passengers were endangered (e.g., “Not a good crosswalk from Vietnam to loading”, “Exit was orderly but they went into the street to cross into oncoming traffic”). The presence of a law enforcement officer or researcher was periodically noted as impacting the tour bus driver’s behavior (e.g., “Stopped but left soon after researcher arrived,” “Saw police and us and left”). Several notes indicated that police occasionally intervened and cleared out all standing/parked buses, but ticketing was not evidenced. Sample quotes that represent each theme are presented in Table 3.20 while appendix C includes all comments, by zone and date. Comments were generally brief due to time constraints. Minimal editing was done to improve the readability of the notes.

TABLE 3.20: SAMPLE COMMENTS FOR PRIMARY QUALITATIVE THEMES

Theme 1. Parking / standing in loading/unloading zone / nondesignated area	
Parked for a minute then left.	
Has parked behind another bus.	
He did not load or unload. Just parked and left 40 minutes later.	
Standing with no passenger, not idling, turn off engine.	
Parked in 2 hour bus parking.	
Stayed entire time after unloading and wait to people come back to load.	
Pulled into loading zone then moved to no loading zone and sat.	
Two buses were parked when I arrived at 1:30 p.m.	
Bus parked in loading/unloading zone.	
Pulled into handicapped parking zone.	
Parked in traffic turning lane. Parked into vacated space at 12:17 pm. No parking on Tuesdays.	
Stayed whole time while visitors at WWII.	
Theme 2. Idling	
Turned off the engine after stop.	
Turned off the engine right away.	
Idle complete time.	
Engine still running.	
Engine turned on at 8:30 p.m. Idling. Loading began at 9:18 p.m.	
Theme 3. Passenger behavior	
Took forever to load bus.	
Waiting for people to get food and beverage.	
Not a good crosswalk from Vietnam to loading.	
Exit was orderly but they went into the street to cross into oncoming traffic.	
Passengers loaded sporadically over about an hour’s time.	
Jaywalk to WWII.	
Children took their time getting to the bus.	
Senior kids from other bus applauded the veterans.	
Passengers do not spend much time at the memorial. Maybe because of cold weather.	
Theme 4. Blocking / double parking/crowding	
Parked in front blocking crosswalk and traffic.	
Everyone beeping at him.	
Because of the wheelchair person it caused a traffic jam and then honks and verbal complaints from other buses (bus driver).	

Key for Loading / Unloading Zones

1	Lincoln Memorial, North	10	American History Museum	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2	Lincoln Memorial, South	13	Ford’s Theatre (500 block 10th St.)	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4	National Museum of Natural History	14	Ford’s Theatre (North 600 block 10th St)	25	Constitution Ave. (eastbound between 19th and 17th)
5	National Air and Space Museum	15	Ford’s Theater (West, 1000 block F St.)	27	Constitution Ave (westbound in front of National Archives)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28	U.S. Holocaust Museum
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)		
8	World War II Memorial				
9	Jefferson Memorial				

At 12:16 tried to leave but was blocked in.
Tried to leave blocked by two buses ahead of them in regular traffic.
Bus idling in a non-loading zone in front of them. Had trouble getting out.
Was blocked by another bus.
Other buses parked in land/zones full, nowhere to unload.
There is no space in loading zone so not surprising to see violation.
5-6 cars backed up.
Everyone is backed up because group of 4 buses stayed.
Double parked and kept other buses from leaving.
Blocked crosswalk.
Bus was blocking the right traffic lane.
Theme 5. Passenger information (e.g., nationality, ethnicity, senior/student group, # of passengers, etc.)
All of Asian descendent.
Preteen group.
School age.
Student group.
Cane mostly elderly group.
6 hop off, 4 hop in.
Military group – Honor Flight Northland.
Theme 6. Driver / tour operator behaviors (e.g., leaving bus, talking, smoking, eating)
Driver got out for lunch/parked.
Driver came out to smoke but turned off engine.
Driver left bus unattended.
Bus drivers talking to each other to move out; driver said, "Parked here for hours."
Bus drivers talking, "See those people taking pictures of us."
Asked what we are doing.
Tour operator moved passengers from top tier to lower tier because of overcrowding on top.
Yelling hurry, watch out, get on.
Theme 7. Impact of police / researcher / park ranger existence
Police passed and sounded his alarm; buses pulled out at police insistence.
Stopped but left soon after researcher arrived.
Saw police and us and left.
Park employee greeted driver while idling. No attempt to control, even though very congested.
Police enforced to leave.
Theme 8. Loading / unloading in undesignated areas
Private vehicle blocked zone then bus pulled up beyond loading zone.
Stopped past loading zone in front of hydrant on curb.
Stopped in handicapped zone.
Parked on opposite side of loading zone and had people run across the street.
Pulled into non loading zone even though there was space in loading zone.
Theme 9. Special assistance needed (e.g., stroller, wheelchair)
Took out strollers from luggage area.
Girl on crutches.
Had to lower wheelchair equipment at two different times.
Multiple strollers were loaded.
Cane.
Kneeling bus with ramp for wheelchair.
15 wheelchairs and many canes.
Theme 10. Loading / unloading in road
Stopped in street.
Unloaded in middle of road.
In the middle of the road, the bus unloaded passengers.
Half out in road.
Theme 11. Coming through (no loading / unloading) / circulating
No passenger off just stop by and pull out immediately.
Did not load or unload; no passengers.
Did not stop; just came through and left.
Driver circled the block more than three times while waiting for his tour group.
Circled around.

Key for Loading / Unloading Zones

1 Lincoln Memorial, North	10 American History Museum	22 Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
2 Lincoln Memorial, South	13 Ford's Theatre (500 block 10th St.)	23 Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
4 National Museum of Natural History	14 Ford's Theatre (North 600 block 10th St)	25 Constitution Ave. (eastbound between 19th and 17th)
5 National Air and Space Museum	15 Ford's Theater (West, 1000 block F St.)	27 Constitution Ave (westbound in front of National Archives)
6 National Museum of the American Indian	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
7 Ellipse	20 14th St. (west side of Ronald Reagan Building)	
8 World War II Memorial		
9 Jefferson Memorial		

Theme 12. Private cars/taxi	
Private vehicle pulled up to unload.	
Private sub pulled up.	
Taxi van pulled up – buses beeped at it to move.	
Cars began to park in bus loading/unloading zone/handicapped zone.	
Theme 13. DOT number or license number	
No DOT number; no license plate number; very strange.	
No photo or DOT – too fast.	
US government plates.	
Other	
NPS should open the loading/unloading. They are doing it anyway.	
Air and Space museum.	
White van.	
Signs say bus parking but another sign also says no parking Tuesday 10:00 a.m. – 5:00 p.m.	
Here is daily parking but technically not on Tuesdays.	
Zone 1 doesn't allow loading or unloading from 4:00 p.m. – 7:00 p.m.	
After 7:00 p.m., so many buses violating loading/unloading, parking.	
Illegal U-turn.	
Old Town Trolley is doing a good job of loading and unloading in the correct way.	
International development.	
Zone 24 should be used as 3 hour parking zone, not pick up/drop off zone.	

Key for Loading / Unloading Zones			
1	Lincoln Memorial, North	10	American History Museum
2	Lincoln Memorial, South	13	Ford's Theatre (500 block 10th St.)
4	National Museum of Natural History	14	Ford's Theatre (North 600 block 10th St)
5	National Air and Space Museum	15	Ford's Theater (West, 1000 block F St.)
6	National Museum of the American Indian	18	Franklin Delano Roosevelt / Martin Luther King Jr. Memorials
7	Ellipse	20	14th St. (west side of Ronald Reagan Building)
8	World War II Memorial	22	Constitution Ave. (eastbound between 23rd and Henry Bacon Dr.)
9	Jefferson Memorial	23	Constitution Ave. (eastbound between Henry Bacon Dr. and 21st)
		25	Constitution Ave. (eastbound between 19th and 17th)
		27	Constitution Ave (westbound in front of National Archives)
		28	U.S. Holocaust Museum

4. PARKING AREAS

4.1 STUDY OVERVIEW: PARKING AREAS

This section of the final report is linked Phase IV findings, specific to off-bus data collection at parking areas. 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 4.1 indicates the locations of the zones specific to this study. The findings and recommendations that follow are summarized by zone.

4.2 SUMMARY OF FINDINGS: PARKING AREAS

4.2.1 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, D.C. officials should consider adding 3-hour parking meters to this zone to align with NPS plans to add 3-hour parking meters in NPS-managed zones. A consistent approach to curbside parking on and around NAMA can improve circulation patterns.

4.2.2 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, D.C. officials should consider adding 3-hour parking meters to this zone to align with NPS plans to add 3-hour parking meters in NPS-managed zones. A consistent approach to curbside parking on and around NAMA can improve circulation patterns.

4.2.3 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

Key for Parking Zones

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

FIGURE 4.1: PARKING ZONES



Key for Parking Zones

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

considered within the context of the location of the zone. Independence Avenue is a major thoroughfare that runs along NAMA. 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 3-hour parking meters to this zone.

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

Zone D is situated near the Ellipse at 15th Street, NW 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 nondesignated 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, D.C. officials should consider adding 3-hour parking meters to this zone to align with NPS plans to add 3-hour parking meters in NPS-managed zones. A consistent approach to curbside parking on and around NAMA can improve circulation patterns.

4.2.5 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 NAMA; 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.

4.2.6 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 nondesignated 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

Key for Parking Zones

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

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 nondesignated 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 3-hour parking meters to this zone to align with their other plans to add 3-hour parking meters in NPS-managed zones. A consistent approach to curbside parking on and around NAMA can improve circulation patterns.

4.2.7 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 3-hour parking meters to this zone.

4.3 METHODS: PARKING AREAS

4.3.1 Zone Determination

Seven zones within the immediate vicinity of NAMA were identified by the NPS for inclusion in the parking analysis. Union Station Parking Garage and RFK Stadium offer additional, paid tour bus parking and while not directly studied are discussed in this and other sections of the full report in terms of drivers' reluctance to use these parking locations. Table 4.1 lists the zones and the data collection dates and times for each, while Figure 4.1 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.

Key for Parking Zones

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

TABLE 4.1: 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 15th 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 2 nd 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.

4.3.2 Instrument Development

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

4.3.3 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 NAMA that described 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,

Key for Parking Zones

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

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.

4.3.4 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 4.2. For instance, on Wednesday, March 27, 2013, a total of 43 parked buses were documented in Zone A, representing 24 unique buses.

TABLE 4.2: 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.

4.3.5 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

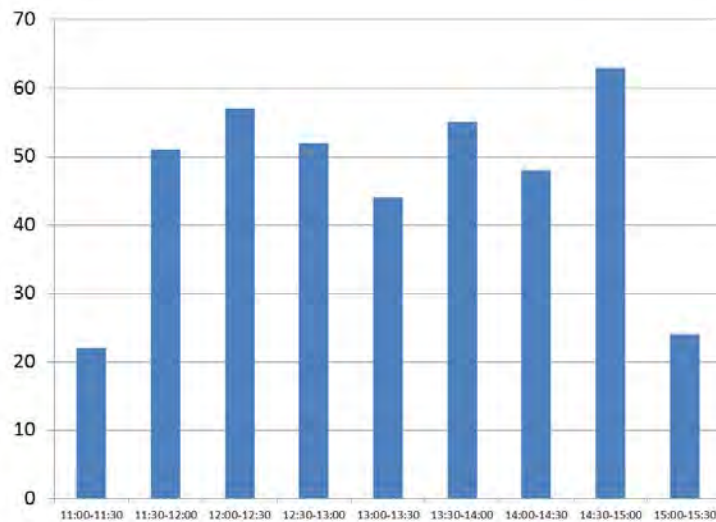
A	700–900 Block, Maine Ave, SW	E	Buzzard Point, 1880 2nd St., SW
B	900–1200 Block, Maine Ave, SW	F	Hains Point, East Potomac Park, SW
C	1500 Block, Independence Ave, NW	G	Ohio Dr., SW, Independence Ave. to Inlet Bridge
D	200–400 Block, 15th St., NW		

4.4 QUANTITATIVE RESULTS: PARKING AREAS

4.4.1 Temporal Distribution of Parking Demand, Combined Zones

Figure 4.2 through Figure 4.6 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 4.2: 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	E Buzzard Point, 1880 2nd St., SW
B 900–1200 Block, Maine Ave, SW	F Hains Point, East Potomac Park, SW
C 1500 Block, Independence Ave, NW	G Ohio Dr., SW, Independence Ave. to Inlet Bridge
D 200–400 Block, 15th St., NW	

FIGURE 4.3: TEMPORAL DISTRIBUTION OF PARKING DEMAND: SATURDAY, APRIL 6, 2013, COMBINING ALL ZONES, 30-MINUTE INTERVALS

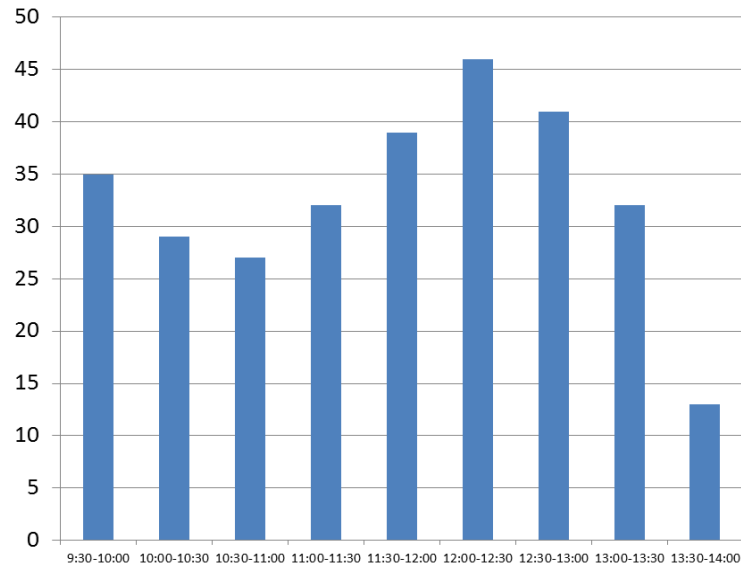
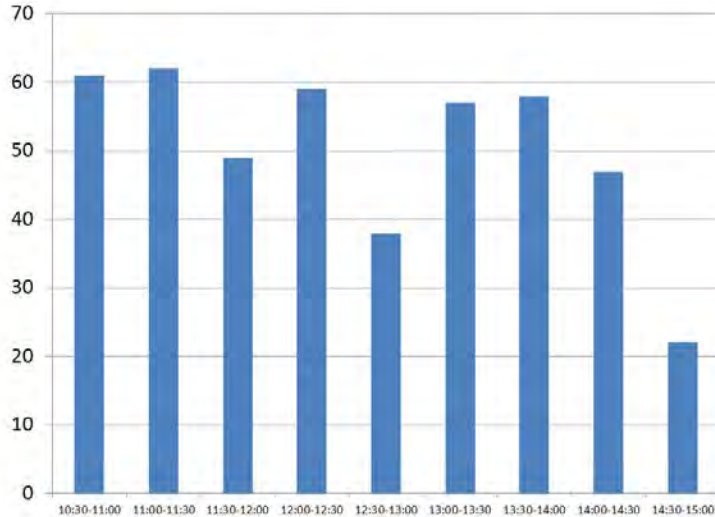


FIGURE 4.4: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MAY 1, 2013, COMBINING ZONES A, B, C, D, F, G, 30-MINUTE INTERVALS



Key for Parking Zones

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

FIGURE 4.5: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MAY 22, 2013, ZONE C, 30-MINUTE INTERVALS

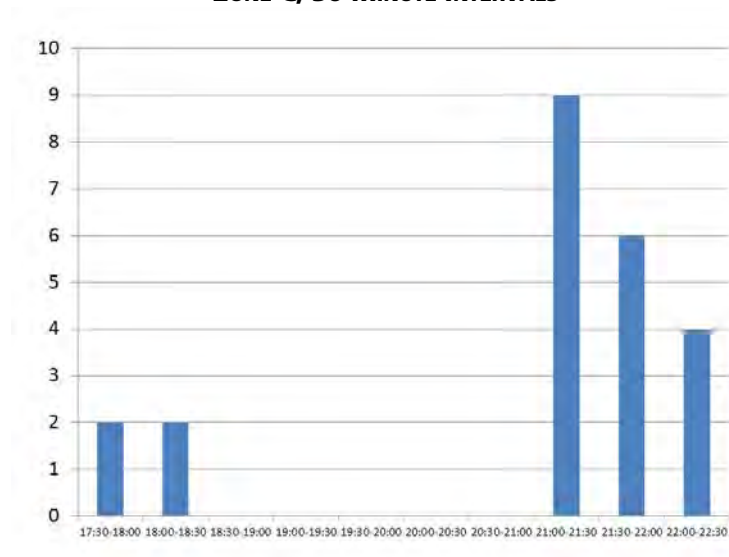
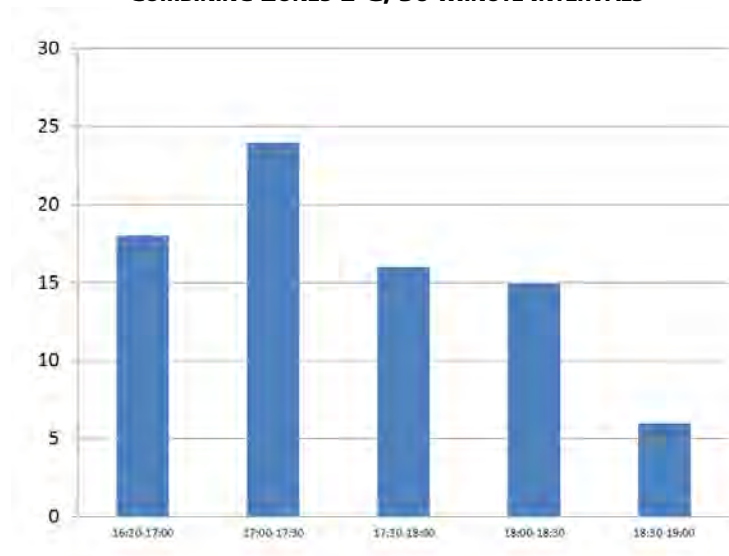


FIGURE 4.6: TEMPORAL DISTRIBUTION OF PARKING DEMAND: TUESDAY, JUNE 4, 2013, COMBINING ZONES E-G, 30-MINUTE INTERVALS



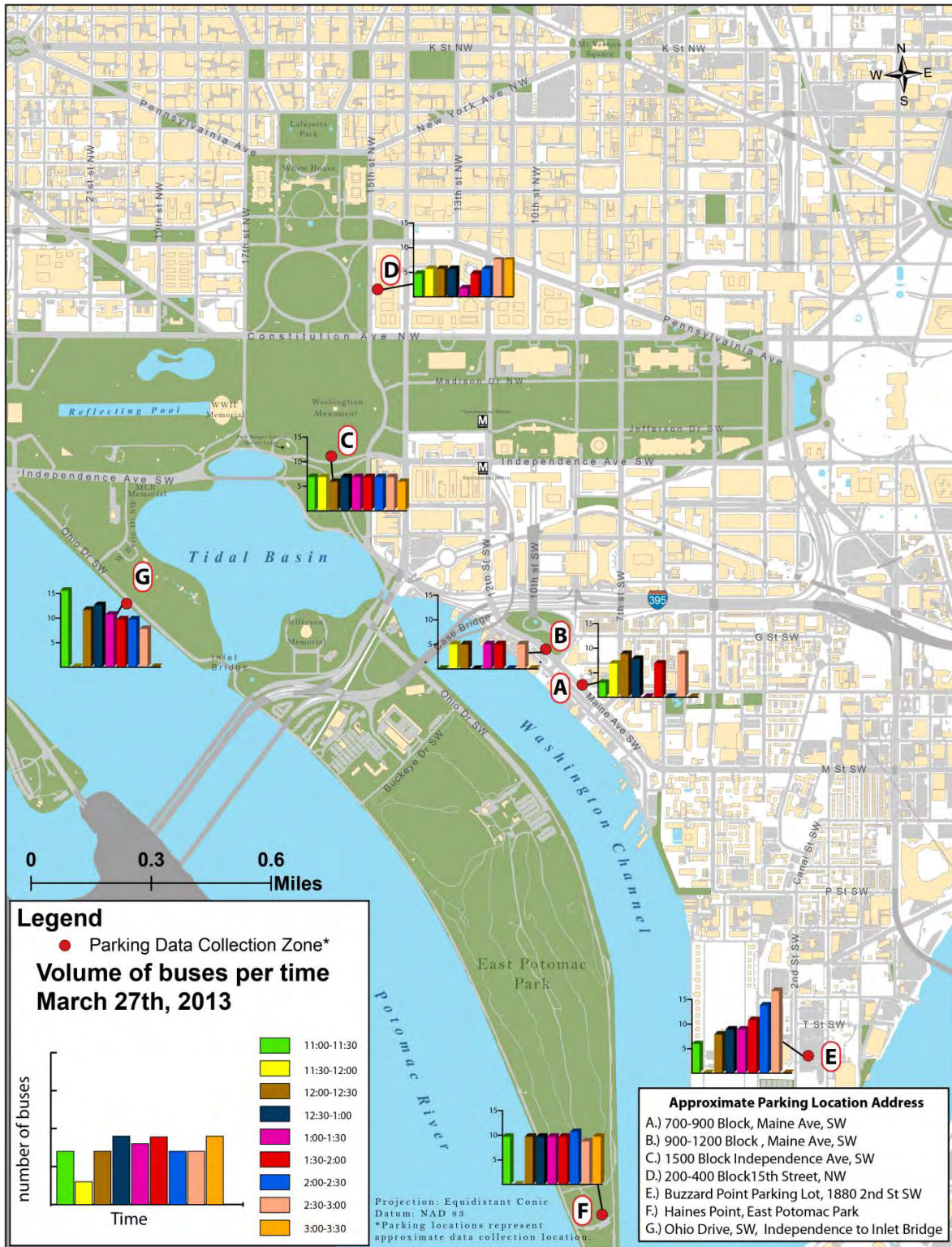
4.4.2 Temporal Distribution of Parking Demand, Individual Zones

Figure 4.7 through Figure 4.11 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	E Buzzard Point, 1880 2nd St., SW
B 900–1200 Block, Maine Ave, SW	F Hains Point, East Potomac Park, SW
C 1500 Block, Independence Ave, NW	G Ohio Dr., SW, Independence Ave. to Inlet Bridge
D 200–400 Block, 15th St., NW	

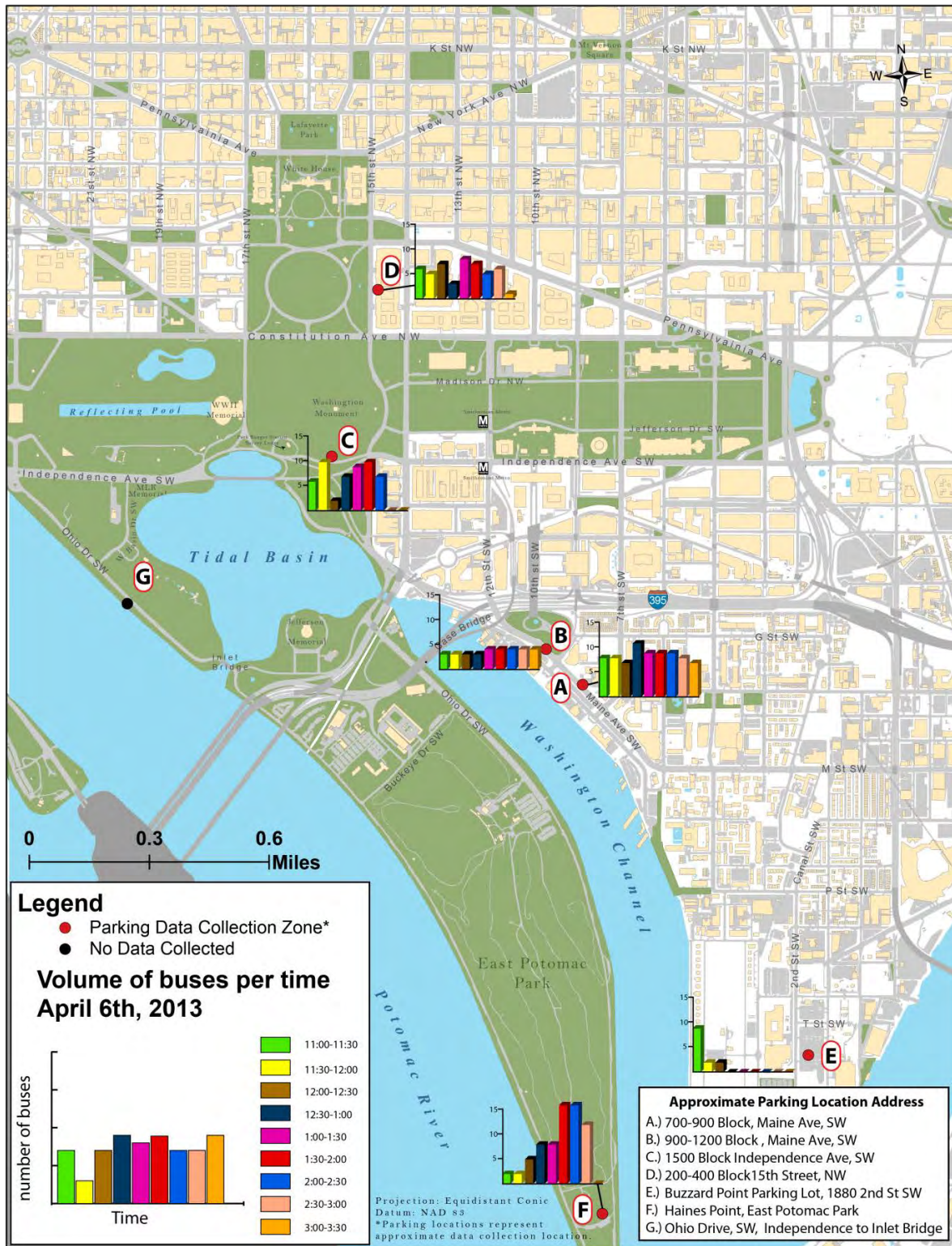
FIGURE 4.7: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MARCH 27, 2013, BY ZONE, 30-MINUTE INTERVALS



Key for Parking Zones

- A 700–900 Block, Maine Ave, SW
- B 900–1200 Block, Maine Ave, SW
- C 1500 Block, Independence Ave, 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

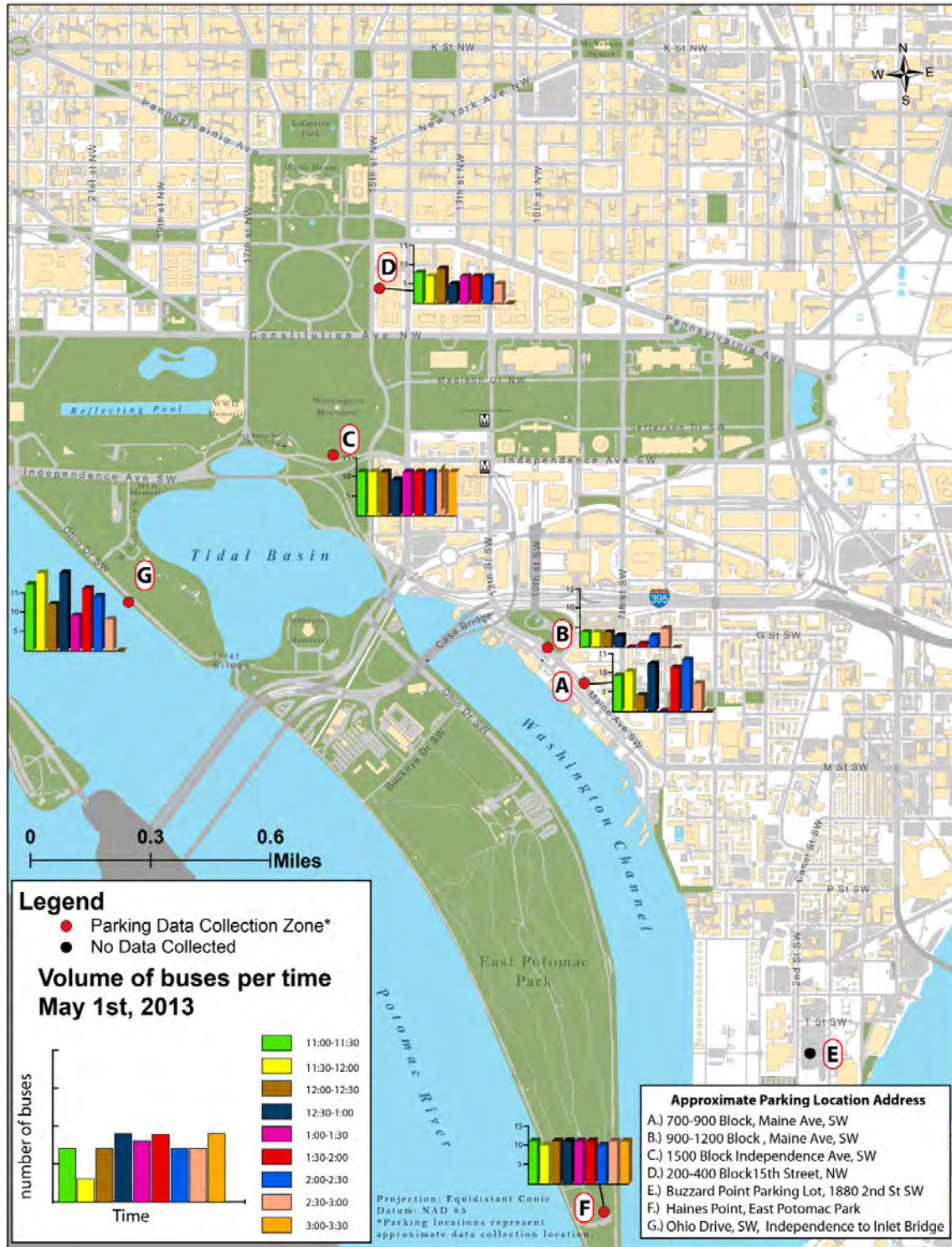
FIGURE 4.8: TEMPORAL DISTRIBUTION OF PARKING DEMAND: SATURDAY, APRIL 6, 2013, BY ZONE, 30-MINUTE INTERVALS



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

FIGURE 4.9: TEMPORAL DISTRIBUTION OF PARKING DEMAND: WEDNESDAY, MAY 1, 2013, BY ZONE, 30-MINUTE INTERVALS



Key for Parking Zones

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

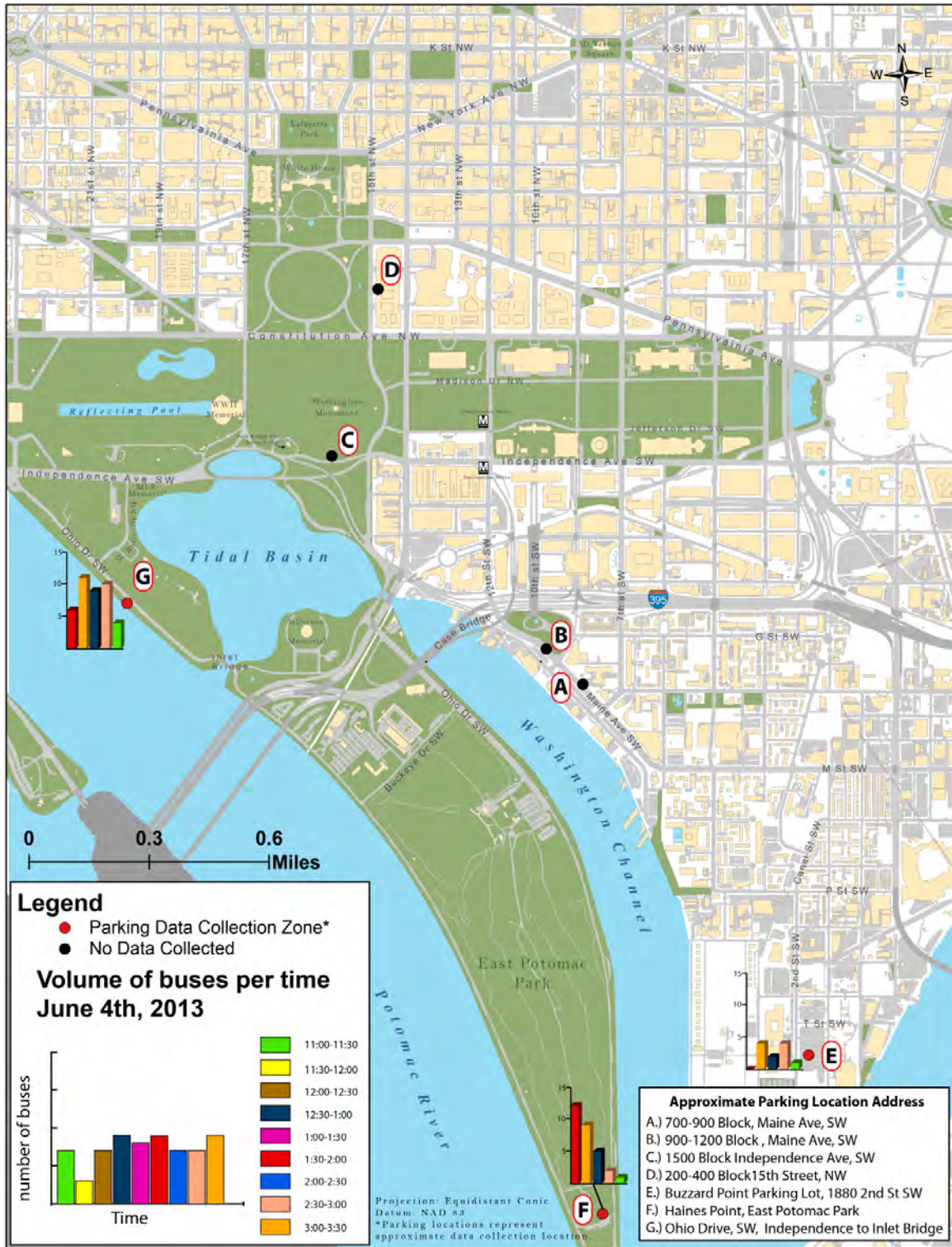
FIGURE 4.10: TEMPORAL DISTRIBUTION OF PARKING DEMAND, WEDNESDAY, MAY 22, 2013, BY ZONE, 30-MINUTE INTERVALS



Key for Parking Zones

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

FIGURE 4.11: 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 | E) Buzzard Point, 1880 2nd St., SW |
| B) 900–1200 Block, Maine Ave, SW | F) Hains Point, East Potomac Park, SW |
| C) 1500 Block, Independence Ave, SW | G) Ohio Dr., SW, Independence Ave. to Inlet Bridge |
| D) 200–400 Block, 15th St., NW | |

4.4.3 Temporal Distribution of Parking Demand with Respect to Capacity, Individual Zones

Figure 4.12 through Figure 4.18 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 4.3 indicates the percentage of time that each zone was at capacity.

FIGURE 4.12: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE A BY DATE

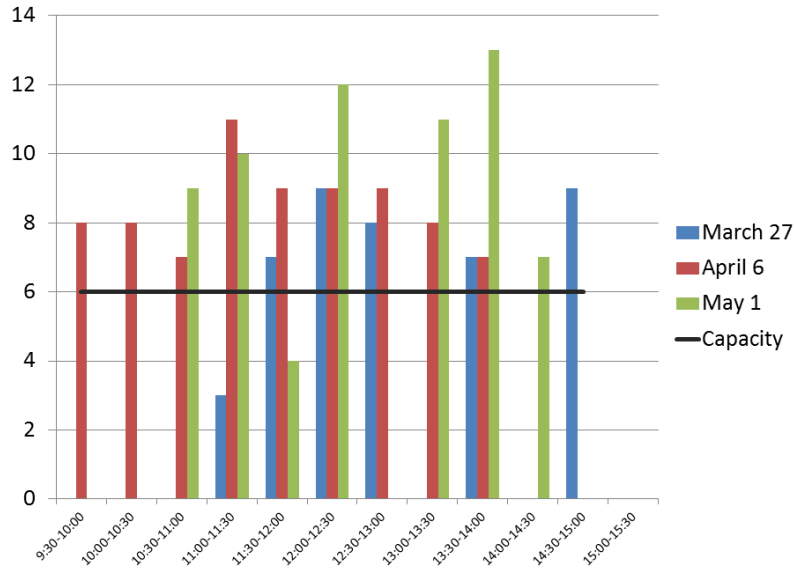
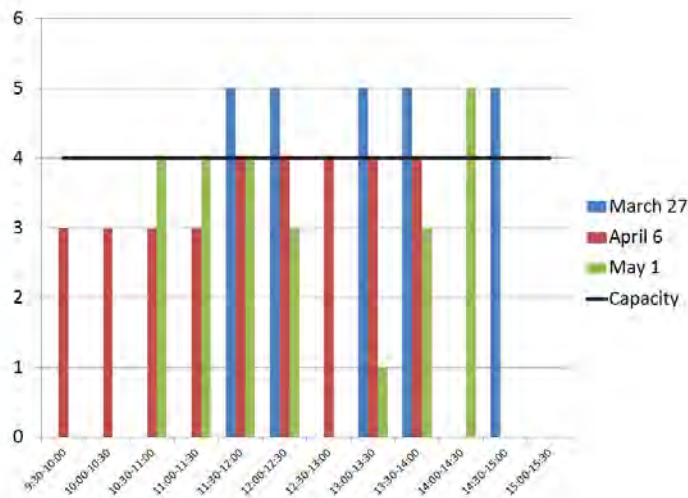


FIGURE 4.13: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE B BY DATE



Key for Parking Zones

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

FIGURE 4.14: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE C BY DATE

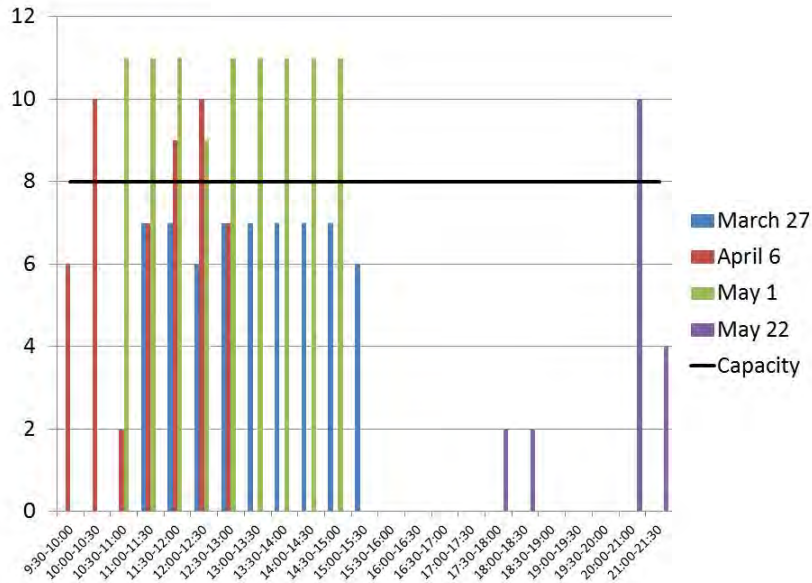
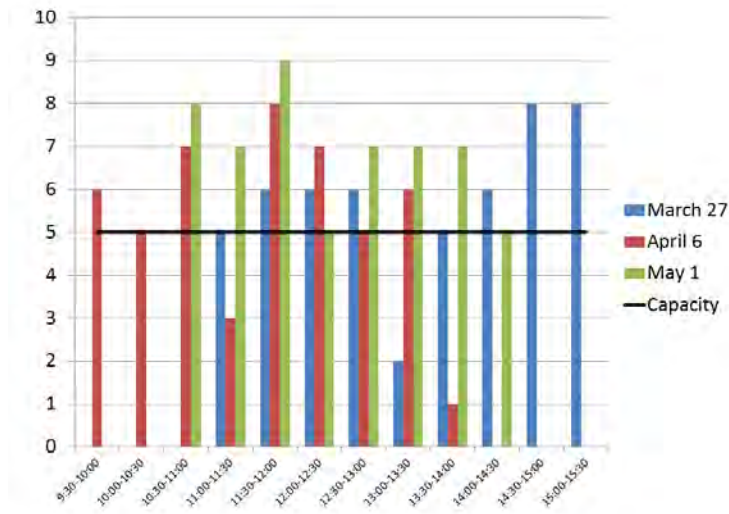


FIGURE 4.15: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE D BY DATE



Key for Parking Zones

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

FIGURE 4.16: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE E BY DATE

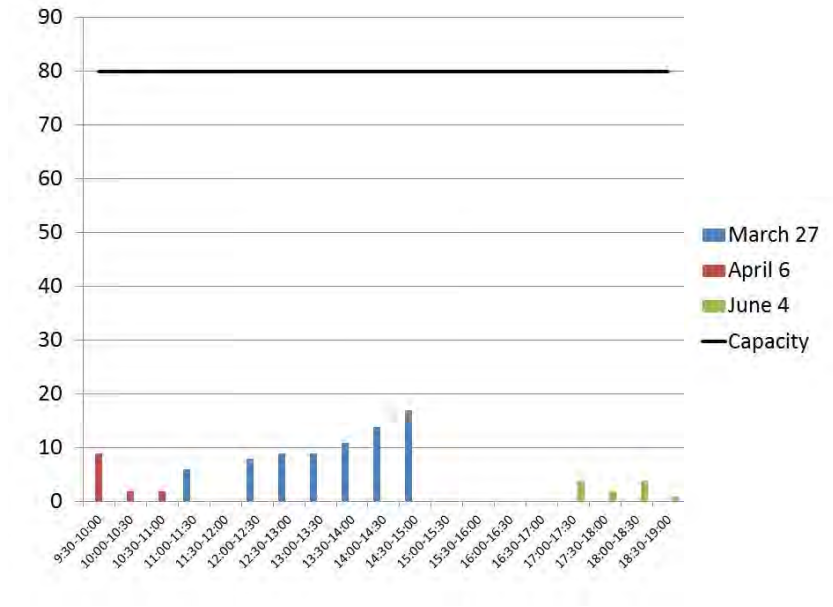
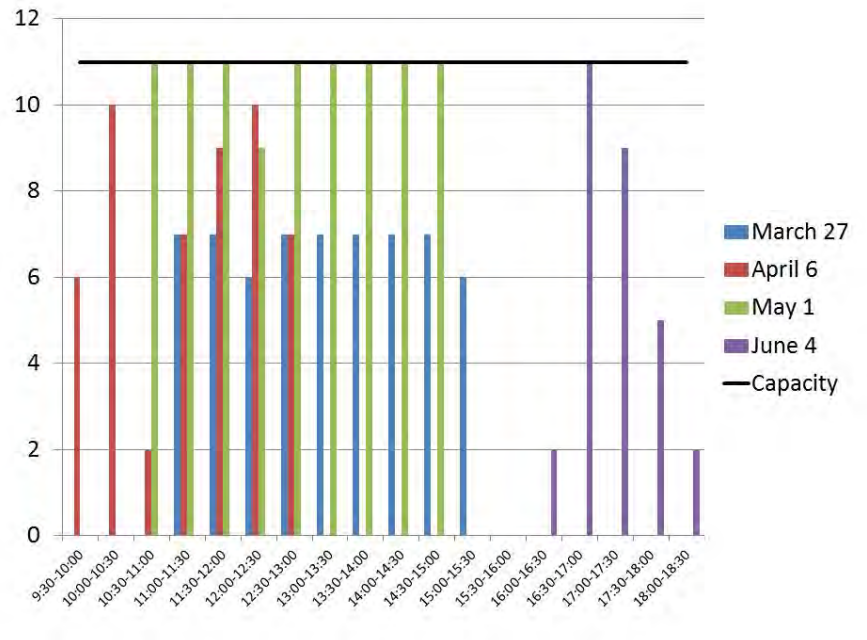


FIGURE 4.17: TEMPORAL DISTRIBUTION OF PARKING DEMAND WITH RESPECT TO CAPACITY: ZONE F BY DATE



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

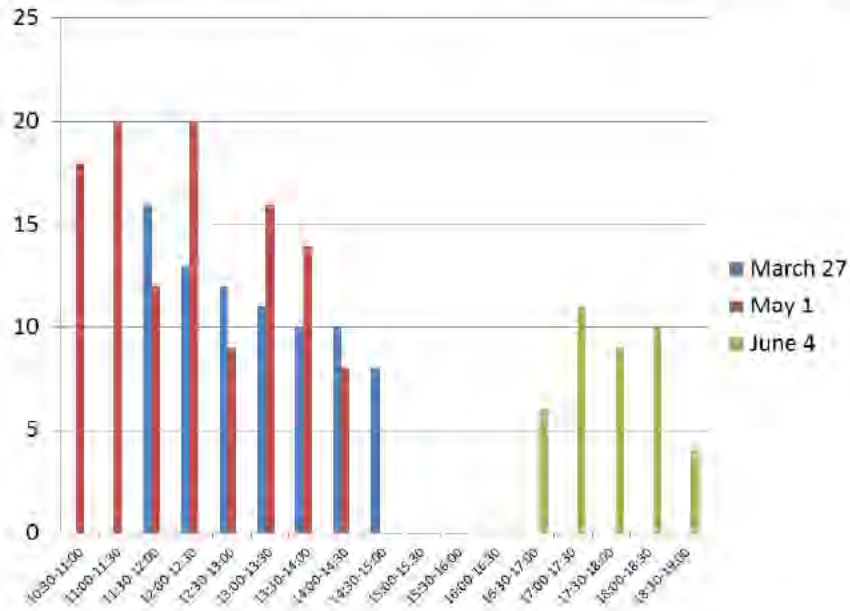


TABLE 4.3: PERCENT OF TIME AT CAPACITY BY ZONE AND DAY OF COLLECTION

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.

4.4.4 Average Amount of Time Spent in Zone by Date

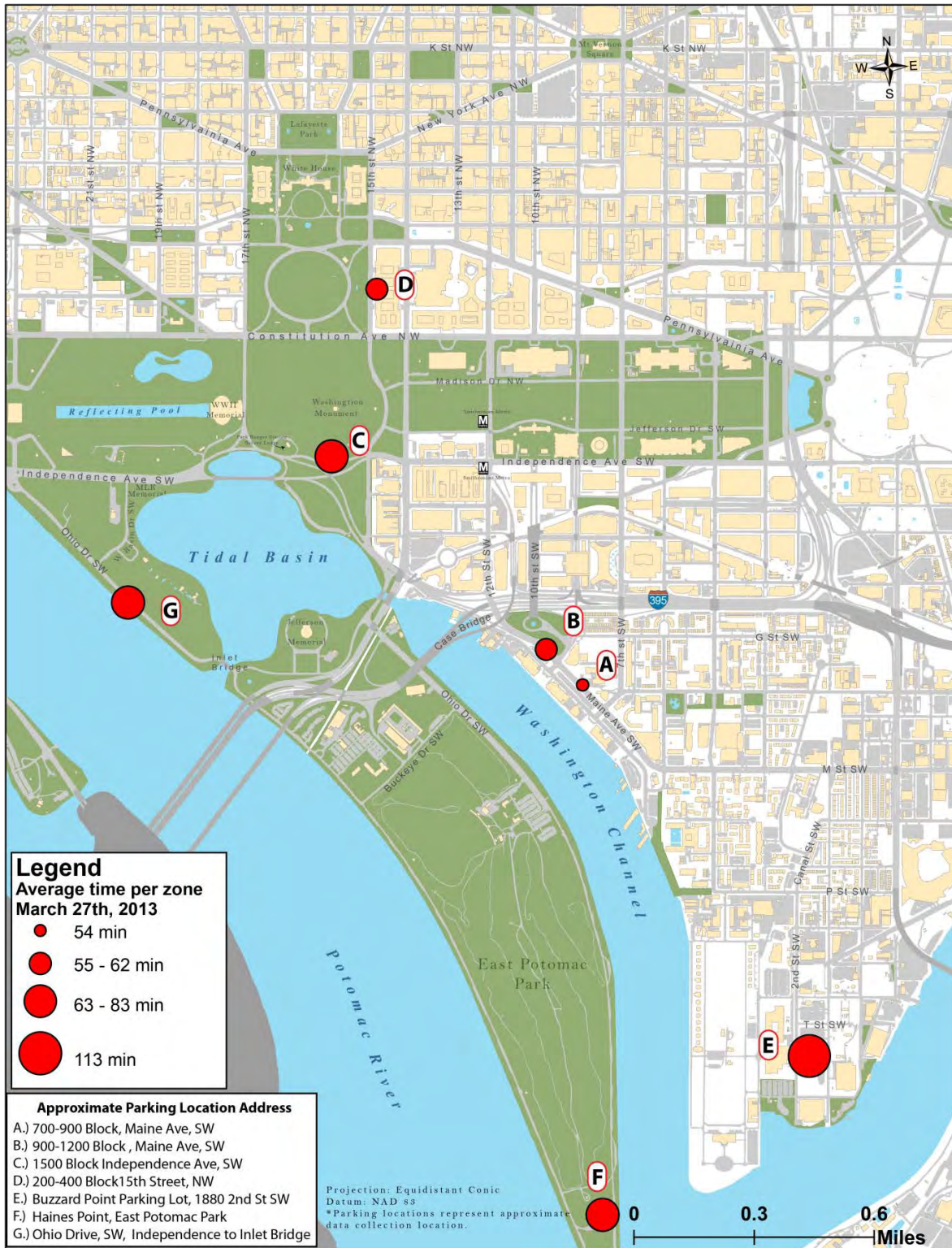
Figure 4.19 through Figure 4.23 illustrate the average amount of time spent in each zone, by date. Table 4.4 follows with summary statistics indicated the mean, median and standard deviation with respect to time spent in the parking zones and in relationship to the parking time limits.

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



Key for Parking Zones

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

FIGURE 4.20: AVERAGE AMOUNT OF TIME SPENT IN ZONE: SATURDAY, APRIL 6, 2013



Key for Parking Zones

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

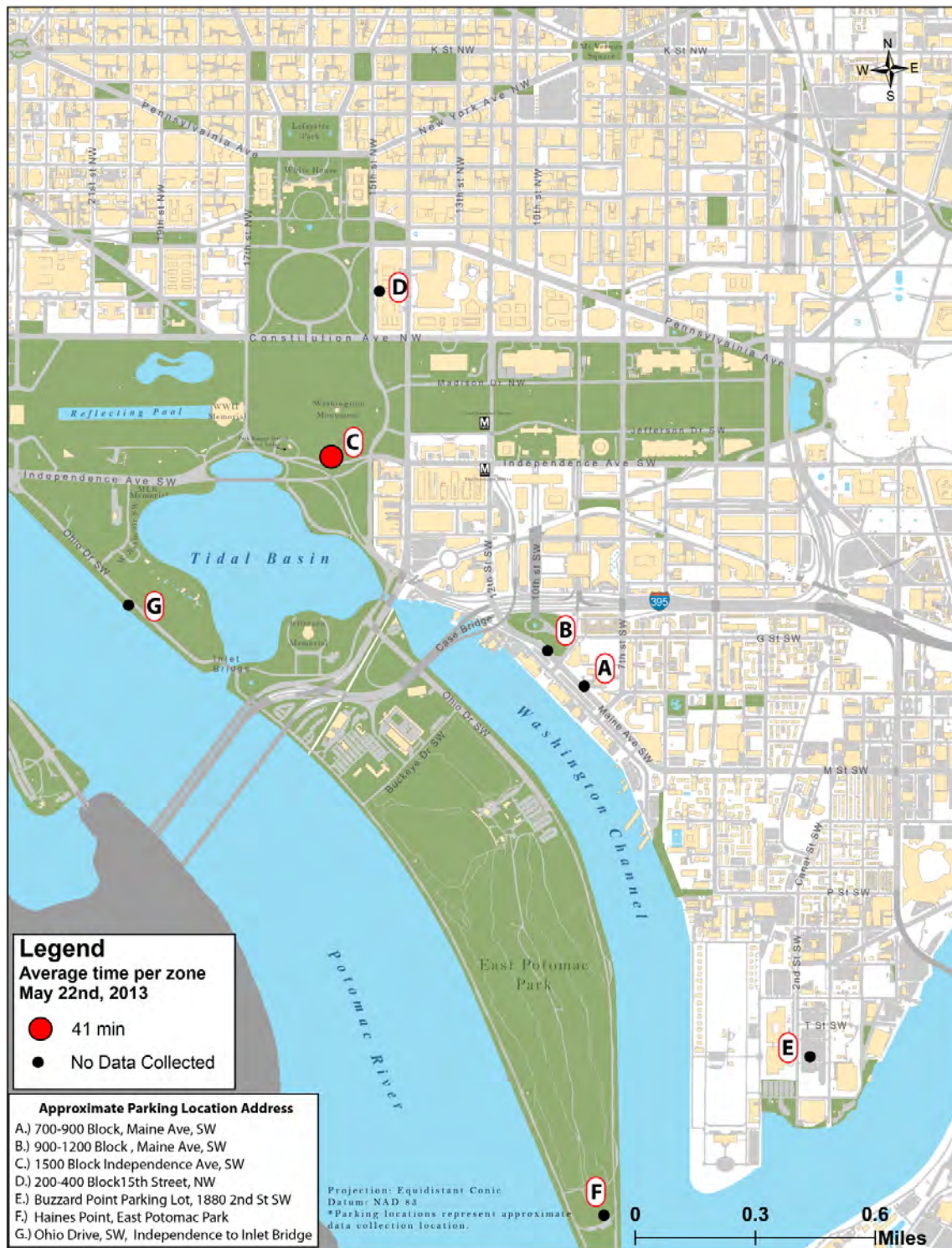
FIGURE 4.21: AVERAGE AMOUNT OF TIME SPENT IN ZONE: WEDNESDAY, MAY 1, 2013



Key for Parking Zones

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

FIGURE 4.22: AVERAGE AMOUNT OF TIME SPENT IN ZONE: WEDNESDAY, MAY 22, 2013



Key for Parking Zones

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

FIGURE 4.23: AVERAGE AMOUNT OF TIME SPENT IN ZONE: TUESDAY, JUNE 4, 2013



Key for Parking Zones

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

TABLE 4.4: SUMMARY STATISTICS FOR DURATION OF STAY AT ZONES, IN MINUTES

Zone	Mean	Median	Standard Deviation	Parking Time Limit
Wednesday, March 27, 2013				
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				
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				
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				
C	40.5	30	17.67	n/a
Tuesday, June 4, 2013				
E	54	30	29.4	n/a
F	48.3	30	24.9	n/a
G	42.9	30	23.4	n/a

4.4.5 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 4.5 summarizes the vehicle mix by zone. The vast majority of parked buses were private large tour buses, followed by private medium tour buses and school buses. Figure 4.24 through Figure 4.28 illustrate the vehicle mix for each zone by date, and Figure 4.29 through Figure 4.35 demonstrate the overall mix across all data collection dates by zone.

TABLE 4.5: TOTAL NUMBER OF EACH TOUR BUS STYLE OBSERVED BY ZONE

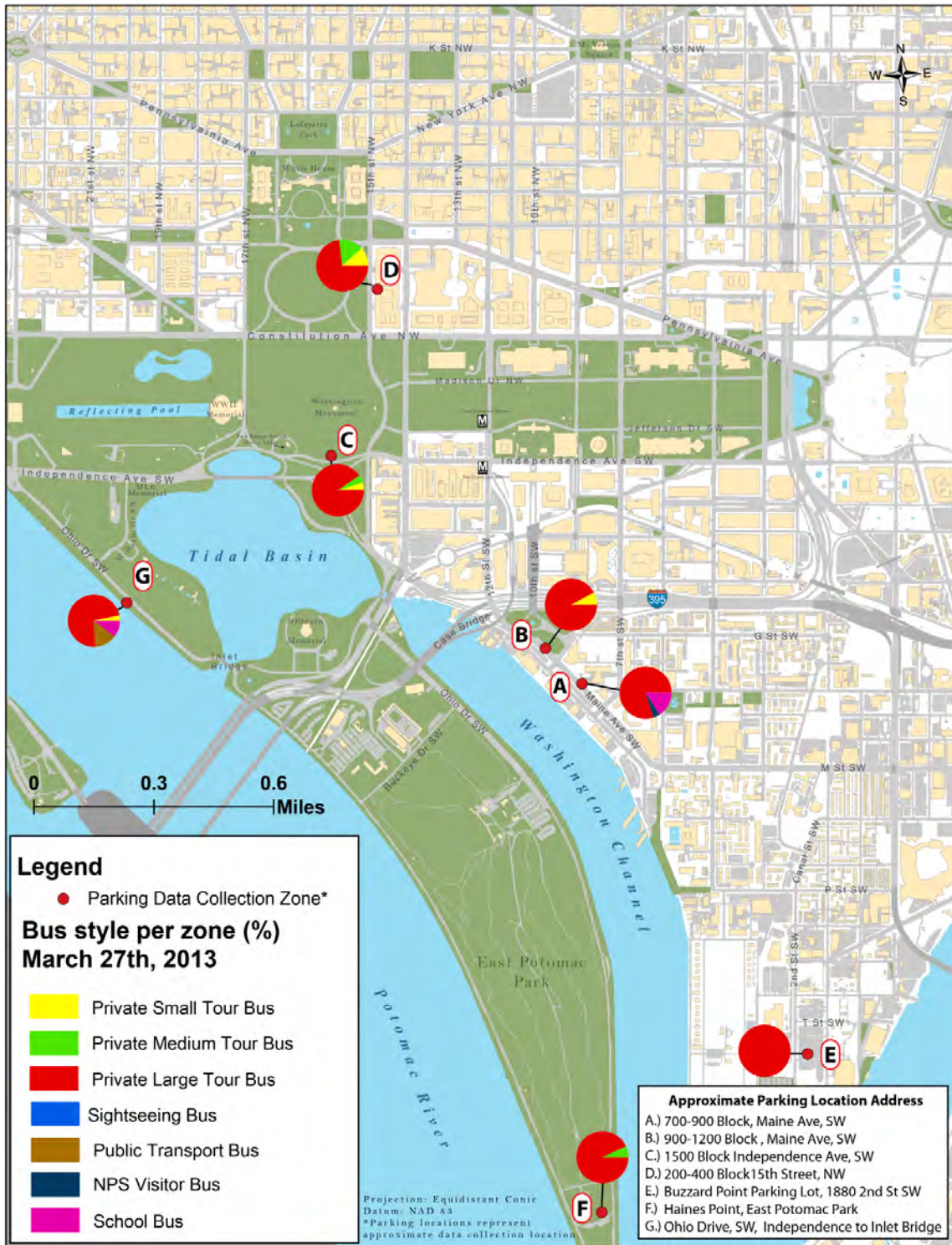
Zone	Private Small Tour Bus : 1-15 Passengers	Private Medium Tour Bus: 16-40 Passengers	Private Large Tour Bus: 41+ Passengers	Public Transport Bus	Sightseeing Bus: Open-top, 2-Deck Trolleys	NPS Visitor Bus	School Bus	Total
A	2	0	190	0	0	1	5	198
B	1	3	79	0	0	0	0	83
C	5	18	207	0	0	0	15	245
D	5	33	122	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	1,328
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

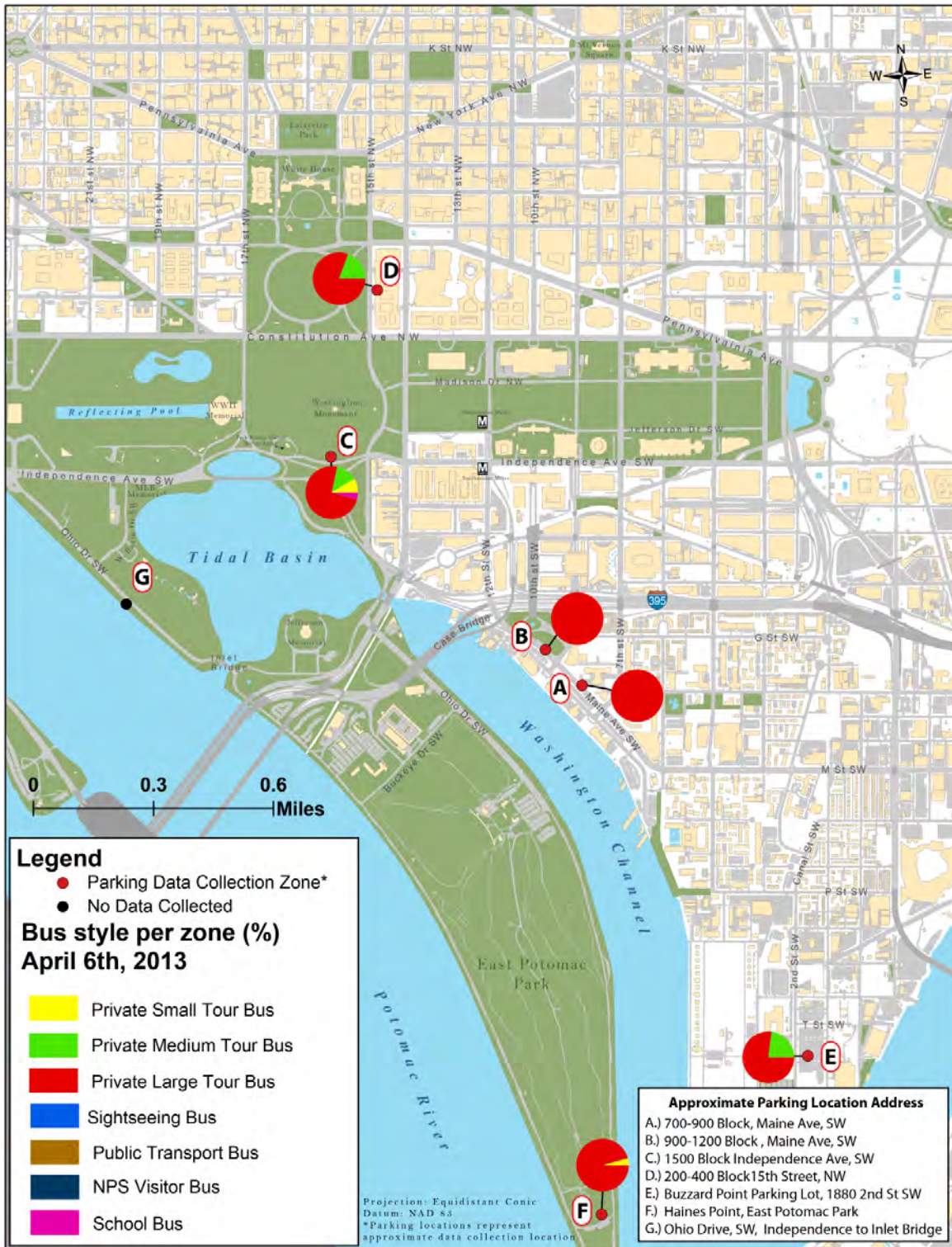
FIGURE 4.24: VEHICLE MIX: WEDNESDAY, MARCH 27, 2013



Key for Parking Zones

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

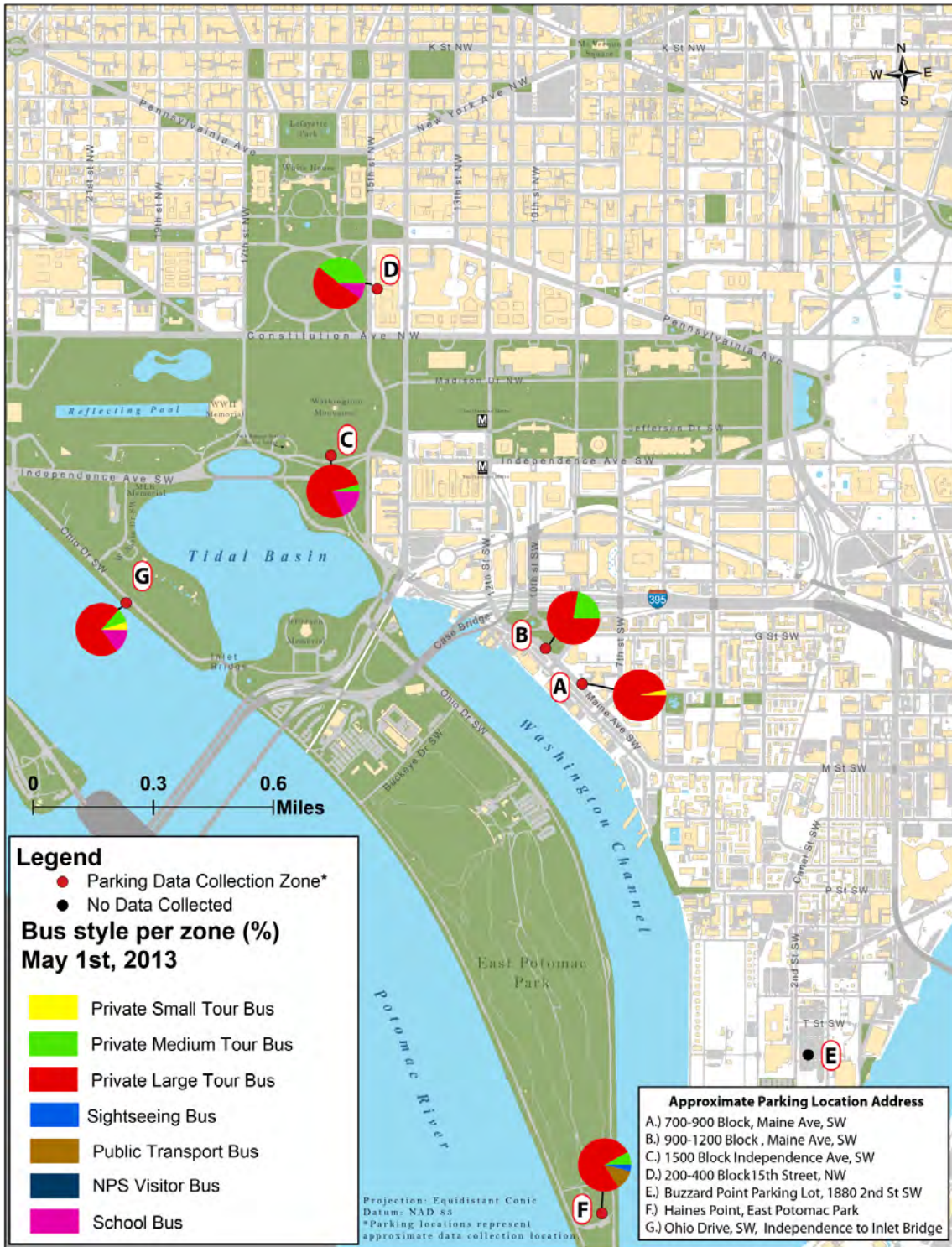
FIGURE 4.25: VEHICLE MIX: SATURDAY, APRIL 6, 2013



Key for Parking Zones

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

FIGURE 4.26: VEHICLE MIX: WEDNESDAY, MAY 1, 2013



Key for Parking Zones

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

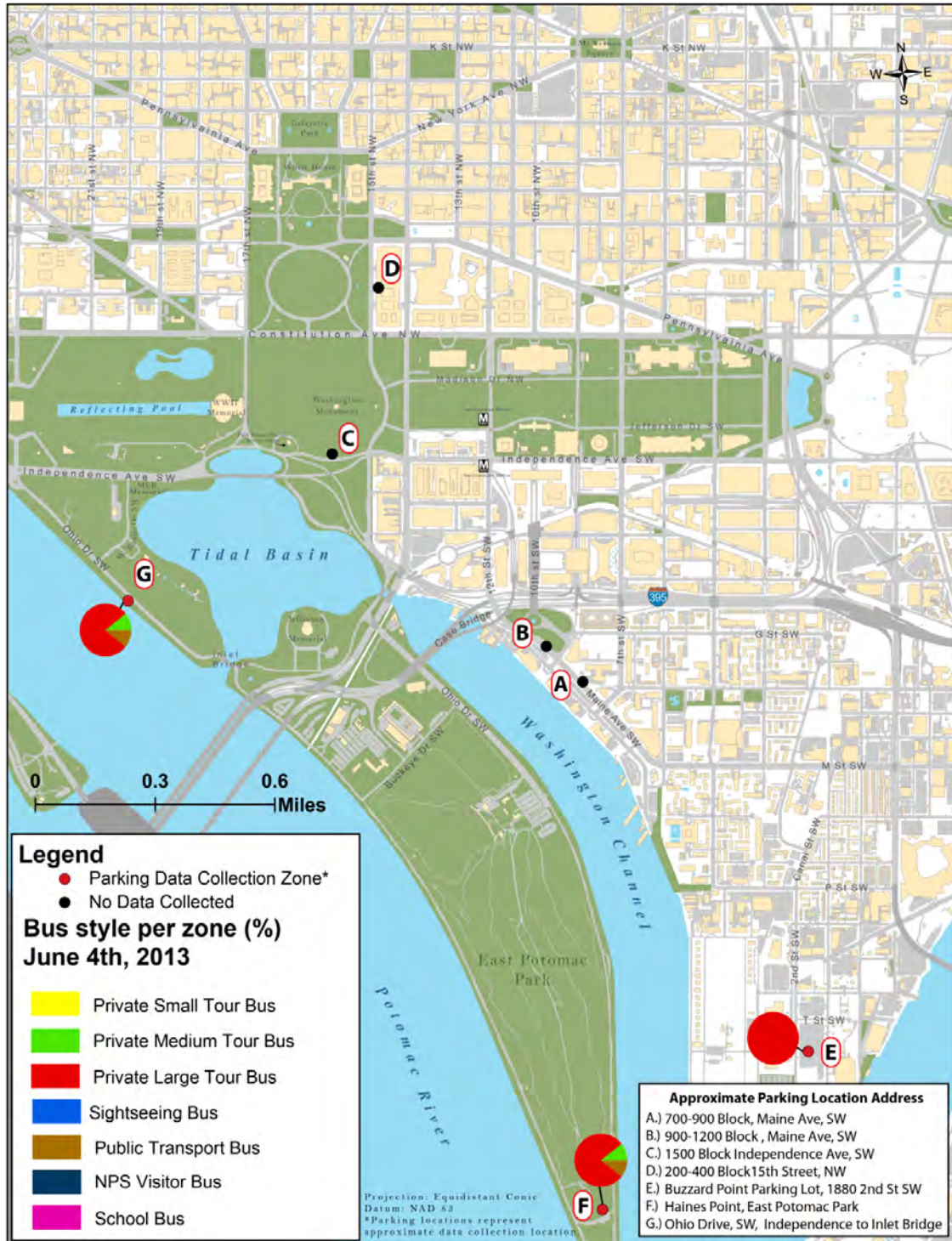
FIGURE 4.27: VEHICLE MIX: WEDNESDAY, MAY 22, 2013



Key for Parking Zones

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

FIGURE 4.28: VEHICLE MIX: WEDNESDAY, JUNE 4, 2013



Key for Parking Zones

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

FIGURE 4.29: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE A

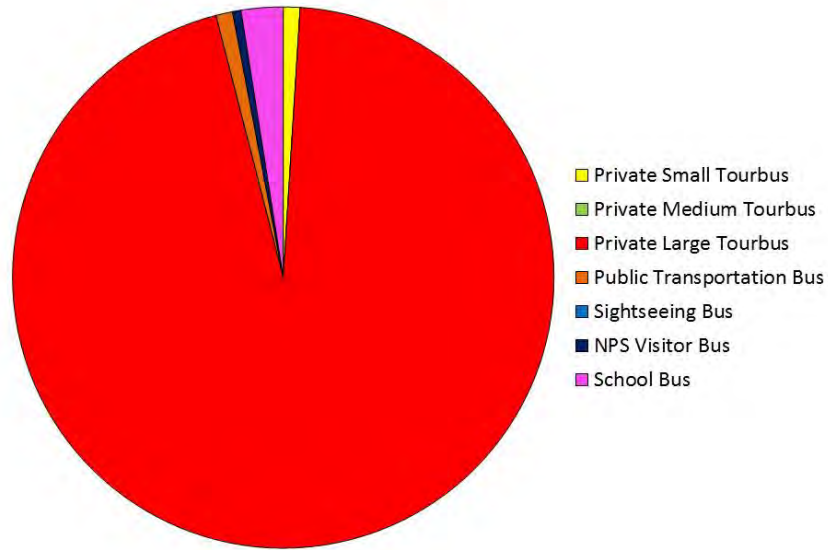
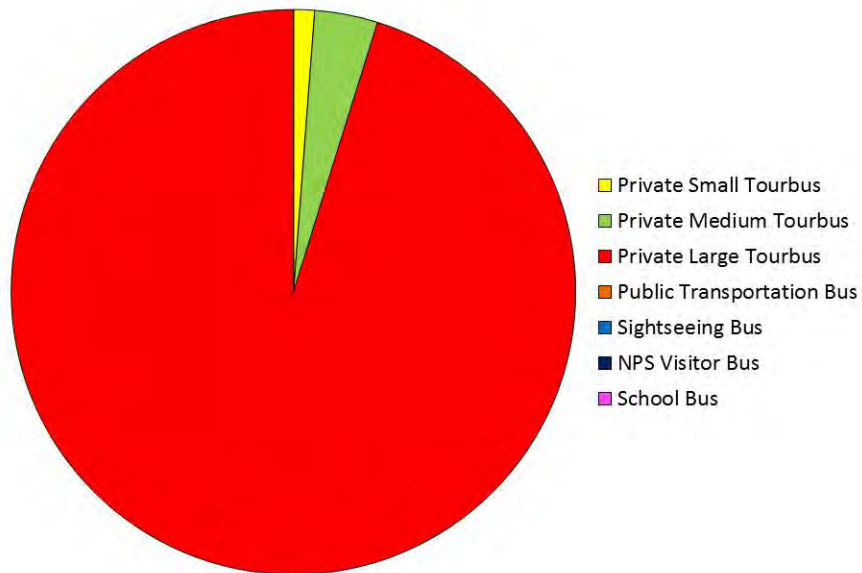


FIGURE 4.30: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE B



Key for Parking Zones

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

FIGURE 4.31: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE C

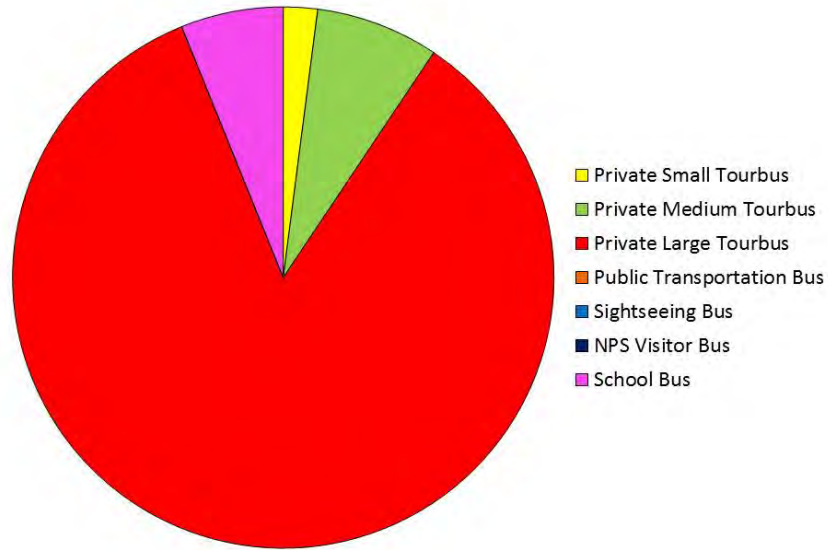
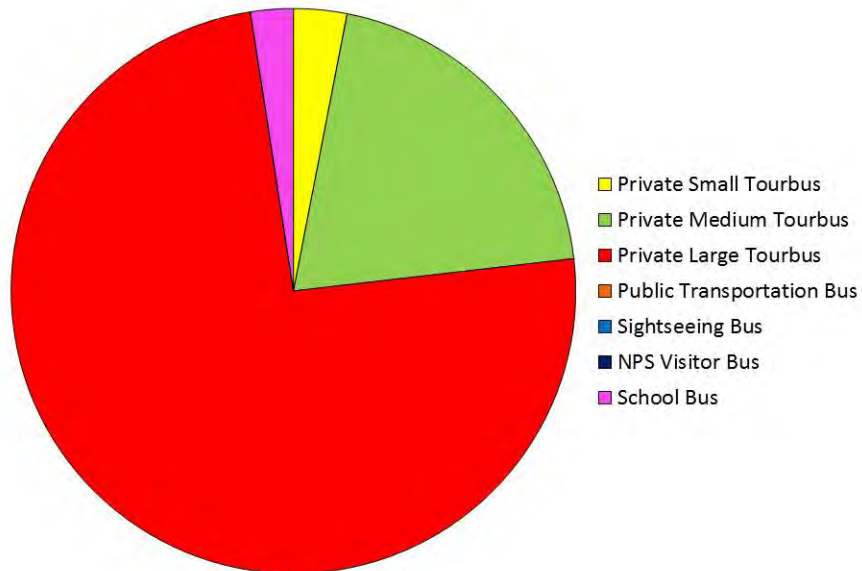


FIGURE 4.32: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE D



Key for Parking Zones

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

FIGURE 4.33: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE E

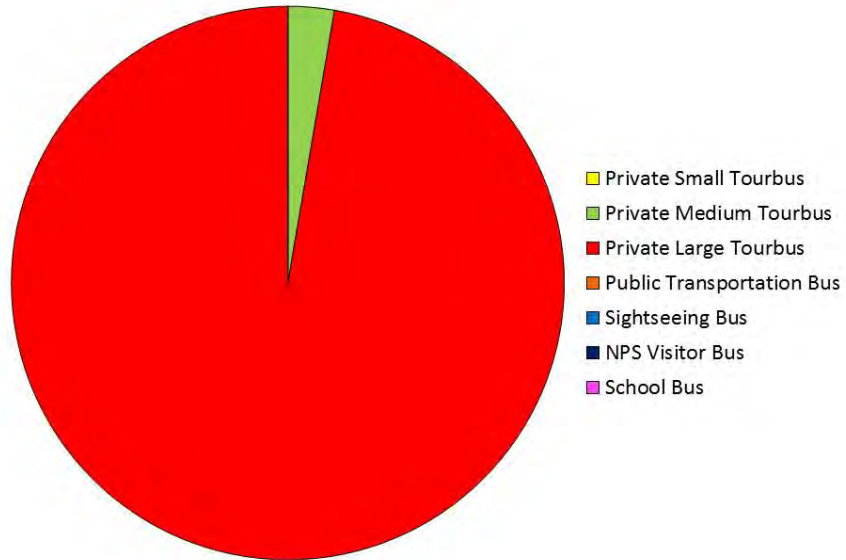
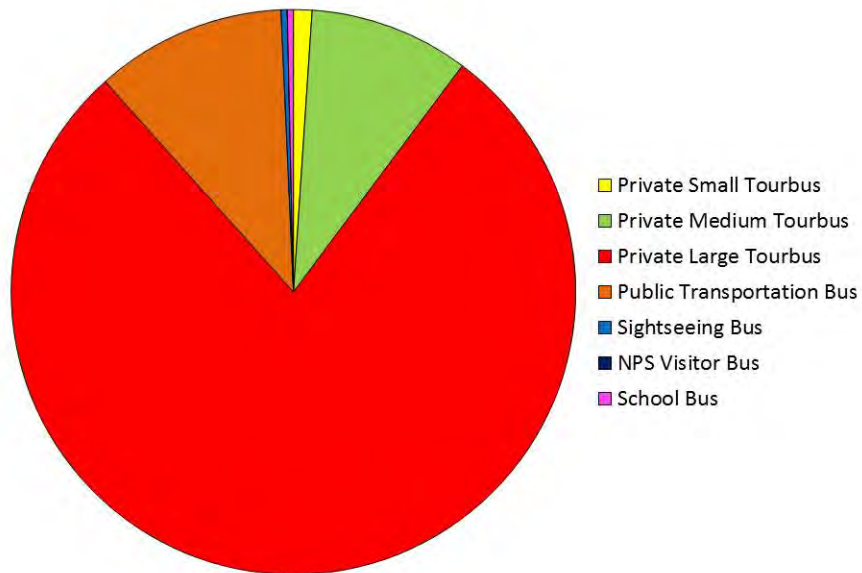


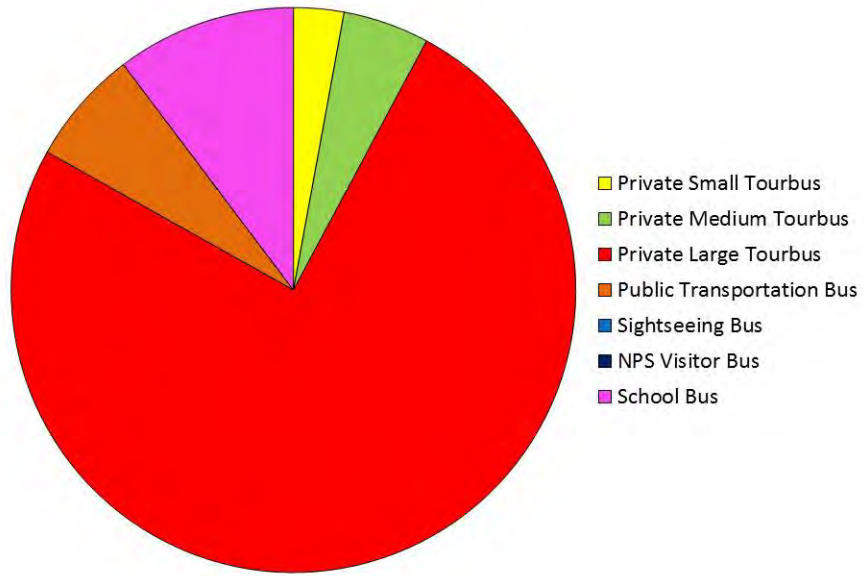
FIGURE 4.34: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE F



Key for Parking Zones

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

FIGURE 4.35: OVERALL VEHICLE MIX, ALL DATES COMBINED, ZONE G



Key for Parking Zones

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

4.5 QUALITATIVE RESULTS: PARKING AREAS

4.5.1 Total Comments by Theme and Zone

Table 4.6 summarizes the frequency of the written observations by theme while Table 4.7 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 4.6: 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 4.7: 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

4.5.2 All Written Observations by Theme and Zone

Table 4.8 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. Table 4.9 includes all written observations, organized by zone.

TABLE 4.8: 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 and east, 3 traffic cones blocked 20 yards of parking space, city workers measuring road and lane width, vendors take up most of the space.

Key for Parking Zones

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

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 D.C. 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.
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.

Key for Parking Zones

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

4. PARKING AREAS

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 Hains 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. D.C. 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.

TABLE 4.9: 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.

Key for Parking Zones

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

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.
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 and 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 D.C. 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.
Not in bus parking. Taking car parking.
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.
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.
Loudoun county transit. At 6:30 p.m. there is only one bus in the lot leaving 9 spots open.
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.

Key for Parking Zones

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

Zone G
Spoke with two drivers who asked that Hains 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. D.C. 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 Dr. 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.
There are 3 hour spots on West Basin. Some drivers asking for food and restrooms along Ohio Drive.
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.

Key for Parking Zones

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

5. DAILY BUS OPERATIONS

5.1 STUDY OVERVIEW: DAILY BUS OPERATIONS

This section of the report summarizes Phase V findings, specific to on-bus data collection and documentation of daily bus operations. Eight days of on-bus observational data were collected with eight different tour groups (one per day) using four standardized instruments to systematically document information specific to group activities, congestion, operational efficiency, mobility, access and safety. Four target audiences included school, cultural, adult and Honor Flight veterans, with two tour groups selected for each target audience. Researchers coordinated with NPS, Destination D.C. and specific tour bus companies to join the school, adult and cultural groups. In accessing veterans, the research team partnered with the Honor Flight Network, “a non-profit organization created solely to honor America’s veterans for all their sacrifices. We transport our heroes to Washington, D.C. to visit and reflect at **their** memorials. Top priority is given to the senior veterans – World War II survivors, along with those other veterans who may be terminally ill” (<http://www.honorflight.org/>).

5.2 SUMMARY OF FINDINGS: DAILY BUS OPERATIONS

The eight tours differed in terms of group composition, time of year, length of tour, vehicle and pedestrian mileage and itineraries (Table 5.1). In line with these distinctions, the focus of the tours and the benefits provided varied from tour to tour. At the same time, common threads emerged when considering specific sites selected for visitation, noted infractions, drivers’ concerns and tour leaders’ concerns. Eight thematic areas are presented below to illustrate the similarities and differences that emerged.

5.2.1 Itineraries and Sites Visited

Itineraries varied from half-day tours of four to five hours that were specific to tour groups from South Korea to 14-hour excursions common to school groups and one of the adult groups. The number of sites visited was not solely based on time spent in D.C., as the South Korean groups preferred frequent, short stops rather than fewer long stops. The total number of sites visited (not including meal stops and lodging) was between five and nine. Seven of the eight groups visited the Lincoln Memorial and Korean War Veterans Memorial; six visited the U.S. Capitol, while four groups stopped at Arlington National Cemetery, the U.S. Marine Corps War Memorial and the Vietnam Veterans Memorial. While the researchers joined each tour for a single day, it is worthy of note that the school groups and adult groups had multi-day itineraries. As such, the sites listed on Table 5.2 do not represent the full range of destinations visited by these visitors; instead, they are illustrative of a single day in a D.C. tour itinerary.

5.2.2 Tour Focus

The overarching focus of all eight tours was education, as each tour had a professional tour guide and/or knowledgeable tour leader who spoke throughout the visit about U.S. history and specific facts and features of D.C. and the sites visited. From this starting point, additional emphases varied. A prominent feature of the school group tours was celebration and camaraderie. The students went into the tour knowing each other and were engaged in lively discussions that often had nothing to do with the tour itself. Tour leaders of adult groups stressed areas of prestige, with details regarding ornate architecture and areas of power and influence more likely to emerge, for instance, a focus on Embassy Row and discussions of diplomacy were noted with both adult tours. The cultural tours highlighted American life so that visitors from South Korea could embrace the distinctions between the U.S. and their native country. In contrast, the Honor Flight tour leaders paid ongoing tribute to the World War II veterans that comprised their tour participant base. The Honor Flight tours also focused on reminiscence, with veterans encouraged to interact and share their stories.

5.2.3 Benefits Derived

In addition to the cognitive benefits derived from the educational emphasis of each tour, the visits also resulted in recreational, health, social and emotional benefits. Recreationally, visitors appreciated the beauty of D.C. and open spaces of NAMA. They shopped, ate and many stayed in area hotels. Participants received health benefits through miles of walking, with pedestrian miles traveled varying from 2 miles (cultural groups) up to 9.7 miles (school group) and anywhere from 600 to over 2200 calories burned along the way. Socially, the camaraderie evidenced on the tours was often very high, with tour guides, tour leaders and drivers often showing their jovial sides and encouraging participant engagement in the fun. The tours also represented a social opportunity for senior members who might not regularly benefit from group interaction. Emotional benefits were most salient for Honor Flight veterans, who were positioned to recall the best and worst of their wartime experiences while simultaneously receiving ongoing accolades throughout the tour.

5.2.4 Infractions

Researchers documented infractions consistently throughout the tours. Drivers double parked and parked in nondesignated areas; loaded and unloaded in nondesignated areas including the middle of roads; idled beyond the 3-minute limit in D.C. and talked on cell phones while driving. Notably, the drivers were all very experienced at navigating D.C. and aware of the regulations. They appeared to violate the rules knowingly and strategically with a clear sense of how far they could push the limits without receiving a driving citation.

5.2.5 Cruising

Cruising occurs when a driver elects to drive the bus empty rather than search for a place to park or is forced to drive the bus empty because no parking is available or convenient. While not illegal, tour bus cruising contributes to vehicle emissions and traffic congestion. Cruising miles while in D.C. varied between 2.3 miles on the low end and 22 miles on the high end. Drivers indicated the impracticality of looking for parking in remote locations. For example, the drivers for the cultural groups explained that their participants stopped for such short periods of time that it was not feasible to seek offsite parking. Additionally, group leaders on many of the tours contributed to cruising in that they frequently asked the driver to stay close to the loading/unloading area so that wait times would be minimized.

5.2.6 Drivers' Concerns

The tour bus drivers expressed concerns about parking, traffic conditions, loading/unloading areas, law enforcement and safety. Most complaints were specific to parking, giving the sense that the other issues would diminish if parking locations were readily accessible and free. They were cognizant of parking spaces that had been taken away, particularly at Hains Point, and generally did not see remote parking as a solution. While there was some use of humor to downplay the problems, frustration was frequently evidenced. As an exception to the general distaste of driving in D.C., one driver indicated a desire to be selected for D.C. tours. He explained his request to be a frequent driver for Honor Flight tours by stating, "Listen...I am a vet. I owe it to these guys. The first time I did it, it was just random. After one trip I told them to sign me up for as many as possible."

5.2.7 Tour Leaders' Concerns

Tour leaders' concerns revolved around staying on schedule and safety. Tour leaders were often unhappy with delays and they at times worried that a driver's specific behaviors might jeopardize the safety of the group. Notably, there was occasionally a sense that they questioned the drivers' commitment to the task. A tour manager for school groups explained that out of hundreds of drivers in their company, only one likes coming to D.C. At the same time, it was clear that the tour leaders were looking out for the drivers, as they echoed the drivers' sentiments regarding congestion and enforcement. When considering the

cultural groups visiting from South Korea, a tour leader's comments implied concerns regarding their clients' overall engagement with D.C. as a destination. The leader explained that D.C. is not an attractive destination to most Korean tour groups, who often find it boring. Most Korean group tourists are more fascinated by natural places like Niagara Falls or the Grand Canyon. That is why this company limits the time spent in D.C. to a half day.

5.2.8 Problems Encountered

Each of the tours encountered some measure of difficulty. Delays were common as was convenient access to tour bus loading/unloading areas. An unaccounted for marathon event prohibited access to a desired site for a group and necessitated the reorganization of the itinerary. Weather played a role in several of the tours, with heat leading to heightened levels of exhaustion on several tours while a torrential downpour resulted in a quick itinerary change for one group. The most significant issue pertained to a broken down bus, requiring the tour bus company to scramble for a replacement vehicle.

TABLE 5.1: OVERVIEW OF TOURS

Variable	School Age 1 3/22/13	School Age 2 6/13/13	Adult 1 4/11/13	Adult 2 5/2/14	Cultural 1 1/13/14	Cultural 2 4/27/14	Honor Flight 1 6/1/13	Honor Flight 2 9/14/13
Group Origin	South Dakota	Massachu- setts	Virginia	North Carolina	South Korea	South Korea	Various U.S. loca- tions. Many transported from Honor Flight hubs.	Various U.S. loca- tions. Many transported from Honor Flight hubs.
Day of Week*	Friday	Thursday	Thursday	Friday	Monday	Sunday	Saturday	Saturday
Tour Season	Early peak	Peak	Peak	Peak	Off-peak	Peak	Peak	Off-peak
Temp. Low (°F)	33°	71°	57°	55°	32°	50°	72°	56°
Temp. High (°F)	59°	90°	86°	72°	61°	70°	91°	73°
Weather	Clear, windy, cold	Cloudy, hot and heavy rain for part of the trip	Sunny, warm, light breeze	Sunny, mild	Partly sunny, cool	Sunny, mild	Sunny, hot	Sunny, mild
Tour Start Time	7:16 am	7:14 am	8:06 am	7:57 am	12:42 pm	11:55 am	8:01 am	7:30 am
Tour End Time	8:41 pm	9:23 pm	5:14 pm	10:04 pm	5:00 pm	5:00 pm	8:10 pm	8:00 pm
Total Tour Hours / Minutes	13 hr 25 min	14 hr 9 min	9 hr 8 min	14 hr 7 min	4 hr 18 min	5 hr 5 min	12 hr 9 min	12 hr 30 min
Bus Style	Private Large	Private Large	Private Large	Private Large	Private Large for first two hours. Changed to Private Medium due to mechan- ical problems with first bus.	Private Large	Private Large	Private Large (2 buses)
Professional Guide with Tour?	Yes	Yes	No	Yes	Yes	Yes	No	No
Total Number of People on Tour	15	41	23	31	19	12	52	54 (Bus 1) 55 (Bus 2)
Number of Pre- teens (Ages 0- 12)	0	0	0	0	0	1	2	0 (Bus 1) 0 (Bus 2)
Number of Teens (Ages 13-18)	13	37	0	2	5	0	0	1 (Bus 1) 0 (Bus 2)
Number of Adults (Ages 19-59)	2	4	1	4	14	9	20	9 (Bus 1) 20 (Bus 2)
Number of Seniors (Ages 60+)	0	0	22	25	0	2	30	45 (Bus 1) 35 (Bus 2)
Group Members Using Assistive Devices	0	0	1	0	0	0	15	30 (Bus 1) 20 (Bus 2)
Types of Assistive Devices	n/a	n/a	Wheel- chair	n/a	n/a	n/a	Wheelchairs, walkers and canes	Wheelchairs, walkers and canes

Variable	School Age 1 3/22/13	School Age 2 6/13/13	Adult 1 4/11/13	Adult 2 5/2/14	Cultural 1 1/13/14	Cultural 2 4/27/14	Honor Flight 1 6/1/13	Honor Flight 2 9/14/13
Total Vehicle Miles Traveled	92.7	63	15	98.8	45.4	17.6	91.5	112
Cruising Vehicle Miles in D.C.	22	6	5.5	12.5	1.5	3	8	2.3
Pedestrian Miles Traveled	9.72	6.76	3.8	6.26	2.0	2.1	2.8	2.17
Average Calories Burned	2233	2079	1288	2035	600	715	1518	1463
Number of Stops Made by Driver**	14	19	6	19	7	11	15	12
Number of Sites Visited by Passengers ***	7	9	6	9	5	6	9	9

* School groups and adult groups had multi-day itineraries in D.C. The information provided is illustrative of one full day of the overall tour.

** Including parking locations and meals.

***Excluding parking locations and meals. Multiple sites in one stop counted separately.

TABLE 5.2: SITES VISITED

D.C. Destination	School Age 1 3/22/13	School Age 2 6/13/13	Adult 1 4/11/13	Adult 2 5/2/14	Cultural 1 1/13/14	Cultural 2 4/27/14	Honor Flight 1 6/1/13	Honor Flight 2 9/14/13
Arlington National Cemetery	X	X					X	X
Franklin Delano Roosevelt Memorial				X				
Hillwood Estate, Museum and Gardens			X					
Iwo Jima/ U.S.M.C. War Memorial		X		X			X	X
Korean War Veterans Memorial	X	X		X	X	X	X	X
Lincoln Memorial	X	X		X	X	X	X	X
Martin Luther King, Jr. Memorial		X						
Mount Vernon		X						
National Museum of Natural History		X			X	X		
Royal Embassy of Saudi Arabia			X					
The White House				X	X	X		
Thomas Jefferson Memorial				X		X		
U.S. Air Force Memorial							X	X
U.S. Capitol	X	X	X	X	X	X		
U.S. Holocaust Memorial Museum	X							
U.S. Library of Congress	X		X					
U.S. National Archives	X							
U.S. Navy Memorial							X	X
Vietnam Veterans Memorial		X		X			X	X
Washington National Cathedral			X					
Women in Military Service for America Memorial							X	X
World War II Memorial				X			X	X

5.3 METHODS: DAILY BUS OPERATIONS

5.3.1 Schedule and Group Determination

Eight days of on-bus observational data were collected using four standardized instruments to systematically document information specific to group activities, congestion, operational efficiency, mobility, access and safety. Four target groups included school, adult, cultural and Honor Flight veterans. Researchers coordinated with NPS, Destination D.C. and specific tour bus companies to join the school, adult and cultural groups. In accessing veterans, the research team partnered with the Honor Flight Network, “a non-profit organization created solely to honor America’s veterans for all their sacrifices. We transport our heroes to Washington, D.C. to visit and reflect at their memorials. Top priority is given to the senior veterans – World War II survivors, along with those other veterans who may be terminally ill” (<http://www.honorflight.org/>). Veterans often travel with family members or are assigned a “Guardian.” As explained at <http://www.honorflight.org/>, “Guardians are essential to the success of the Honor Flight Network Program. Without these volunteers we would not be able to carry out the dreams of so many veterans, enabling them to see the memorials built in their honor.

Typically during our trips, we divide the veterans into groups of eight and assign three guardians to each group. Before the veterans arrive at the airport, the guardian’s responsibilities begin with flight preparation and going over their packets of material. Once veterans start to arrive, guardians will ensure boarding passes and IDs are available, distribute Honor Flight Network tee shirts, get the veterans through security and to the gate, assist in boarding, etc. From the moment the veterans are in our hands until we return them to their loved ones in the evening, guardians will be asked to treat these heroes as if they are family and ensure that every veteran has a safe, memorable, and rewarding experience. Guardians are volunteers and are expected to pay for their trip. Prices will vary depending on the departure city and airline fares.”

Table 5.3 indicates the data collection dates and associated target groups. Although the school groups and adult groups had multi-day itineraries in D.C., the research team joined the tour for one full day. Researchers collaborated with tour representatives to join these groups on full tour days, meaning that the dates selected did not coincide with arrival or departure.

TABLE 5.3: DATA COLLECTION SCHEDULE

Tour	Group	Data Collection Date
1	School 1	Friday, March 22, 2013
2	Adult 1	Thursday, April 11, 2013
3	Honor Flight 1	Saturday, June 1, 2013
4	School 2	Thursday, June 13, 2013
5	Honor Flight 2	Saturday, September 14, 2013
6	Cultural 1	Monday, January 13, 2014
7	Cultural 2	Sunday, April 27, 2014
8	Adult 2	Friday, May 2, 2014

5.3.2 Instrument Development

The on-bus instruments were constructed with significant input from NPS, DDOT and Destination D.C. All instruments were designed using iSurvey software and administered through up to four iPads for each tour. Map My Tracks software was utilized to document the driving route taken by the bus as well as the walking route taken by participants while off the bus. Select tours included walking data collected using Fitbit activity trackers to validate Map My Tracks information. An iPad tracking the bus movement was kept on the bus at all times, so that the full route selected by the driver could be mapped. At least one researcher stayed on the bus at all times in order to document the day through the experiences of the driver.

The first instrument was an on-vehicle cover sheet (appendix E) designed to allow the researchers to document their personal characteristics as well as specifics of the tour and the group. The cover sheet was completed at the beginning of the tour by each researcher. Personal characteristics including each re-

searcher's height, weight, age and sex were needed to normalize health benefits data specific to calories burned during the excursion. Tour and group variables pertained to date, day of week, tour start time, tour start location, temperature, weather conditions, bus style, bus company, DOT number, last three digits of license plate, name of group or primary affiliation, the presence or absence of a professional guide, number of group leaders, group type (school, adult, cultural, Honor Flight), number of individuals in each of four age groups (pre-teen, teen, adult, senior), number of group members using an assistive device, types of assistive devices being utilized and an indication of languages other than English spoken by members in the group.

The second instrument was an activity sheet used throughout the tour to pinpoint the specific locations visited and sites visited by the group members (appendix F). Activity sheets were completed on the iPads for each time the bus unloaded, loaded, parked, was in transit, while cruising empty and during off-bus periods. One analyst stayed with the bus while other analysts unloaded with the tour bus passengers and completed activities with the group. Variables included activity start time, bus activity, start point, traffic congestion level (if in motion), cause of congestion (if applicable), observed operational issues, passenger loading/unloading behaviors, place assessment, passenger off-bus activity, distance walked during off-bus activity, calories burned during off-bus activity, end time, end point and comments.

The third instrument allowed researchers to summarize relevant overheard commentary from group members (appendix G). Variables included time, whether the speaker was on or off the bus when the comment was made, who made the comment (i.e., driver, passenger, group leader, tour guide, NPS Ranger, or other individual), approximate location, comment theme and a summary of the comment content. Researchers did not pose questions to passengers at any time or eavesdrop on conversations; as such, documenting overheard commentary was optional and only noted as applicable to the study.

The final instrument was a photolog (appendix H) where researchers captured a relevant image that was time stamped. They then added comments regarding the location and why they took the picture. Photographic evidence was optional and only captured as deemed relevant by the researchers on each given tour.

5.3.3 Data Collection: Training and Implementation

All researchers went through a 1-hour offsite training session to become familiar with the instruments and protocol. Researchers did not wear any NPS identifiers on their clothing and were instructed to simply blend in with the tour as participant observers. For each tour, the bus driver and all tour participants were introduced to the researchers and informed of the study purpose.

Because iSurvey software does not permit the researcher to toggle between instruments until an open instrument is completed, multiple analysts were needed for on-bus data collection. A minimum of two researchers joined each tour. Researchers would periodically switch tasks throughout the day to decrease data entry fatigue. Due to the nature of the data collection, with researchers acting as participant-observers, tour documentation was subject to variability based on the individual experiences and accounts of the researchers. The use of standardized instruments, multiple analysts and task switching aided in data collection breadth and consistency.

5.3.4 Data Analysis

Data were organized and analyzed using Microsoft Excel software. Spatial data files were converted into Arc GIS format for analysis. Each data point was geocoded by zone before creating graphical illustrations of each key variable. Google Earth and Street View technologies were utilized to better understand the spatial makeup of the tour routes.

5.4 RESULTS: DAILY BUS OPERATIONS

5.4.1 School Group 1 — Friday, March 22, 2013

5.4.1.1 Overview

School Group 1 was comprised of 13 high school seniors visiting from South Dakota with two adults supervising. The data collection period was 13 hours and 25 minutes (Table 5.4). The capacity of tour bus was significantly underutilized, with 41 seats on the bus, but only 15 people in the group. The weather on March 22, 2013 was cool and sunny. The school group was quiet and well behaved and the group leader was engaged throughout. Commentary regarding the tour from the student participants was minimal as they were actively engaged in topics unrelated to the experience. The driver engaged in a number of illegal/unauthorized activities, such as loading/unloading in nondesignated loading/unloading zones, talking on a cell phone while driving, unloading/loading on roadside (rather than curbside) and double parking. On occasion this compromised/threatened the safety of the group. With the exception of the Holocaust Museum, parking was a problem. Consequently, the driver often had to cruise around (with an empty bus) while the group was sightseeing. Multiple attempts at finding parking at designated Ohio Drive and Hains Point locations were unsuccessful due to capacity issues. The driver complained about the cost and availability of parking, particularly around the U.S. Capitol. The driver indicated distance as a limiting factor for utilizing parking at RFK stadium. The group leader was agitated by delays and concerned about the safety of the students in the group. The group leader was requesting the bus driver stay as “close as possible” to the tour group to prevent delays when picking up, as pickups were usually requested via cell phone requests. This request was not always achievable as local parking opportunities were unavailable in most cases. Most of the sites visited on this tour had trash containers and recycling bins and meals were eaten at a hotel (breakfast), food court (lunch) and shopping mall (dinner). Hence, littering was not an issue. Directional and educational signs were consistently noted. The tour route was a total of 92.7 driving miles with participants walking 9.72 pedestrian miles (Figure 5.1).

5.4.1.2 Documented Activities, Site Assessment, Researcher Observations and Overheard Commentary

TABLE 5.4: SCHOOL GROUP 1 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

School Group 1 — Friday, March 22, 2013 (15 Participants from South Dakota)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Tyson’s Westpark Hotel / Pre-loading	7:16 am – 7:30 am (14 min)	Traffic was moderately congested. Tour bus was double-parked. Soil was compacted and group stood on it rather than using walkways, which seems to be a common problem. Waysides and trash containers were present outside the hotel. Group photo was taken.	Pre-Boarding: Driver/Traffic Conditions (7:05 am)
Tyson’s Westpark Hotel / Loading	7:31am – 7:51 am (20 min)	Traffic was not all congested (i.e., free flowing). Loading was orderly.	
Tyson’s Westpark Hotel / In Transit	7:52 am – 8:32 am (50 min)	Tour bus was <i>en route</i> to the Capitol Building. Traffic congestion was moderate to heavy. Driver was talking/texting on cellular phone (Bluetooth device) while driving. Directional signage was observed while in-transit.	
U.S. Capitol / Unloading (See Figure 5.1: Dropoff 1)	8:33 am – 8:39 am (6 min)	Directional signage (e.g., way-finding) and trash containers present where the group unloaded. Group was engaged in general sightseeing. Traffic was free-flowing; however, there was no parking available	

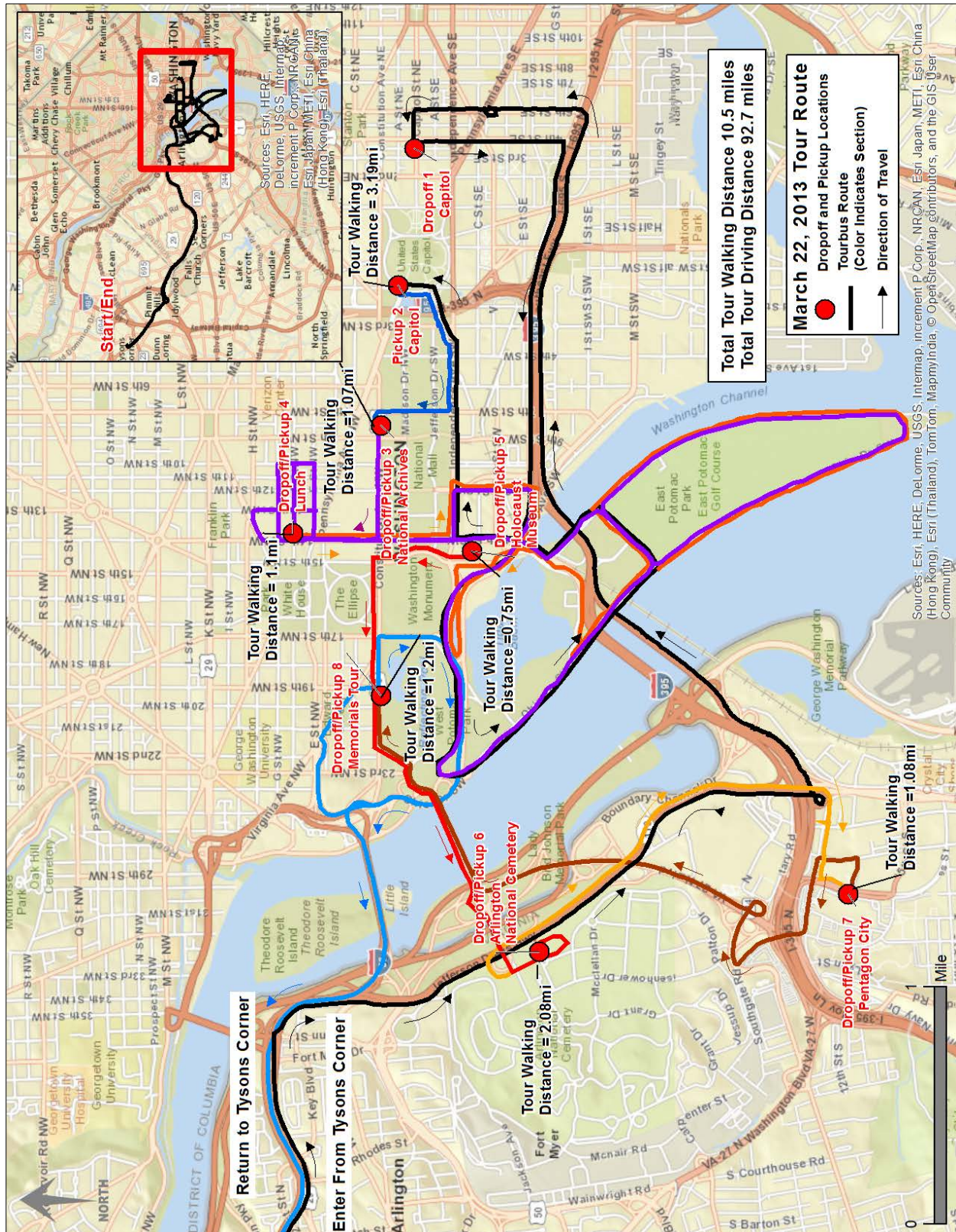
School Group 1 — Friday, March 22, 2013 (15 Participants from South Dakota)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
		around the U.S. Capitol. Unloaded east of U.S. Capitol.	
U.S. Capitol / Tour and Sightseeing	8:39 am – 10:20 am (2 hours 29 min)	Trash containers, recycling containers, and directional signage were present in and around the Capitol Building. The group took photos, viewed an informational film and participated in an educational tour. Weather conditions were cold and windy.	
Library of Congress / Program	10:26 am – 11:02 am (36 min)	Site program at Library of Congress.	
Cruising (Empty)	8:39 am – 11:08 am (2 hours 29 min)	Empty tour bus cruised around the area. Traffic was moderately congested. At one point, the tour bus parked along right side of Ohio Dr.	Driver/Parking (9:08 am) "We used to be able to Park at Union Station but they increased rates from 20 to 50 dollars and decreased spaces by 1/4 and now a tour bus needs a reservation, East Potomac Park was also another good option but there are only 8 spots." and Driver/Parking (9:12 am) "RFK stadium is too far of a drive to park after dropping off at east Capitol street. It seems like RFK is closer than Ohio Drive, but upon pickup this would be harder to get to pickup location." Driver/Parking (9:58 am) "If parking were available along Ohio Drive in East Potomac Park, I would use it as alternative to Ohio Drive or when Ohio Drive is full."
1st St. at U.S. Capitol / Loading (See Figure 5.1: Pickup 2)	11:08 am – 11:16 am (8 min)	Tour group had to wait for the bus for more than five minutes. Driver utilized loading area on west side of U.S. Capitol. Traffic was moderately congested. There were several buses at the location waiting to pick up passengers. Loading was orderly and there were no idle buses. Trash containers, waysides and directional signage were present. The tour took some group photos.	
In Transit	11:14 am – 11:24 min (8 min)	Bus was en route to National Archives. Traffic was not at all congested.	Tour Guide/Accessibility (11:22 am) Talking to driver one of the tour guides said: "Stay close if you can."
National Archives / Unloading (See Figure 5.1: Drop-off/Pickup 3)	11:25 am – 11:36 am (11 min)	Group was dropped off on Constitution Ave. at National Archives. Traffic was free-flowing. Driver was talking/texting on cellular phone. Trash containers, recycling containers, directional signage were present outside the National Archives. NPS ranger was also observed at the site. Tour bus was double-parked.	
National Archives / Program and Sightseeing	11:36 am – 12:04 pm (28 min)	Group took part in a site program and general sightseeing at the National Archives.	
Cruising (Empty)	11:36 am – 12:14 pm (38 min)	Empty tour bus cruised around for a while.	
National Archives / Loading (See Figure 5.1: Dropoff/Pickup 3)	12:05 pm – 12:20 pm (15 min)	Group had to wait for bus for more than 10 minutes and was not very talkative. Traffic was not all congested. Double-parking and unloading/loading on the roadside, rather than the curbside were observed. Special police/ security were present outside the building.	
In Transit	12:21 pm – 12:30 pm (9 min)	Tour bus was en route to National Place for lunch. Traffic was moderately congested.	

School Group 1 — Friday, March 22, 2013 (15 Participants from South Dakota)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
National Place / Cruising (Empty)	12:24 pm – 12:56 pm (32 min)	There was moderate to heavy traffic congestion. Tour bus could not find parking, so unloaded roadside and participants were walking on the street. Other tour bus unloading/loading on the roadside was observed. Driver was talking/texting on cellular phone. The driver had to circle around the block for about 30 minutes.	
F St. and 13th St. / Lunch at Food Court, National Place (See Figure 5.1: Dropoff/Pickup 4)	12:25 pm – 1:02 pm (37 min)	The group had lunch at the food court. The food court was very busy. Trash containers, recycling containers and directional signage were present at the site.	
F St. and 13th St., National Place / Loading (See Figure 5.1: Dropoff/Pickup 4)	12:52 pm – 1:06 pm (14 min)	Traffic was very heavy. Bus wasn't able to find parking nearby causing a 15 minute delay in loading.	Tour guide was unhappy with the delay of bus.
F St. and 13th St./ In Transit	1:07 pm – 1:15 pm (8 min)	Tour bus was en route to the Holocaust Museum. Traffic was free-flow. There was a bus blocking pedestrian walkway. The group was snacking while in-transit.	
U.S. Holocaust Memorial Museum / Unloading and Sightseeing (See Figure 5.1: Dropoff/Pickup 5)	1:15 pm – 2:52 pm (1 hr 37 min)	Traffic was not all congested. Trash containers, waysides and directional signage were present outside of the U.S. Holocaust Memorial Museum.	
Cruising (Empty)	1:19 pm – 1:40 pm (21 min)	Traffic was not all congested. East Potomac Park was full of tour/school buses. Parking location was close to the Holocaust Museum.	
East Potomac Park (Ohio Dr.) / Cruising (Empty)	2:45 pm – 2:52 pm (7 min)	Traffic was not at all congested.	
U.S. Holocaust Memorial Museum / Loading (See Figure 5.1: Dropoff/Pickup 5)	2:53 pm – 3:02 pm (9 min)	Traffic was not at all congested. Loading was orderly. Directional signage was present at the site.	
In Transit	3:02 pm – 3:12 pm (10 min)	Tour bus was en route to Arlington National Cemetery. Traffic was moderately congested.	
Arlington National Cemetery / Unloading (See Figure 5.1: Dropoff/Pickup 6)	3:13 pm – 3:15 pm (2 min)	Traffic in general was free-flow, however, there were a lot of tour busses entering and exiting the site. Driver could not find any immediate parking. Group was dropped off in middle of parking lot. Directional signage present at the site. Several violations were noted: unloading/loading in a nondesignated loading zone, unloading/loading on the roadside (rather than the curbside), and unsafe passenger loading/ unloading. The group was engaged in general sightseeing.	
Arlington National Cemetery / Parked, Sightseeing	3:16 pm – 5:28 pm (2 hours 12 min)	Interpretive signage (e.g., wayside, educational), directional signage, trash containers were observed at the site. Guard ceremony was taking	

School Group 1 — Friday, March 22, 2013 (15 Participants from South Dakota)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
		place. Tour took group photos, engaged in general sightseeing, and watched the changing of the guard and wreath laying.	
Arlington National Cemetery / Loading (See Figure 5.1: Dropoff/Pickup 7)	5:32 pm – 5:33 pm (1 min)	Traffic was not at all congested. Loading was orderly.	
In Transit	5:34 pm – 5:41 pm (7 min)	Tour bus in transit to Pentagon City Mall. Traffic was not at all congested.	
Pentagon City Mall / Parked and Dinner	5:41 pm – 6:46 pm (1 hour 5 min)	The group stopped to eat dinner at Pentagon City Mall. Directional signage, trash containers, and directional signage were present at the site. Traffic was free flowing. Tour buses were double-parked and unloading/loading on the roadside.	
Pentagon City Mall / Loading (See Figure 5.1: Dropoff/Pickup 7)	6:46 pm – 6:47 pm (1 min)	Traffic was free-flowing.	
Pentagon City Mall / In Transit	6:46 pm – 6:56 pm (10 min)	Traffic was minimally congested. The tour bus was in transit to the memorials.	
Constitution St. at Lincoln Memorial / Unloading (See Figure 5.1: Dropoff/Pickup 8)	7:00 pm – 7:04 pm (4 min)	Tour bus unloaded in an unauthorized unloading/loading zone. Traffic was not at all congested. Trash containers, recycling containers and directional signage observed around the Lincoln Memorial.	
Lincoln Memorial and Korean War Veterans Memorial / Sightseeing	7:05 pm – 8:11 pm		
Cruising (Empty)	7:05 pm – 8:11 pm (1 hour 13 min)	Empty tour bus cruised around.	
Constitution St. at Lincoln Memorial / Loading (See Figure 5.1: Dropoff/Pickup 8)	8:12 pm – 8:13 pm (1 min)	Traffic was very congested. Several violations noted while loading the tour bus: unloading/ loading in a nondesignated loading, unloading/ loading on the roadside and unsafe passenger unloading/loading.	
In Transit	8:13 pm – 8:41 pm (28 min)	Tour bus returned to the hotel. Traffic was not at all congested.	

5.4.1.3 Tour Route

FIGURE 5.1: TOUR ROUTE — SCHOOL GROUP 1, FRIDAY, MARCH 22, 2013



5.4.1.4 Photographic Documentation

PHOTO 5.1: PARKING ON OHIO DR. IN THE MORNING



5.4.2 School Group 2 — Thursday, June 13, 2013

5.4.2.1 Overview

School Group 2 was comprised of middle school students visiting from Massachusetts. The data collection period was 14 hours and 9 minutes (Table 5.5). The weather was cloudy and hot with a period of heavy rain in the late afternoon that interfered with the itinerary. Most of the sites visited had trash containers, recycling bins and ample signage. The driver complained about law enforcement and how they were unfair to tour bus drivers. Parking was also raised as an issue. It was perceived by the driver to be a widespread problem in D.C. Also, lack of adequate bus loading/unloading zones near sites appears to be a problem, for example, the group had to walk a significant distance to get from Mt. Vernon to the loading zone. Moreover, there was no bus loading/ unloading zone outside the restaurant the group went to for dinner. This resulted in a chaotic scene when the bus was loading, including illegal activities on the part of the driver. The group leader was concerned about the safety of the group, and student tours in general. In particular, the lack of adequate lighting around the monuments was noted. Also, a general lack of information on rules and regulations at sites, such as whether or not beverages were allowed, was mentioned as an issue. The tour guides provided excellent educational commentary to the students regarding the history of the sites they were visiting. The tour route was a total of 63 driving miles with participants walking 6.76 pedestrian miles (Figure 5.2).

5.4.2.2 Documented Activities, Site Assessment, Researcher Observations, and Overheard Commentary

TABLE 5.5: SCHOOL GROUP 2 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

School Group 2 — Thursday, June 13, 2013 (41 Participants from Massachusetts)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Arlington Best Western Hotel / Loading	7:14 am – 7: 16 am (2 min)	The group loaded at the Arlington Best Western Hotel to go to breakfast. Traffic around the hotel was moderately congested. Trash containers present outside the hotel.	
Arlington Best Western Hotel / In Transit	7:10 am – 7:22 am (12 min)	There was road construction while in transit to Crystal City for breakfast; however this did not appear to cause any traffic problems. Bus stopped on roadside.	
Crystal City / Unloading (See Figure 5.2: Dropoff/Pickup 1)	7:23 am – 7:28 am (5 min)	Group unloaded for breakfast at Crystal City. Unloading was orderly. Traffic was moderately congested. Unloading/ loading in a nondesignated loading zone and unloading/loading on roadside were observed at the site. Trash containers, recycling containers, waysides and directional signage present outside the shops.	
Crystal City / Breakfast at Hamburger Hamlet	7:28 am – 8:15 am (47 min)		Tour Group Manager / Regulations and Enforcement (7:39 am) "Police ticketing is inconsistent, and just had a driver that received a \$500 that was originally issued as a \$100 but officer changed it to make it a \$500 ticket." Tour Group Manager / Accessibility (7:43 am). Out of his hundreds of drivers only one enjoys coming here and some tour companies refuse to even come to D.C.
Crystal City Shops / Loading (See Figure 5.2: Dropoff/Pickup 1)	8:16 am – 8:17 am (1 min)	Traffic was not at all congested. Loading was orderly.	

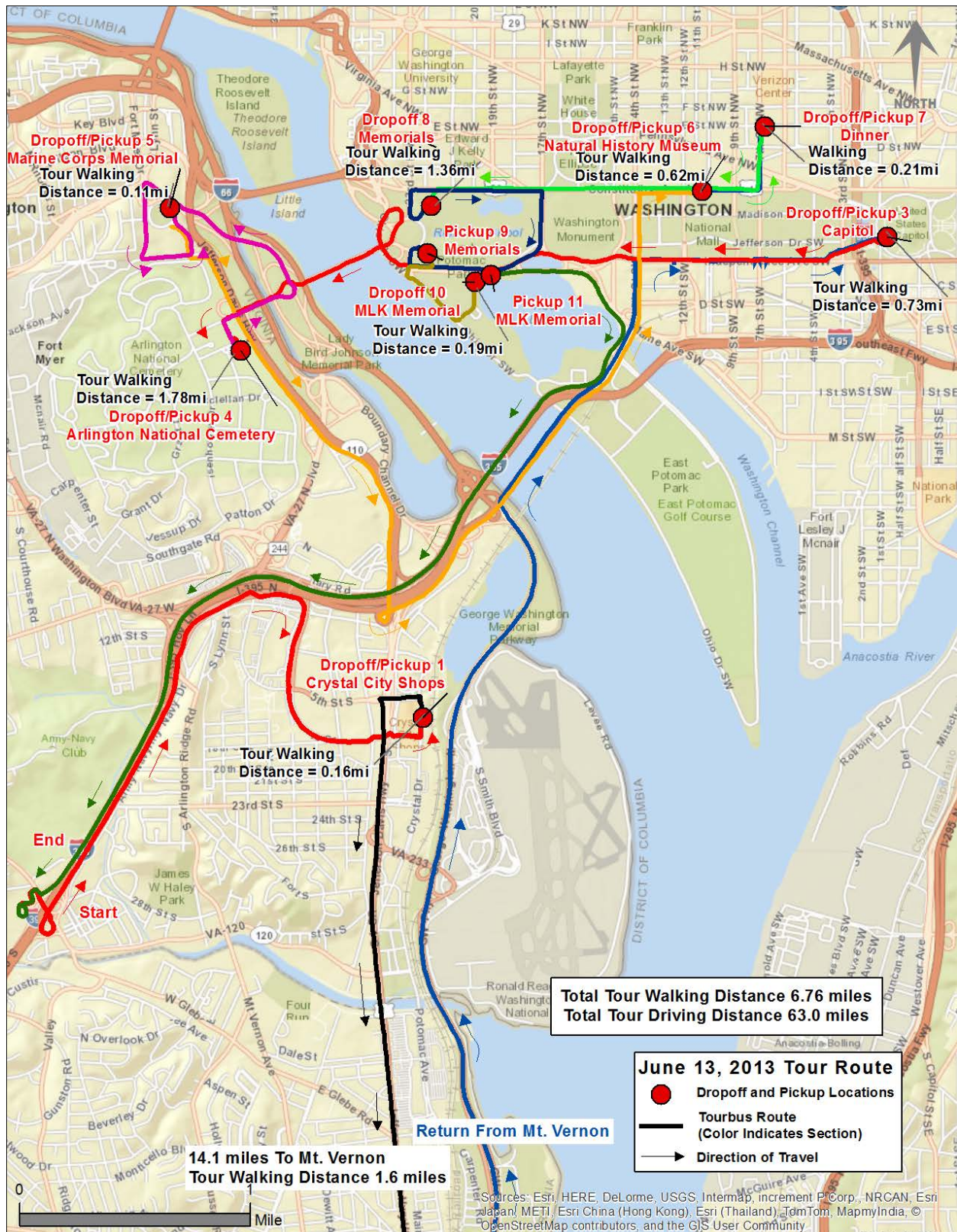
School Group 2 — Thursday, June 13, 2013 (41 Participants from Massachusetts)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Crystal City Shops / Hamburger Hamlet, In Transit	8:18 am – 8:53 am (35 min)	Tour bus was <i>en route</i> to Mt. Vernon. Traffic was not at all congested.	Tour Guide / Education (8:34 am) One of the guides spoke about City of Alexandria and George Washington while bus was in transit. Group Leader / Regulations/Enforcement (8:30 am) "Would be helpful if there was a published document about which monuments require searches and allow water and such." Group Leader / Safety and Security (8:31 am) "Hard to keep children together at monuments during night tours. Minimal lighting. Difficult to see."
Mount Vernon / Unloading (See Figure 5.2, arrow indicators)	8:54 am – 8:56 am (2 min)	Unloading at Mount Vernon was orderly. Trash containers and directional signage were observed at the site.	
Mount Vernon / Sightseeing	8:57 am – 11:45 am (2 hours 48 min)	Group was engaged in general sightseeing and participated in educational site program. The group had to stand in line to get into the house/museum.	
Mount Vernon / Loading, Unloading Zone, Cruising (Empty)	8:57 am – 9:15 am (18 min)	The driver went around the loop before parking. Bus was empty.	
Mount Vernon / Parked	9:16 am – 11:45 am (2 hr 29 min)	The bus driver sat on the bus and watched a video. Another bus driver came by to watch the video. Eventually both drivers took a nap on the bus. Group was eating and taking photos. Buses are only able to unload in front of the entrance and must load in bus parking area.	
Shops at Mount Vernon / Loading (See Figure 5.2, arrow indicators)	11:45 am – 11:47 am (2 min)	Traffic was not at all congested. Loading was orderly. Trash containers were observed at the loading site.	The group had to walk ½ mile to loading zone from Mt. Vernon.
In Transit	11:47 am – 12:19 pm am (32 min)	Bus was <i>en route</i> to the U.S. Capitol. Traffic was not at all congested. Driver ran a red light. While in-transit, guide described history of the area.	Tour Guide/Education (12:15 pm) Tour guide talked about sites that we were seeing along the way.
U.S. Capitol / Unloading (See Figure 5.2: Dropoff/Pickup 3)	12:20 pm – 12:26 pm (6 min)	Bus unloaded in front of the U.S. Capitol. There were many buses present at the site. Unloading was orderly. Trash containers, recycling containers, waysides and directional signage were observed at the site. Tour took group photos. Police enforced the loading/ unloading zone upon arrival.	
Cruising (Empty)	12:27 pm – 12:54 pm (27 min)	Driver cruised around with an empty bus while group was at Capitol building. Traffic was not at all congested.	
U.S. Capitol / Loading (See Figure 5.2: Dropoff/Pickup 3)	12:55 pm – 12:59 pm (4 min)	Group loaded on the tour bus.	
In Transit	12:59 pm – 1:13 pm (14 min)	Tour bus was <i>en route</i> to Arlington Cemetery. Traffic was moderately congested – i.e., it was normal for that time of day, however there was a lot of congestion in and around the loading zone. Double parking and unloading/loading on the roadside observed. The tour guides were talking while bus was in-transit.	

School Group 2 — Thursday, June 13, 2013 (41 Participants from Massachusetts)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Arlington National Cemetery / Unloading (See Figure 5.2: Dropoff/Pickup 4)	1:13 pm – 1:18 pm (5 min)	Group unloaded at Arlington Cemetery.	
Arlington National Cemetery / Cruising (Empty), Parked	1:17 pm – 3:38 pm (2 hours 21 min)	Traffic was not at all congested. Tour bus idled for more than three minutes after parking in designated area. Driver moved to another designated area and idled again. Driver wandered around the site while the group was sightseeing.	
Arlington National Cemetery	1:17 pm – 3:38 pm (2 hours 21 min)	Group engaged in a site program and general sightseeing. Interpretative signage (e.g., wayside, educational), directional signage and trash containers present at the site.	Tour Guide/Recreation (2:05 pm) The tour guide informed the students about the behavior that they should have when at the Tomb of the Unknown Soldier.
Arlington National Cemetery / Loading (See Figure 5.2: Dropoff/Pickup 4)	3:36 pm – 3:39 pm (3 min)	Group was tired and pushy while boarding the bus.	All Drivers/Regulation and Enforcement (3:38 pm) Drivers talking outside of bus while clients loading complained about parking throughout D.C. They feel that law enforcement tries to give them a hard time. More difficult to load and unload. Also complaints about how group keep changing the itinerary, without giving them a heads up. Added bike lanes took away from bus parking.
In Transit	3:40 pm – 3:50 pm (10 min)	Bus was in transit to Iwo Jima Memorial. Traffic was not at all congested. While bus was in-transit, the tour guide provided some information on the history of the area.	
Marine Corps War Memorial (i.e., Iwo Jima Memorial) / Unloading (See Figure 5.2: Dropoff/Pickup 5)	3:51 pm – 3:54 pm (3 min)	Bus unloaded.	
Marine Corps War Memorial (i.e., Iwo Jima Memorial) / Loading (See Figure 5.2: Dropoff/Pickup 5)	3:59 pm – 4:04 pm (5 min)	The group ran to the bus because it started to rain (torrential downpour). Due to the rapid change in weather conditions, the group had to run to the bus and load quickly. Tour bus loaded on roadside (rather than curbside). Loading was unsafe. Scene was chaotic because of the rain.	
In Transit	4:05 pm – 4:17 pm (12 min)	Tour bus in transit to the National Museum of Natural History. Traffic was moderately congested.	Tour guide talked about sites along the way.
National Museum of Natural History / Unloading (See Figure 5.2: Dropoff/Pickup 6)	4:17 pm – 4:18 pm (1 min)	Unloading was orderly. Traffic was not at all congested. Trash containers and recycling bins observed outside National History Museum. Group was informed that they had an hour to look around the museum and get a snack if they wanted to.	
Cruising (Empty), Parked	4:18 pm -5:40 pm (1 hour 22 min)	Bus driver was trying to find a legal parking spot, as were other buses. Driver stopped in a loading/ unloading zone beyond time limit allowed. Bus idled for more than three minutes. Traffic was moderately congested.	The tour bus driver talked about the general parking situation in D.C. and how it needs to be fixed.
National Museum of Natural History / Sightseeing	4:20 pm – 5:40 pm (1 hour 20 min)	Group was engaged in general sightseeing. Interpretive signage, directional signage, trash containers, and recycling bins observed inside the museum.	

School Group 2 — Thursday, June 13, 2013 (41 Participants from Massachusetts)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
National Museum of Natural History / Loading (See Figure 5.2: Dropoff/Pickup 6)	5:40 pm – 5:43 pm (3 min)	Tour bus loaded in a nondesignated zone as loading zone was occupied by a valet. Event going on at the museum. Traffic was not at all congested.	
In Transit	5:44 pm – 5:47 pm (3 min)	Bus was in transit to dinner. Traffic was moderately congested.	
Hill Country BBQ / Unloading and Dining (See Figure 5.2: Dropoff/Pickup 7)	5:48 pm – 6:45 pm (57 min)	Unloading was orderly. Bus unloaded in a nondesignated loading/unloading zone. Traffic was moderately congested. Trash containers and recycling bins were observed outside the restaurant.	
Hill Country BBQ / Loading (See Figure 5.2: Dropoff/Pickup 7)	6:46 pm – 6:48 pm (2 min)	The restaurant had no official bus loading zone so the driver had to park in the street. The vehicle blocked traffic. Traffic was moderately congested. Several violations observed: unloading/ loading in a nondesignated loading zone, unloading/loading on roadside and unsafe passenger loading/unloading. Scene was somewhat chaotic.	
In Transit	6:49 pm – 6:55 pm (6 min)	Bus was in-transit to Vietnam War Memorial. Traffic was not at all congested.	
Lincoln Memorial, Vietnam Veterans Memorial / Unloading (See Figure 5.2: Dropoff 8)	6:55 pm – 6:56 pm (1 min)	Unloading was orderly. Traffic was not at all congested. Trash containers, recycling bins, waysides and directional signage observed at the site.	
Lincoln Memorial, Vietnam Veterans Memorial, Korean War Veterans Memorial	6:56 pm – 8:35 pm (1 hour 38 min)	Group was engaged in general sightseeing. After dropping off the group, the driver went to park at a loading location. While the group was sightseeing, the driver watched videos.	Tour Guide/Education (8:30 pm). Tour guide talked about the history of the sites.
In Transit (Empty)	8:30 pm – 8:36 pm (6 min)	Traffic was not at all congested.	
Korean War Veterans Memorial / Loading (See Figure 5.2: Pickup 9)	8:36 pm – 8:40 min (4 min)	Loading was orderly. Trash containers, recycling bins, waysides and directional signage present at the loading site.	
In Transit	8:43 pm – 8:45 pm (2 min)	Bus was in transit to Martin Luther King, Jr. Memorial. Traffic was not at all congested.	
Martin Luther King, Jr. Memorial / Unloading (See Figure 5.2: Dropoff 10)	8:46 pm – 8:48 pm (2 min)	Unloading was orderly, but the bus had to park in a nondesignated loading zone. Traffic was not at all congested. Trash containers were present near the memorial.	
Martin Luther King, Jr. Memorial	8:48 pm – 9:07 pm (15 min)	Group engaged in general sightseeing. Tour took group photos. Traffic was not at all congested. Interpretative signage and trash containers observed.	
Martin Luther King, Jr. Memorial / Cruising (Empty)	8:49 pm – 9:00 pm (11 min)	Bus was cruising. Traffic not at all congested. Driver had to park in a “no-parking” zone because there was no parking available in loading zone.	
Martin Luther King, Jr. Memorial / Loading (See Figure 5.2: Pickup 11)	9:01 pm – 9:10 pm (9 min)	Bus stopped in zone beyond time needed for loading/unloading and idled for more than three minutes. Bus also parked in a handicapped zone to load. No signs were present.	
In Transit	9:11 pm – 9:23 pm (12 min)	Group returned to Arlington Best Western Hotel. Unloading was orderly.	

5.4.2.3 Tour Route

FIGURE 5.2: TOUR ROUTE — SCHOOL GROUP 2, THURSDAY, JUNE 13, 2013



5.4.3 Adult Group 1 — Thursday, April 11, 2013

5.4.3.1 Overview

The origin of Adult Group 1 was a northwest city of Virginia. The data collection period was 9 hours and 8 minutes (Table 5.6). The researchers joined them on the second day of a multi-day tour. The weather on Thursday, April 11, 2013 was unseasonably warm with temperatures reaching into the mid 80's through the day. The adult group was friendly and talkative during the morning hours but showed visible signs of weariness as the day progressed. Of the 23 member tour group, one member required use of an assistive device (wheelchair). Interpretive signage, directional signage, trash and recycling containers, and restrooms were sufficient at most locations. Throughout the day the tour guide was extremely friendly and provided commentary and other relevant information keeping the tour group engaged both on and off the bus. The driver was well experienced in the laws and regulations of D.C. and discussed creative ways he and other drivers avoid parking fees and enforcement infractions. Traffic within D.C. was moderately congested throughout the tour, but volume was normal for District traffic and expected. Many of the activity locations on this day (Union Station, National Cathedral, Hillwood Estates) provided onsite parking. While at several onsite parking locations idling infractions were observed. Issues of excessive cruising and parking availability provided challenges during the long wait encountered as the tour group visited the U.S. Capitol and Library of Congress. While waiting for the tour group to finish at the U.S. Capitol and Library of Congress and cruising (empty) D.C. streets, the driver did encounter D.C. DOT traffic stop on Maryland Avenue and then proceeded to a free parking location near RFK stadium for duration of the wait. The subsequent loading of tour members at intersection of 3rd and East Capitol Street was outside a designated loading zone. The tour route was a total of 15 driving miles with participants walking 3.8 pedestrian miles (Figure 5.3).

5.4.3.2 Documented Activities, Site Assessment, Researcher Observations, and Overheard Commentary

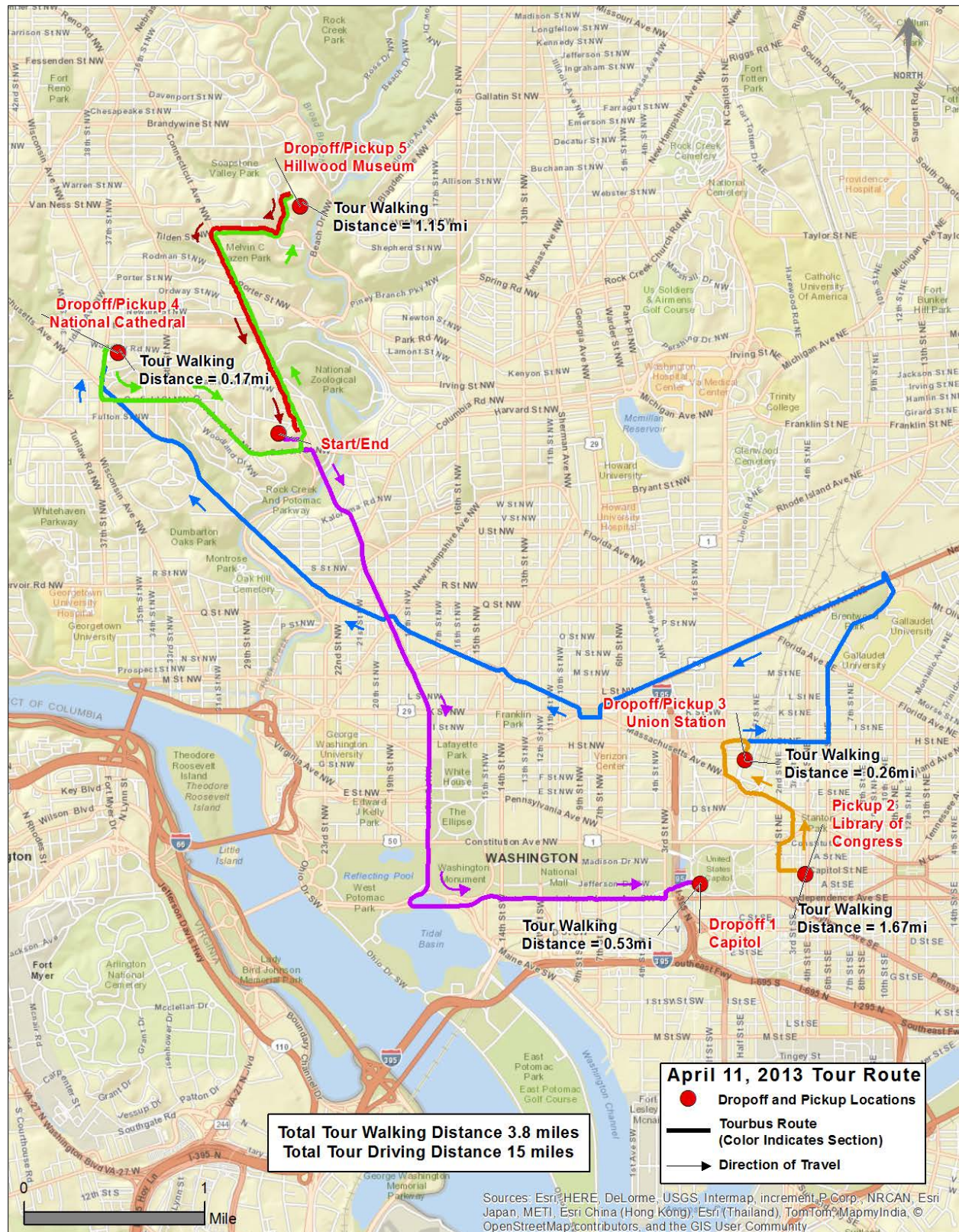
TABLE 5.6: ADULT GROUP 1 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

Adult Group 1 — Thursday, April 11, 2013 (23 Participants from Virginia)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Washington Marriott Wardman Park (Loading)	7:50 am – 8:06 am (16 min)	Trash containers available as loading. Orderly loading of passengers.	
Leave hotel / in transit to U.S. Capitol	8:06 am – 8:31 am (25 min)	Not at all congested. Free flowing traffic.	
U.S. Capitol Building and Library of Con- gress / Unloading, Sightseeing (See Figure 5.3: Dropoff 1)	8:31 am – 12:15 pm (3 hr 44 min)	Moderately congested. Several buses loading and unloading at the site. Bus cruising (empty) for part of the time. Passengers visited the U.S. Capitol and then walked to the Library of Congress through a tunnel.	Driver / Regulations and Enforcement (10:36 am) Local drivers have places to park "hide" where they won't really be bothered by parking enforcement and such. Driver / Bus Parking (10:30 am) Explained that you should not abuse a parking area. Stay there for a time but move on when it gets to full or is impending normal flow. Driver / Bus Parking (10:58 am) He said that he doesn't go looking for parking. He knows that after a certain time Maine Ave. is blocked so after the DOT stop that was finished at 9:30 am he wasn't going to even try. He is looking for access to things so he would go over the Crystal City or Pentagon City and pay to park in order to have access to food and bathrooms.
Loading at Library of Congress / In transit to Union Station (See Figure 5.3: Pickup 2)	12:15 pm – 12:35 pm (20 min)	Moderately congested (especially on 3rd and East Capitol). High volume of vehicles trying to park.	

Adult Group 1 — Thursday, April 11, 2013 (23 Participants from Virginia)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Union Station / Lunch (See Figure 5.3: Dropoff/Pickup 3)	12:35 pm – 1:32 pm (57 min)	Very congested in Union Station Parking Garage.	
In transit to Wash- ington National Cathedral	1:32 pm – 2:20 pm (48 min)	Moderately congested traffic.	
Washington National Cathedral / Unloading, Sightseeing (See Figure 5.3: Dropoff/Pickup 4)	2:20 pm – 3:15 pm (55 min)	Moderately congested with numerous buses loading and unloading. High volume of tour buses at this site.	
In transit to Hillwood Estate, Museum and Gardens	3:15 pm – 3:55 pm (40 min)		
Hillwood Estate, Museum and Gardens / Unload- ing, Sightseeing (See Figure 5.3: Dropoff/Pickup 5)	3:55 pm – 4:58 pm (1 hr 3 min)	Moderately congested traffic.	
In transit	4:58 pm – 5:14 pm (16 min)		
Washington Marriott Wardman Park (Unloading)	5:14 pm – 5:20 pm (6 min)	Researchers departed and tour group went on to a presentation and dinner at the Royal Embassy of Saudi Arabia.	

5.4.3.3 Tour Route

FIGURE 5.3: TOUR ROUTE — ADULT GROUP 1, THURSDAY, APRIL 11, 2013



5.4.4 Adult Group 2 — Friday, May 2, 2014

5.4.4.1 Overview

Adult Group 2 originated from North Carolina. The data collection period was 14 hours and 7 minutes (Table 5.7). This adult tour was planned by a major motorcoach company, with all aspects of the itinerary predetermined by the company planners. Participants registered independently. Most had travel companions and did not know the other passengers prior to the tour. The driver was very experienced with navigating in and around D.C. He was cognizant of every driving violation he made and seemed to know when he could ignore regulations and when he could not. A professional tour guide accompanied the group for the first half of the day, up until they unloaded at the U.S. Capitol for a tour managed onsite. After the U.S. Capitol tour, the group leader representing the motorcoach company acted as an ad hoc guide with input from the driver. The 14-hour tour was thorough, yet many of the passengers were clearly exhausted by the end of the day even though the weather remained mild. The dinner stop at Pentagon City Mall seemed particularly long, exceeding two hours. The tour company may benefit from a later start time on days when a night tour of the monuments is included in the itinerary. The group as a whole was very congenial, and there was much laughter and enjoyment throughout the day. The tour route was a total of 98.8 driving miles with participants walking 6.26 pedestrian miles (Figure 5.4).

5.4.4.2 Documented Activities, Site Assessment, Researcher Observations, and Overheard Commentary

TABLE 5.7: ADULT GROUP 2 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

Adult Group 2 — Friday, May 2, 2014 (31 Participants from North Carolina)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Hilton Garden Inn, Vienna, VA / Loading, In transit to D.C.	7:57 am – 9:01 am (1 hr 4 min)	Trash containers available while loading. Ran into commuter traffic that caused moderate congestion. Picked up a local tour guide at the Old Post Office.	
Lincoln Memorial / Korean War Vet- erans Memorial / Vietnam Memorial / Unloading and Sightseeing (See Figure 5.4: Dropoff/Pickup 1)	9:02 am – 10:33 am (1 hr 31 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage, refreshments, a bookstore and site programs.	
Cruising	9:05 am – 10:30 am (1 hr 25 min)	Driver not parking. Just circulating Ohio Drive to Hains Point area.	
Loading / In transit	10:34 am – 10:53 am (19 min)		
World War II Memorial (See Figure 5.4: Dropoff/Pickup 2)	10:54 am – 11:30 am (36 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage and site programs.	
Loading / In transit	11:31 am – 11:53 am	No space available. Loaded in nondesignated area.	
National Place (See Figure 5.4: Dropoff/Pickup 3)	11:54 am – 12:41 pm (47 min)	Trash containers at unloading site. The food court had trash and recycling containers, bathrooms, water fountains and site information. Very congested area during lunch hour. Driver double parked and unloaded roadside. Many other buses were double parked for drop off and pick up, even though there is a sign stating double parking prohibited at all times. Lunch at food court.	

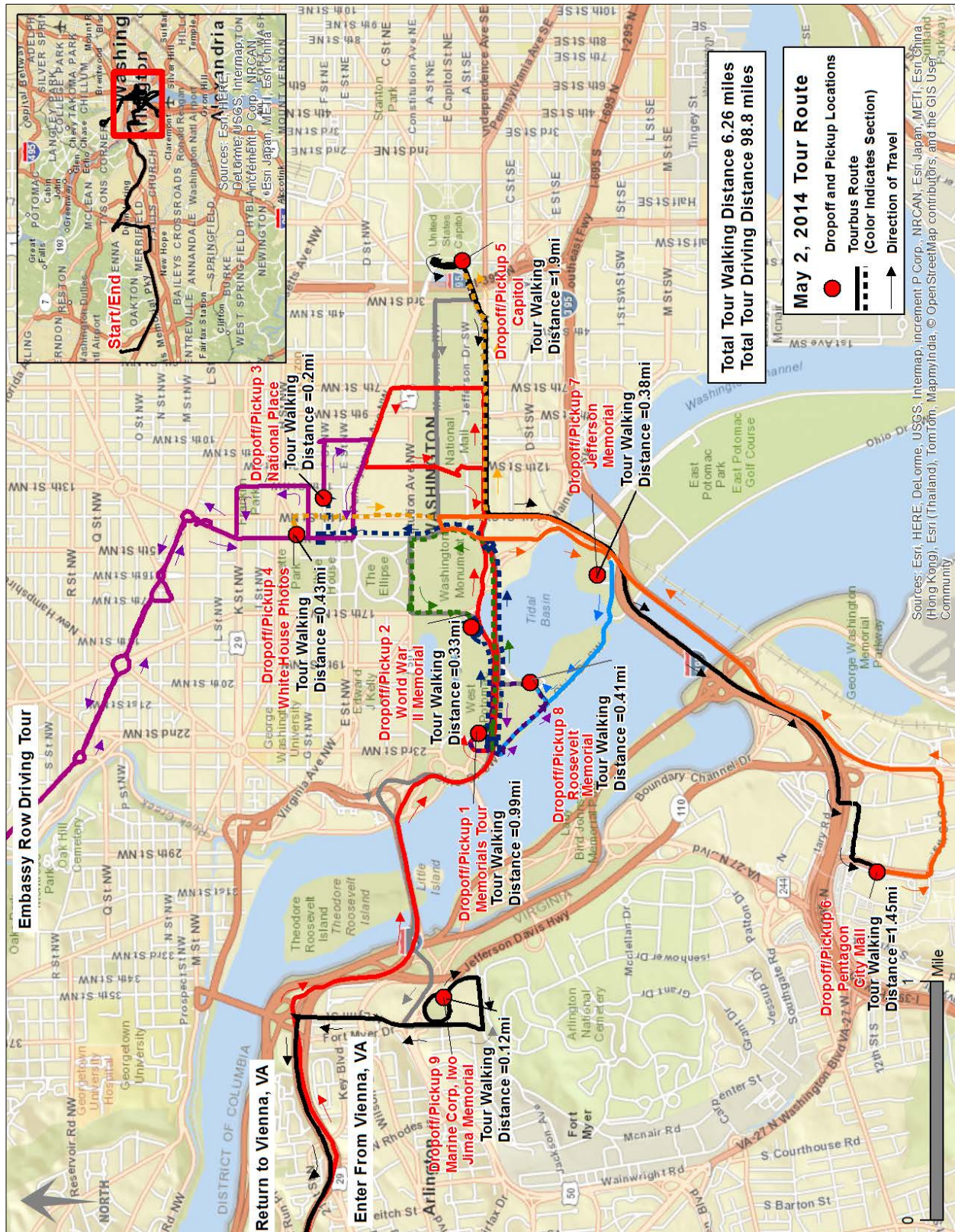
Adult Group 2 — Friday, May 2, 2014 (31 Participants from North Carolina)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Loading / In transit / Driving tour of Embassy Row	12:42 pm – 1:55 pm (1 hr 13 min)	Driver double parked and then moved and loaded in a nondesignated area.	Tour Guide / Educational (12:47 pm). Talking about the scheme to assassinate Lincoln. Tour Guide / Educational (12:50 pm). Discussed more of the history and uses of Ford's Theatre then pointing out various buildings and fixtures along Pennsylvania Avenue. Passenger / Educational (12:51 pm). Pointed out Reagan building to seat mate Tour Guide / Educational (12:57 pm). Talking about nine different cities that served as the nation's capital throughout history. Also noted that Washington was first president under the constitution but prior to that were 1 year terms prior to revolutionary war. Tour Guide / Educational (1:55 pm) Discussing the history of embassy row. Then explaining how D.C. is set up as a quadrant. Discussed aspects of the Washington National Cathedral. Then discussed embassies and the upcoming Around the World Embassy Tour.
The White House / Brief stop for photos (See Figure 5.4: Dropoff/Pickup 4)	1:56 pm – 2:11 pm (15 min)	Trash containers were available while walking to location to take photos. Afternoon traffic congestion. Driver double parked on New York and 15th and unloaded roadside. Stayed there during quick stop for photographs of The White House. Everyone who got off was excited to see a line of Secret Service vehicles. Many passengers stayed on the bus.	
Loading / In transit	2:12 pm – 2:28 pm (16 min)	Driver was able to move into a parking spot on New York and 15th for loading.	
U.S. Capitol / Unloading, Tour, Sightseeing (See Figure 5.4: Dropoff/Pickup 5)	2:29 pm – 4:48 pm (2 hr 19 min)	Trash and recycling containers near unloading site. Inside U.S. Capitol there are trash and recycling con- tainers, bathrooms, water fountains, directional signage, site information, a restaurant, gift shop and site programs. Guide mentioned long walk from west- side drop-off area close to U.S. Botanic Garden to U.S. Capitol entrance several times to prepare passengers. U.S. Capitol tour. Timed tickets for tour at 3:20 pm. Tour started about 10 min late.	Passenger / Mobility (2:38 pm). Several passengers pointed out the Segway tour and made comments about wishing they had one to use. Passenger / Natural Resources (2:40 pm). "I love that tree!" Passenger / Mobility (2:42 pm). "I need the golf cart" (for transport to the U.S. Capitol). Security Officer / Enforcement (2:44 pm). No food, liquid or spray allowed in U.S. Capitol. Passenger / Facilities (2:50 pm). Joking about line at restrooms and trying to get to front of line. Passenger / Mobility (3:31 pm). Commentary regarding why fellow passenger did not walk to the top rows of the introduction theater, as suggested. U.S. Capitol Employee / Safety and Enforcement (3:49 pm). Prior to film, used humor to discuss safety and rules while on the tour. "If something happens, run! Stay with group and touch nothing or you will have quick tour with U.S. Capitol police."
Parking	2:42 pm – 4:38 pm (1 hr 56 min)	Driver parked on Maine Avenue for close to two hours. Was able to find spot right away.	Driver / Traffic Conditions and Parking (2:46 pm). Stated that he would like to have Ohio Drive or Hains Point dedicated to buses. Stated that there should be more parking garages available for cars and let the buses have the on street parking dedicated to buses. The removal of parking along Ohio drive SW has really affected overall parking situation for buses. Stated: "The parking situation was good today but a lot of times it isn't this way and I have to drive around and can't park anywhere close."

Adult Group 2 — Friday, May 2, 2014 (31 Participants from North Carolina)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Loading / In transit	4:49 pm – 5:08 pm (19 min)		
Pentagon City Shopping Mall / Dinner and Shopping (See Figure 5.4: Dropoff/Pickup 6)	5:09 pm – 7:23 pm (2 hr 14 min)	Buses were lined up. Very crowded. Trash containers at unloading site. Inside mall there are trash and recycling containers, bathrooms, water fountains, directional signage, site information, a food court and retail shops. Stopped for dinner and shopping opportunities. Seemed like a very long stop but allowed for night tour of memorials.	
Loading / In transit	7:24 pm – 7:47 pm (23 min)		
Thomas Jefferson Memorial / Unloading and Sightseeing (See Figure 5.4: Dropoff/Pickup 7)	7:48 pm – 8:15 pm (19 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, directional signage, a bookstore (closed) and site programs. Approximately one-third of the passengers stayed on bus. There was a spontaneous round of applause when the driver successfully parallel parked in a very tight area.	
Cruising	7:53 pm – 8:15 pm (22 min)	Driver cruised entire time. Did not search for parking. Quite congested with many groups out viewing the monuments at night.	Passenger and Driver / Parking and Enforcement (7:54 pm). As driver was pulling out after drop off at Thomas Jefferson, a passenger who elected to stay on the bus said, "Are we going to ride?" The driver responded, "We've got to ride, Clyde" as a joking acknowledgement of being in drop off only area. Passenger / Physical (7:57 pm). A passenger who elected to stay on the bus was talking about being very tired. Passenger and Driver / Orientation (8:12 pm). An on-bus passenger asked, "Where are we?" Driver chatted to the group, explaining locations as he drove.
Loading / In transit (See Figure 5.4: Dropoff/Pickup 7)	8:15 pm – 8:20 pm (5 min)		Passenger / Recreational Aspects (8:16 pm). One passenger who had gone to Thomas Jefferson asked an on-bus passenger, "Did we miss anything?" The on-bus passenger said he saw the most beautiful yacht as we drove along the water while cruising Passenger / Mobility (8:17 pm). Passenger talking about regretting wearing two inch heels. Several people laughed in agreement.
Franklin Delano Roosevelt Memorial / Unloading and Sightseeing (See Figure 5.4: Dropoff/Pickup 8)	8:21 pm – 9:01 pm (40 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, directional signage, a bookstore (closed) and site programs. Approximately one-half of the passengers stayed on the bus.	Group Leader / Enforcement (8:21 pm). Explained that the bus has to move because driver cannot stay. Said that the driver would be back in 30 minutes or so. A passenger jokingly said, "He might not come back this time!"
Parking	8:27 pm – 8:56 pm (29 min)	Driver found parking on Ohio Drive.	Driver and Passengers / Safety (8:30 pm). Passengers and driver talking about the safety of Segways at night, then talking about skateboarders they saw out at night. Then driver mentioned how cyclists often behave dangerously and why he never turns right on red in D.C. Then started talking about other safety issues. Had conversations about gun violence in the area as well as homelessness. Changed the tone in the bus. Seeing a plane moved the conversation into

Adult Group 2 — Friday, May 2, 2014 (31 Participants from North Carolina)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
			<p>air space, terrorism and then motorcades and helicopters to safely transport president and other political figures. When several jets left within a few minutes, a passenger said, "There is another jet leaving. You think they know something that we don't?"</p> <p>Passengers and Driver / Navigation (8:52 pm). Passengers were complimenting driver on his parallel parking and asking about his background and the furthest he has driven and difficult areas to navigate. The joking atmosphere returned. Could tell by the responses that the driver is proud to be part of the company.</p> <p>Passengers / Traffic Conditions (8:56 pm). As driver was pulling out and heading back to pick up group, several passengers commented with surprise regarding how congested it was with buses at night.</p> <p>Passengers / Physical (8:59 pm). Talking about how well they are going to sleep tonight.</p>
Loading / In transit	9:02 pm – 9:19 pm (17 min)		<p>Passengers / Recreational Aspects (9:04 pm). Passengers talking about how awesome Franklin Delano Roosevelt Memorial was at night and pointing out other areas that look beautiful at night as we drove.</p> <p>Group Leader / Educational Aspects (9:05 pm). Mentioned that she picked up brochures for passengers who did not get off at the Franklin Delano Roosevelt Memorial. Went on to talk about all the student groups who were there.</p>
Marine Corps War Memorial (i.e., Iwo Jima Memorial) (See Figure 5.4: Dropoff/Pickup 9)	9:20 pm – 9:35 pm (15 min)	Within walking distance there are portable bathrooms, waysides and directional signage. Approximately one-half of the passengers stayed on the bus.	<p>Group Leader and Passengers / Physical (9:21 pm). Group leader asked if people wanted to get off or stay on bus. Many people said loudly, "Bus!" When some passengers wanted to get off, one noted, "I was hoping no one would get off."</p> <p>Passengers / Physical (9:25 pm). Passenger said sitting on bus does not do Iwo Jima justice. Tried to convince partner to get off. He said, "I can see it on the Internet."</p>
Loading / In transit / Return to Hilton Garden Inn	9:36 pm – 10:04 pm (28 min)	End of day	<p>Group Leader / Physical (9:50 pm). Talked about how worn out everyone is and they have to get up at 6:00 am. Noted self-deprecatingly that if she would just stop talking they would probably sleep on the way back. Several laughed. It has been a very congenial group.</p>

5.4.4.3 Tour Route

FIGURE 5.4: TOUR ROUTE — ADULT GROUP 2, FRIDAY, MAY 2, 2014



5.4.4.4 Photographic Documentation

PHOTO 5.2: PROFESSIONAL TOUR GUIDE



PHOTO 5.3: SEGWAY TOURS



Several tour participants mentioned that they wish they had a Segway for getting around instead of all the walking.

PHOTO 5.4: MEDICAL PERSONNEL RESPONSE AT U.S. CAPITOL



PHOTO 5.5: TIMED ENTRY TICKET FOR U.S. CAPITOL TOUR



PHOTO 5.6: MULTI-GENERATIONAL REPRESENTATION ON TOUR



PHOTO 5.7: RESTORATION PROJECT AT U.S. CAPITOL



PHOTO 5.8: OVER 1,300 BREAKS BEING REPAIRED IN U.S. CAPITOL DOME



PHOTO 5.9: U.S. CAPITOL GUIDE



PHOTO 5.10: SPRING LANDSCAPING AND VIEWS



Many visitors commented on the trees in bloom and the beautiful weather, as well as landscaping and views.

PHOTO 5.11: SPRING LANDSCAPING AND VIEWS



PHOTO 5.12: RECYCLING CONTAINERS AND TRASH CONTAINERS



Containers were readily accessible and frequently side by side, making them convenient to use.

PHOTO 5.13: NIGHT TOUR



Passengers were tired but still enjoyed the night tour.

5.4.5 Cultural Group 1 — Monday, January 13, 2014

5.4.5.1 Overview

Cultural Group 1 consisted of 19 visitors from South Korea. The data collection period was 5 hours and 5 minutes (Table 5.8). The tourists had just arrived at the Dulles International Airport at 11:50 am that morning and the tour guide picked them up at the airport and guided them to a Korean restaurant in Annandale before the D.C. motor coach tour took place. Although the tour took place on a winter day, the weather was relatively warm and mild. The full tour itinerary for this group includes 8 nights and 9 days and their primary destination was built around Niagara Falls and Montreal in Canada. The tour guide continuously talked about American history, culture, people, and living conditions or the sites where the group visited in D.C. However, most people seemed to be tired from the 14 hour flight and were not engaged in the tour.

The original motor coach broke down just as the group arrived inside D.C. The driver attempted to fix the bus as the group sat on the bus for about 20-30 minutes. The driver tried to fix the problem but there was no sign of improvement. The tour guide decided to change the itinerary and flexibly responded to the emergency. The tour guide requested help to the other tour company in the region (Annandale) that owned a medium sized bus. The guide directed the passengers to walk to the first site, which was the National Museum of Natural History. When the tour group finished their tour at the National Museum of Natural History, the new bus was waiting for the passengers in front of the museum. The tour group then rode this medium sized bus for the remainder of their time in D.C. When the group was leaving for Niagara Falls, the bus company sent a new large bus to the group. As most people in the tour group were not engaged in the tour, the tour guide seemed to modify the tour schedule and wrapped up the D.C. tour little early around 4:40 pm and left for the next destination.

The driver of the medium sized bus seemed to know D.C. tour quite well and the traffic was not congested. It was easy to find loading/unloading spaces at each stop. When parking was not available, the driver cruised areas near the site and parked at available parking areas. The tour guide and the driver were on a constant communication each other and the driver came to the loading/unloading zone to pick up the passengers when the tour finished. At each destination, the tour guide provided the interpretative talks including history, background, meanings and values of the visited monuments and sites. The tour route was a total of 45.4 driving miles with participants walking 2.0 pedestrian miles (Figure 5.5).

5.4.5.2 Documented Activities, Site Assessment, Researcher Observations and Overheard Commentary

TABLE 5.8: CULTURAL GROUP 1 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

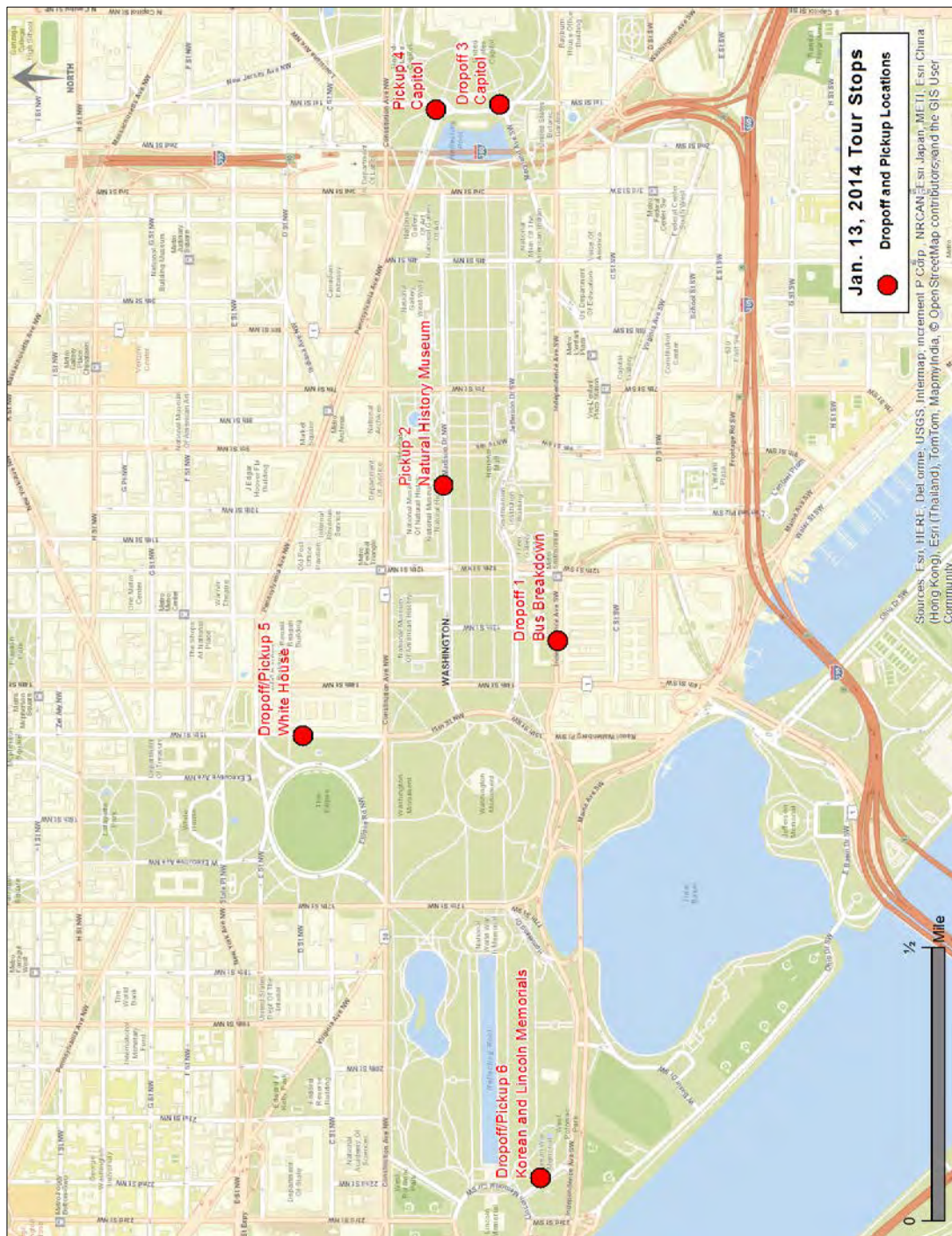
Cultural Group 1 — Monday, January 13, 2014 (19 Participants from South Korea)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Korean Restaurant at Annandale / Loading	12:55 pm – 12:59 pm (4 min)	Idling more than 3 minutes. Orderly loading and heading to D.C. There are 19 tourists who just arrived from Korea at 11:50am The guide picked them up at the Dulles airport and the group had a lunch at Annandale before heading to D.C. They will take a half day D.C. tour today and will go to Niagara Fall tomorrow. It is 8 nights and 9 days trip.	Tour Guide/ Orientation (1:00pm). The guide welcomed the passengers who just arrived to the U.S. from Korea. Oriented the tour group about safety tips, directions, and tour schedules. Talked about American history, culture, and life relevant to D.C. region.
In transit to D.C.	12:59 pm – 1:09 pm (10 min)	It was very congested due to an accident. Motor coach is broken down and parked on the street at the corner of 14th and Independence Ave.	Tour Guide/ Educational aspect of visit (1:00pm). The guide continued to talk to the group regarding American history, culture, and life relevant to D.C. region throughout the entire transit period.
On bus waiting (at	1:10 pm – 1:30 pm	Bus was pulled to roadside due to the	Tour Guide/ Mobility (1:24 pm). Tour guide changed

Cultural Group 1 — Monday, January 13, 2014 (19 Participants from South Korea)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
the corner of 14th and Independence Ave) (See Figure 5.5: Dropoff 1)	(20 min)	engine problem. A driver got off to check up. He could not fix the problem at the site and asked a help to the company. Unloaded at the unexpected site due to a problem with a bus.	the tour schedule to first visit National Museum of Natural History which was in walking distance. Driver/ Regulations and Enforcement (1:28 pm). Motor coach drivers have to fill out daily driving log and it is mandatory to keep the record to maintain their driving under 12 hours per day. Drivers also keep their medical record and police check this out from time to time.
Walk to National Museum of Natural History / Tour museum	1:31 pm – 2:53 pm (1 hr 22 min)	Changed the tour schedule. Walked to National Museum of Natural History from the corner of 14th and Independence Ave.	Tour Guide/ Other (motor coach breaking down) (2:35pm). The guided mentioned about the bus problem and potential complaints from the passengers. The guide mentioned that it was lucky for the bus was broken in the city as it is relatively easy to solve the problem. Most passengers understand the situation but 10% of passengers always complain about this kind of incident.
Loading / In transit (See Figure 5.5: Pickup 2)	2:53 pm – 2:55 pm (3 min)	Heading to U.S. Capitol. Riding on a different bus due to the problem with the original bus.	Tour guide/ Other (new bus) (2:55 pm). The guide introduced a new driver and a new bus to the tour group.
U.S. Capitol/ Unloading (See Figure 5.5: Dropoff 3)	3:00 pm – 3:12 pm (12 min)	The bus unloaded the passengers at a nondesignated loading/unloading zone.	Tour guide/ Direction (3:00 pm). The tour guide directed people to the Capitol. Provided a brief, interpretive talk about the history, function, and architectural design and significance of the Capitol.
Parking	3:03 pm – 3:12 pm (9 min)	The bus was parked at the 2 hr street parking near Capitol.	
Loading/ In transit (See Figure 5.5: Pickup 4)	3:13 pm – 3:21 pm (8min)	The bus loaded the passengers at a nondesignated loading/unloading zone by the back yard of the Capitol.	
The White House / Unloading, brief stop for photos (See Figure 5.5: Dropoff/Pickup 5)	3:22 pm – 3:37 pm (15 min)		Tour Guide/ Traffic Conditions (3:22pm). "This group is lucky. There is a space for loading/unloading. Normally there is no space to stop due to many tour buses."
Loading / In transit	3:38 pm – 3:40 pm (2 min)	The guide provided interpretation entire time.	
Korean War Veterans Memorial/ Lincoln Memorial / Unloading (See Figure 5.5: Dropoff/Pickup 6)	3:40 pm – 4:16 pm (36 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage, refreshments, a bookstore and site programs.	Tour Guide/ Regulations and Enforcement (3:45pm). D.C. parking ticket is so expensive. One time, he got a ticket with \$500 fine while New York City ticket was only \$130. Tour Guide/ Other (parking problem in D.C.) (3:50 pm). Korean group tour goes really fast. They do not take more than 30 minutes in one place and the bus can't be parked at RFK stadium. It takes too long to come and go. Tour Guide/ Regulations and Enforcement (4:05 pm). D.C. police enforces parking violations in peak season.
Cruising / parking	3:59 pm – 4:19 pm (20 min)	Passengers unloaded and the bus driver stayed parking at the Lincoln Memorial site for 19 minutes. Then, the bus began cruising to find a parking place close to the FDR memorial site. The bus parked at the FDR memorial site for 5 minutes. The guide called to the bus driver and the bus moved to pick up the passengers.	
Loading/ In transit (See Figure 5.5: Dropoff/Pickup 6)	4:19 pm – 4:21 pm (2 min)	The Passengers were loaded and the bus left for the next destination, which is Niagara Fall in Canada.	

5.4.5.3 Tour Stops

FIGURE 5.5: TOUR STOPS — CULTURAL GROUP 1, MONDAY, JANUARY 13, 2014

NOTE: Due to missing mapping data, tour stops are indicated rather than the full tour route.



5.4.6 Cultural Group 2 — Sunday, April 27, 2014

5.4.6.1 Overview

It was beautiful day to tour and the Korean cultural tourists who had just arrived to the U.S. via New York City the previous evening were excited with their first day of the tour itinerary. The data collection period was 5 hours and 5 minutes (Table 5.9). The morning of the tour they traveled for 5 hours from New York City to D.C. Their entire tour itinerary includes 10 nights and 11 days and their primary destinations are Niagara Falls and other attractions in Canada. The tour guide engaged the tour group throughout the day by telling them stories about regional history, historical events and figures, and American culture and life. It was relatively small group with 12 passengers and the tour moved very smoothly and orderly. The tour guide provided the interpretation at every each site, and then gave the group a free time to take pictures, take their own tour of the site and use restroom facilities. The driver knew the area well. When parking was not available, the driver cruised the area. The tour route was a total of 17.6 driving miles with participants walking 2.1 pedestrian miles (Figure 5.6).

5.4.6.2 Documented Activities, Site Assessment, Researcher Observations and Overheard Commentary

TABLE 5.9: SCHOOL GROUP 2 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

Cultural Group 2 — Sunday, April 27, 2014 (12 Participants from South Korea)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
GungJeon Restaurant, Glen Burnie MD / Loading	11:55 am – 12:00 pm (5 min)	The tour group arrived from Korea the night before and stayed in New York City. They drove to D.C. this morning from New York City and at this Korean restaurant for lunch before going in to D.C. After lunch the loading was orderly loading, but the driver idled more than 3 minutes.	Tour guide/ Orientation (11:58am). The guide oriented the day's tour schedule and safety tips. Introduced researchers to the tour group. Talked about American history relevant to Maryland and D.C. area and American culture and life.
Leave restaurant/ in transit to D.C.	12:00 pm – 12:40 pm (40 min)	No traffic congestion at all. The tour guide spoke the entire time while in transit and was standing almost entire time while in transit.	Tour guide/ Educational aspects of visit (12:05pm). The guide continued to talk about American culture, history and life. Tour Guide/ Other (Korean tour style) (12: 30pm). The guide mentioned Korean group tour style. Koreans who were on the group tour liked the busy schedule and preferred short stay at one site and dropped by as many sites as possible, compared to long stay at one site with fewer attractions/stops.
National Museum of Natural History / Unloading and Sightseeing (See Figure 5.6: Dropoff/Pickup 1)	12:47 pm – 12: 49 pm (2 min)	Within walking distance there are trash and recycling containers. Unloading went smoothly.	Tour guide/ Direction/Orientation (12:47pm). The guide oriented the passengers where to go and what to see in a given time.
National Museum of Natural History / Parking	12:47 pm – 2:25 pm (1 hr 38 min)	Driver parked at loading/unloading zone in front of the National Museum of Natural History for about 1.5 hr and the engine was on until 12:53 pm Tourists were initially asked to come back at 2:00 pm but the meeting time was postponed until 2:20 pm.	
Loading at National Museum of Natural History / In transit	2:06 pm – 2:25 pm (19 min)	Moderately congested. Idling more than 3 minutes. The engine was back on at 1:51 pm and remained on until loading was completed at 2:25 pm because the passengers arrived individually for over 20 minutes.	

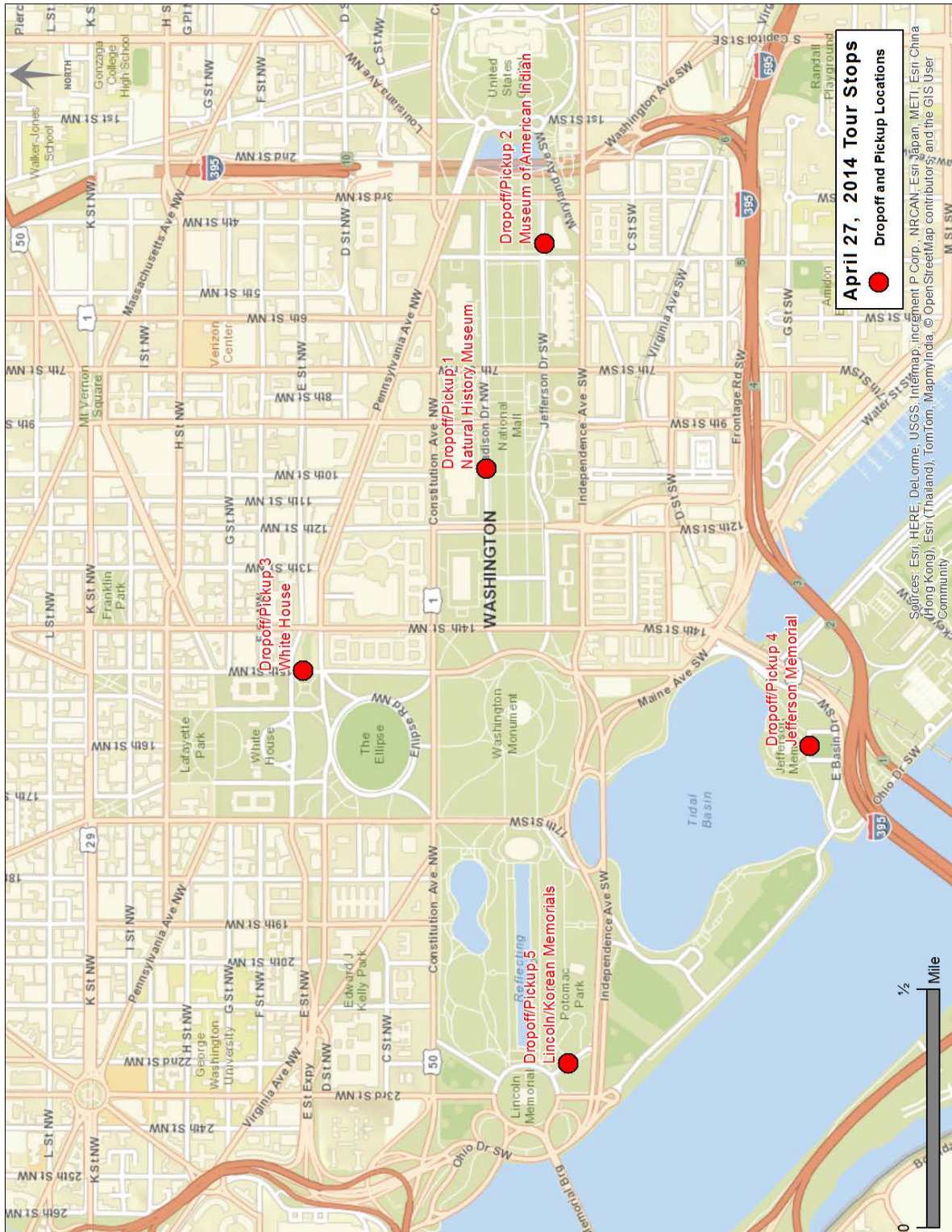
Cultural Group 2 — Sunday, April 27, 2014 (12 Participants from South Korea)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
U.S. Capitol/Unloading (See Figure 5.6: Dropoff/Pickup 2)	2:25 pm – 2:46 pm (21 min)	The tour bus stopped and passengers unloaded at the National Museum of the American Indian in order to see the U.S. Capitol. Passengers were directed to the U.S. Capitol. Within walking distance there are trash and recycling containers.	Passenger / Other – Bus conditions (2:29 pm). Tourists complained about hot temperature inside of the bus and uncleanness and poor quality of the bathroom on the bus. Tour guide/ Educational aspect of visit (2:30 pm). The guide provided interpretive talk to passengers regarding the U.S. Capitol building design, historic significance of the building, and U.S. Congress.
National Museum of American Indian / Parking (Jefferson Drive)	2:29 pm – 2:45 pm (16 min)	The bus remained parked at loading/unloading zone for about 20 minutes until the passengers came back from Capitol tour. The engine was off at 2:35 pm and was back on at 2:45 pm	
Loading at National Museum of the American Indian/ In transit	2:46 pm – 3:02 pm (16 min)	It was moving little slowly not due to the heavy traffic but due to a marathon event <i>en route</i> to next stop.	Tour guide/ Direction (2:50pm). The guide explained the bus was detouring and taking little longer because of road blockings due to the marathon event.
The White House (15th Street) / Unloading (See Figure 5.6: Dropoff/Pickup 3)	3:02 pm – 3:18 (16 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains. Orderly unloading and a very brief stop.	Tour guide/ Safety (3:05 pm). The tour guide mentioned how safety and security issues changed the tour routes in D.C. For example, the tourists were able to approach the White House from the Pennsylvania Ave. and could view the White House from a closer location. Now there are a lot of blockings and heavy barricade in almost all government buildings in D.C. Tour Guide / Other – Koreans tour style and preference (3:15 pm). D.C. is not an attractive destination to most Korean tour groups, who often find it boring. Most Korean group tourists are more fascinated by natural places like Niagara Falls or the Grand Canyons. That is why they spend only a half-day in D.C.
Parking (White House/15th street)	3:03 pm – 3:20 pm (17 min)	The bus remained parked on 15th street for the entire time until the passengers came back.	
Loading / In transit	3:18 pm – 3:27 pm (9 min)	Moderately congested. The bus idled more than 3 minutes.	
Thomas Jefferson Memorial (E. Basin drive)/ Unloading (See Figure 5.6: Dropoff/Pickup 4)	3:28 pm – 4:05 pm (37 min)	The site has trash and recycling containers, bathrooms, water fountains, site information, waysides, and directional signage. Driver infractions included double parking, unloading on the roadside and idling more than 3 minutes.	Passenger / Other – entrance process at the airport (3:24pm). It took too long to go through the US customs. Took 2 hours to go through customs. Tour guide/ Educational aspect of visit (3:35pm). The guide provided the interpretive talk about Thomas Jefferson's philosophy and the architectural significance of the Thomas Jefferson Memorial.
Cruising / Parking	3:28 pm – 4:06 pm (39 min)	After unloading the passengers, the tour bus cruised around the Ohio Drive/ Tidal Basin area. Then the bus parked at "No Parking" zone at 3:40 pm and the engine was on until 3:43 pm. An officer stopped and informed the driver and that he is parked in a "No Parking" zone but the driver remained with no action.	
Loading at E. Tidal Basin (Thomas Jefferson Memorial) / In transit	4:07 pm – 4:11pm (4 min)	Idling more than 3 minutes. Transition was smooth, not congested at all.	
Lincoln Memorial and Korean War Veterans Memorial / Unloading (See Figure 5.6: Dropoff/Pickup 5)	4:13 pm – 5:03 pm (50 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage and a bookstore. Infractions included double parking, unloading on roadside, unsafe exiting	Tour guide/ Educational aspect of visit (4:18 pm). The guide provided the interpretive talk about Lincoln Memorial and Korean War Veterans Memorial.

Cultural Group 2 — Sunday, April 27, 2014 (12 Participants from South Korea)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
		of bus and passenger jaywalking. A guide suggested the rushed unloading of passengers in the middle of the road because the loading/unloading zone was blocked by many buses.	
Cruising / Parking	4:15 pm – 4:57 pm (42 min)	The bus cruised after unloading the passengers and parked at 3 hr parking zone. The engine was turned off at 4:22 pm and was turned back on at 4:57 pm.	
Lincoln Memorial and Korean War Veterans Memorial / Loading, in transit	5:03 pm -	The bus was departed for the next destination, which is Niagara Falls in Canada.	

5.4.6.3 Tour Stops

FIGURE 5.6: TOUR STOPS — CULTURAL GROUP 2, SUNDAY, APRIL 27, 2014

NOTE: Due to missing mapping data, tour stops are indicated rather than the full tour route.



5.4.6.4 Photographic Documentation

PHOTO 5.14: DOUBLE PARKED BUSES FOR LOADING AND UNLOADING



PHOTO 5.15: ROADSIDE UNLOADING



5.4.7 Honor Flight Group 1 — Saturday, June 1, 2013

5.4.7.1 Overview

While the weather on June 1, 2013 was exceptionally warm, the veterans and their assistants remained engaged throughout the tour, with a data collection period of 12 hours and 9 minutes (Table 5.10). Of the 52 participants, approximately 20 were veterans while the remaining members were comprised of the veterans' assistants, tour leaders and the research team. The group leader took many opportunities throughout the day to reinforce the importance of the veterans' contributions and volunteers at the World War II Memorial were on hand to warmly welcome the group. The combination of the many assistive devices in use (i.e., 11 wheelchairs as well as walkers and canes) and the unseasonably hot temperatures contributed to the fact that the driver surpassed the D.C. idling law of three minutes throughout the day. Unloading or loading generally took a minimum of 10 minutes. The driver was very experienced and aware of the parking regulations and selectively chose to ignore them when he felt that it would not result in ticketing. In cases where parking was not available or inconvenient, the driver cruised areas that were familiar to him. Safety issues were specific to staying hydrated and avoiding injuries, with concerns regarding falling noted in particular. Site assessment indicated that trash receptacles and restrooms were readily available at the chosen sites. The educational nature of the tour was emphasized with ongoing commentary from the group leader and occasional input from the driver. Great effort was also taken to orient the passengers at each location so that they knew what to expect. The overall meaning of the experience was emphasized by the group leader, driver and passengers. The tour route was a total of 91.5 driving miles with participants walking 2.8 pedestrian miles (Figure 5.7).

5.4.7.2 Documented Activities, Site Assessment, Researcher Observations and Overheard Commentary

TABLE 5.10: HONOR FLIGHT GROUP 1 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

Honor Flight Group 1 — Saturday, June 1, 2013 (52 Participants from Various Places of Origin)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Hilton Baltimore BWI Hotel / Loading	7:30 am – 7:57 am (27 min)	Trash containers available as loading. Orderly loading of Honor Flight veterans and assistants.	Group Leader / Orientation (8:00 am). Prayer to start day and comments acknowledging veterans. Used humor regarding driver closing eyes during prayer. Introduced a video regarding World War II. Also introduced researchers regarding the study as well as the driver, Mike.
Leave hotel / in transit to D.C.	8:01 am – 8:46 am (45 min)	Three volunteer veterans on Harley Davidson motorcycles acted as escorts, leading bus from hotel to D.C.	Group leader / Orientation (8:37 am). Indicated what to expect when arriving at memorial. Mentioned that Senator Bob and Elizabeth Dole might be there and mentioned Bob's health issues and that Elizabeth is a hugger. Logistics of time when off bus. Guardians off first. If veteran goes down first, better to land on a guardian. Line at men's room will be longer always makes ladies laugh. Drink plenty of water. Also pointed out vari- ous views along the way. Reminder that pictures of the veterans would be taken at the memorial.
World War II Memorial / Unloading and Sightseeing (See Figure 5.7: Dropoff/Pickup 1)	8:46 am – 10:35 am (1 hr 45 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage and site programs. Parking was available and unloading went smoothly.	Group Leader / Orientation (8:44 am). "This is your memorial, ladies and gentleman." Greeter / Orientation (8:57 am). Discussed roles in war with various veterans, including what they flew, where stationed, etc. Also explaining various aspects of the memorial. Veterans welcomed and greeted as they ap- proached. Period music played and artifacts on table. Others arrived carrying in wreaths. Many stopped for photos at entrance. Passenger / Safety (9:05 am). Encouraged veteran to step out of the sun. Passenger / Safety (9:07 am). Veteran talked about

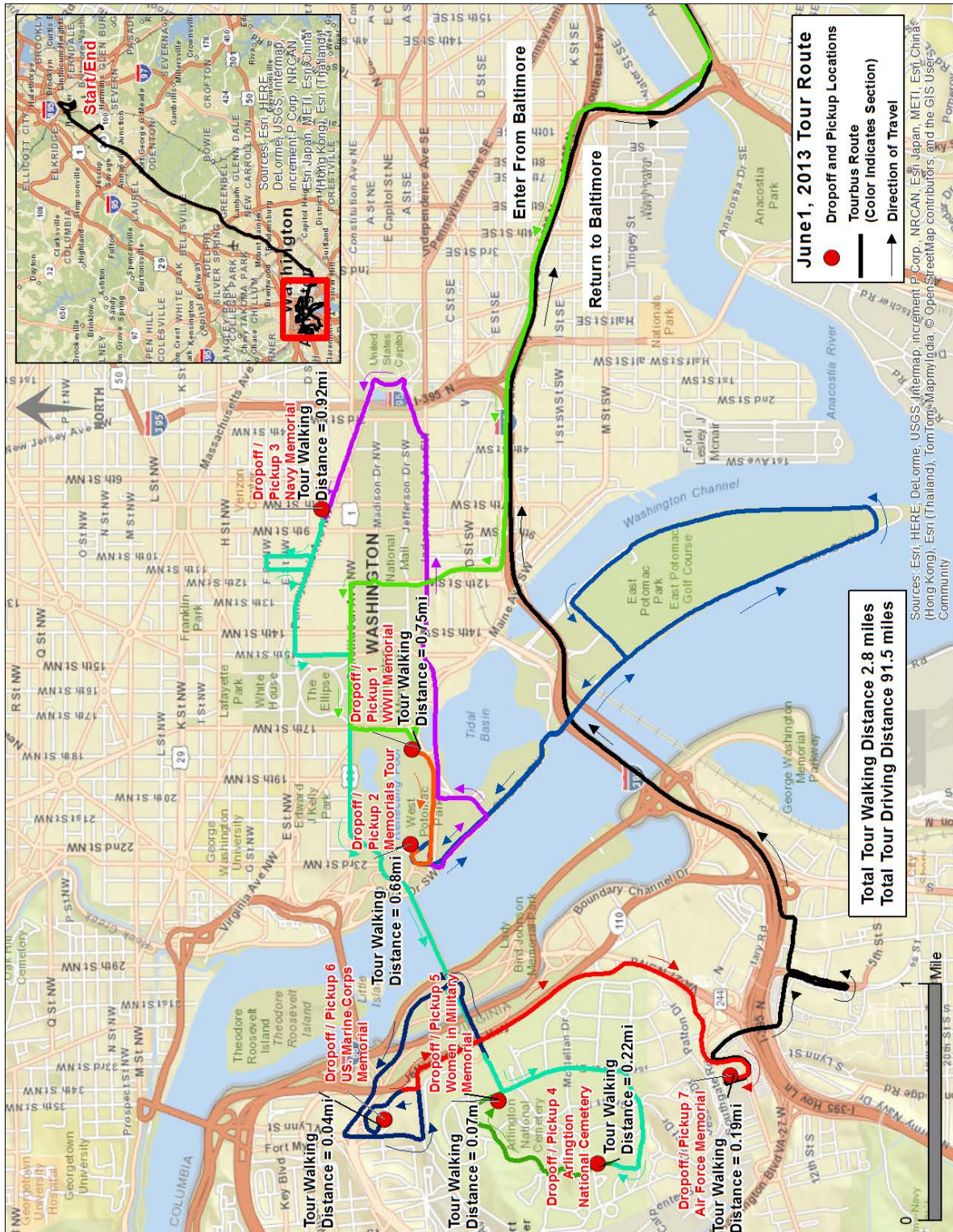
Honor Flight Group 1 — Saturday, June 1, 2013 (52 Participants from Various Places of Origin)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
			<p>a medication that he needed to take. Guardian asked him if he needed to sit down.</p> <p>Volunteer / Meaning of Experience (9:12 am). Explained that she volunteers for Honor Flight arrivals. She is local to D.C. but volunteers specifically to greet and welcome veterans. She stated that she loves to hear their stories.</p> <p>Medical Volunteer (9:26 am). Educational. Talked about the questions that they ask veterans to hear their stories.</p> <p>Passenger / Transportation (9:28 am). Spoke about getting here from Nebraska and the trip from Nebraska to Denver where they were escorted the entire way. At each county line a different group on motorcycle would join the group to escort. Never had to stop at a light. Everyone pulls over for Honor Flight.</p> <p>Passenger / Meaning of Experience (10:11 am). Veteran spoke about Pearl Harbor. He was 17 at the time and did not think he would be involved. But he turned 18 in late December and was immediately called up. Stated that the most important aspect to him, as people were moved to different areas, was keeping his group of boys together.</p> <p>Passengers / Safety (10:20 am). Many comments about the heat and decisions to stay on bus to avoid getting overheated.</p> <p>Harley Davidson Escort / Meaning of Experience (10:36 am). He noted the pride that they take in their work and that they consider it their duty.</p>
Cruising / parking	8:59 am – 10:20 am (21 min)	Driver found parking near World War II Memorial.	
Loading / In transit	10:25 am – 10:44 am (19 min)		Group Leader / Education and Safety (10:41 am). Interpreted aspects of the Lincoln Memorial that they were about to see. Also noted how to safely reach Lincoln via elevator. Mentioned they can get off or stay on. Brought up point of staying hydrated and cool.
Korean War Veterans Memorial/ Lincoln Memorial / Vietnam Veterans Memorial / Unloading and Sightseeing (See Figure 5.7: Dropoff/Pickup 2)	10:45 am – 12:11 pm (1 hr 26 min)	<p>Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage, refreshments, a bookstore and site programs.</p> <p>Loading zone crowded with other buses and pedestrians. Difficulty creating room for wheelchair lift. Emergency vehicles blocking entrance to Korean Memorial. Bus forced to circle around before unloading (after 7 minute wait). Bus stopped in zone longer than needed to unload.</p> <p>Idled longer than 3 min</p> <p>Mounted police directed buses to move.</p>	Driver/ Regulations (10:46 am). "I am warning you that when I park this bus I have to shut it down and there will not be any air."
Cruising / parking between sites	10:53 am – 12:11 pm (1 hr 18 min)	<p>Driver tried to pull back to World War II parking area but it was full. Then stopped at 17th and Constitution. Idled for over 3 min then officer flagged driver to move on. Stopped near Korean War Veterans Memorial but no space to park. Emergency vehicles were blocking the loading zone, large backup of buses. Sat waiting for 7 minutes, then bus forced to keep circling. Police observed ticketing</p>	<p>Driver/ Regulations (10:54 am). "I'm illegally parked right now. Sometimes they wave you on, sometimes they ticket."</p> <p>Driver/ Regulations (11:27 am). "We've got to move" (police on horseback). "He just drew me away" (police officer using hand signals to move him on).</p> <p>Driver / Meaning of Experience (11:30 am). "Listen...I am a vet. I owe it to these guys. The first time I did it, it was just random. After one trip I told them to sign me up for as many as possible."</p>

Honor Flight Group 1 — Saturday, June 1, 2013 (52 Participants from Various Places of Origin)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
		double parked car, bus headed to Hains Point bus parking but ended up going very slowly because it was stuck behind at least 20 bicyclists and there are no bicycle lanes. Cruised along Hains Point. Just wasting time cruising around looking for parking or just staying out of trouble until it is time to pick up. Tons of cyclists along Hains Point. Helps explain why they removed the parking along this area. We are following cyclists down the road. There were several spots to park but driver just passed them by and kept going. Then circled back to pick up passengers. Had to double park.	
Loading at Vietnam Veterans Memorial / In transit (See Figure 5.7: Dropoff/Pickup 2)	12:11 pm – 12:49 pm (38 min)	Bus stopped in zone beyond time needed to load. Unsafe loading due to double parking issue. Boxed lunches were passed out to the group. Refuse was collected by assistants to the tour leader.	Assistant Group Leader / Education (12:15 pm). Provided the details of how Honor Flight started in conjunction with the building of the World War II Memorial. Passenger / Safety (12:18 pm). "My sister said 'Don't take dad to D.C. and get him lost. It will look bad on the Christmas cards.' " Assistant Group Leader/ Meaning of Experience (12:20 pm). Mentioned that group leader quit his job as an architect to volunteer for Honor Flight. Driver / Education and Orientation (12:30 pm). Pointed out sites along the way, offering facts about memorials as well as explaining logistics.
U.S. Navy Memorial and Naval Heritage Center / Unloading and Sightseeing (See Figure 5.7: Dropoff/Pickup 3)	12:49 pm – 1:48 pm (59 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides and directional signage and a ship's store. Idling longer than 3 min. Some passengers remained on-board, bus running with air conditioning. Boxed lunch debris thrown out. Driver parked in no parking zone. NPS ranger asked bus to move on. Circled to return and pick up passengers.	Group Leader / Meaning of Visit (1:32 pm). Spoke with group leader about how the visit affects veterans. He gave an example of a woman who called him after the trip and said that she and her husband had been married for 42 years, but it was not until Honor Flight that she even knew he served in World War II and earned a Purple Heart. Group leader mentioned that in less than a decade they went from the first trip to 127 hubs throughout the country. They have brought over 100,000 veterans to D.C.
Loading / In transit	1:49 pm – 2:28 pm (28 min)	Very brief stop at National Seabee Memorial. Most passengers stayed on bus.	Driver / Educational (1:56 pm). Pointed out sites between U.S. Navy Memorial and Arlington National Cemetery. Group Leader / Educational (2:22 pm). Talked about the frequency of burials, the fact that Honor Flight gets an escort and special arrival allowances for Honor Flight. Also mentioned that The Old Guard never stops. Even during 4 feet of snow and during hurricane weather, they declined to stop.
Arlington National Cemetery / Unloading and Sightseeing (See Figure 5.7: Dropoff/Pickup 4)	2:29 pm – 3:43 pm (1 hr 14 min)	The site has trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage, a welcome center, a bookstore and site programs. Idling longer than 3 min. Unloading was calm and orderly. Pre-teen passengers got off first and handed water to veterans. Once off bus, everyone was looking for shade, weather was extremely warm, everyone standing and silent during the Changing of the Guard ceremony. Security personnel on duty to make sure visitors are respectful.	

Honor Flight Group 1 — Saturday, June 1, 2013 (52 Participants from Various Places of Origin)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
		Bus permitted to unload within cemetery but then had to move to an alternative location. Onsite cemetery transit system not used. Most seem to be appreciative of this ceremony.	
Loading / In transit	3:44 pm – 3:58 pm (12 min)	Bus took extra time to load due to wheelchairs.	Passenger / Weather (3:46 pm). Some passengers talking about heat and wanting showers. Passenger / Meaning of Visit (3:50 pm). "He is not just my father. He is my hero and my friend." Passenger / Transportation and Physical Comfort (3:51 pm). "The beep sound while unloading and loading is too loud." Group Leader / Education (3:57 pm). Additional interpretation of cemetery provided on board. Group Leader / Meaning of Visit (3:58 pm). Mentioned special shuffle step that is/was done for Honor Flight during the Changing of the Guard. No longer allowed but group leader noted that he saw small foot drag that he thinks is a tribute, kind of a half shuffle.
Women in Military Service for America Memorial / Unloading and Sightseeing (See Figure 5.7: Dropoff/Pickup 5)	3:58 pm – 4:26 pm (28 min)	Trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage and a bookstore within walking distance. Very warm and uncomfortable on the bus. "It looks like everyone is wilting."	Group Leader / Meaning of Visit (4:00 pm). Mentioned this was a special stop off the itinerary to honor women veterans with group. Passenger / Recreation (4:01 pm). "Are they breaking out the champagne now?"
Loading / In Transit	4:27 pm – 4:39 pm (12 min)		Group Leader / Safety and Education (4:34 pm). While in transit, mentioned that people fall and get injured all the time at Iwo Jima because the pavers are in disrepair. Suggested that veterans do not get off. Said they have had two significant injuries, including a hospital visit, because of falls at this site. Gave other details about the memorial.
Marine Corps War Memorial (i.e., Iwo Jima Memorial) / Unloading and Sightseeing (See Figure 5.7: Dropoff/Pickup 6)	4:40 pm – 4:47 pm (7 min)	Within walking distance there are portable bathrooms, waysides and directional signage. Brief stop. Many veterans and assistants elected to stay on the bus. Bus stopped in zone longer than needed to unload.	
Loading / In transit	4:48 pm – 4:58 (10 min)		
U.S. Air Force Memorial / Group photo (See Figure 5.7: Dropoff/Pickup 7)	4:59 pm – 5:33 pm (34 min)	Trash containers and waysides within walking distance. All passengers unloaded for a group photo. Assistants preceded vets in order to assist unloading. Bus stopped in zone longer than needed to unload.	
Loading / In transit	5:34 pm – 6:41 pm (1 hr 7 min)	All veterans applauded the tour. Once in transit, everyone fairly quiet and appeared worn out.	
Golden Corral Restaurant in Baltimore / Dinner	6:42 pm – 7:58 pm (1 hr 17 min)		
Loading / In transit	7:59 pm – 8:08 pm (9 min)		Group Leader / Orientation (8:07 pm). Final note of thanks to veterans and driver. Asked veterans to spread the word to others about Honor Flight. Mentioned that he will send out the passenger roster next week.
Final destination: Hilton Baltimore BWI Hotel	8:10 pm		

5.4.7.3 Tour Route

FIGURE 5.7: TOUR ROUTE — HONOR FLIGHT 1, SATURDAY, JUNE 1, 2013



5.4.7.4 Photographic Documentation

PHOTO 5.16: VETERANS BEING HONORED AT THE WORLD WAR II MEMORIAL



PHOTO 5.17: YOUNGEST HONOR FLIGHT TOUR MEMBER REMINDING VISITORS ABOUT SILENCE AND RESPECT



PHOTO 5.18: "HE IS NOT JUST MY FATHER. HE IS MY HERO AND MY FRIEND."



PHOTO 5.19: THE ONE FEMALE VETERAN ON TOUR WITH HER ASSISTANT



PHOTO 5.20: GROUP PHOTO AT THE U.S. AIR FORCE MEMORIAL

5.4.8 Honor Flight Group 2 — Saturday, September 14, 2013

5.4.8.1 Overview

The weather was warm and the afternoon heat was a bit exhausting to the older veterans and their escorts. The data collection period was 12 hours and 30 minutes (Table 5.11). The day started with enthusiasm that was enhanced by an honor paid to the veterans by a volunteer motorcycle escort into D.C. Traffic was light on this Saturday morning, but access to the first planned site (World War II Memorial) was denied due to street closures associated with a marathon race being held that day. A revised itinerary was developed and followed. Enforcement of no parking areas and no unloading/loading zones appeared to be suspended for the day, and drivers had no trouble getting close to each site to be visited by the group. Unloading or loading generally took a minimum of 10 minutes. Following the no-idling rule created a problem for passengers who chose to stay on the bus when too exhausted to disembark and visit a site. The lack of air conditioning and air movement on the parked buses exacerbated their fatigue and discomfort. The only time that a safety concern was raised was during the visit to the Marine Corps Memorial which is not able to accommodate many tour buses and, with the presence of active service vehicles, presents maneuvering challenges to large vehicles and accessibility challenges for bus passengers who have ambulatory constraints. The tour route was a total of 112 driving miles with participants walking 2.17 pedestrian miles (Figure 5.8).

5.4.8.2 Documented Activities, Site Assessment, Researcher Observations and Overheard Commentary

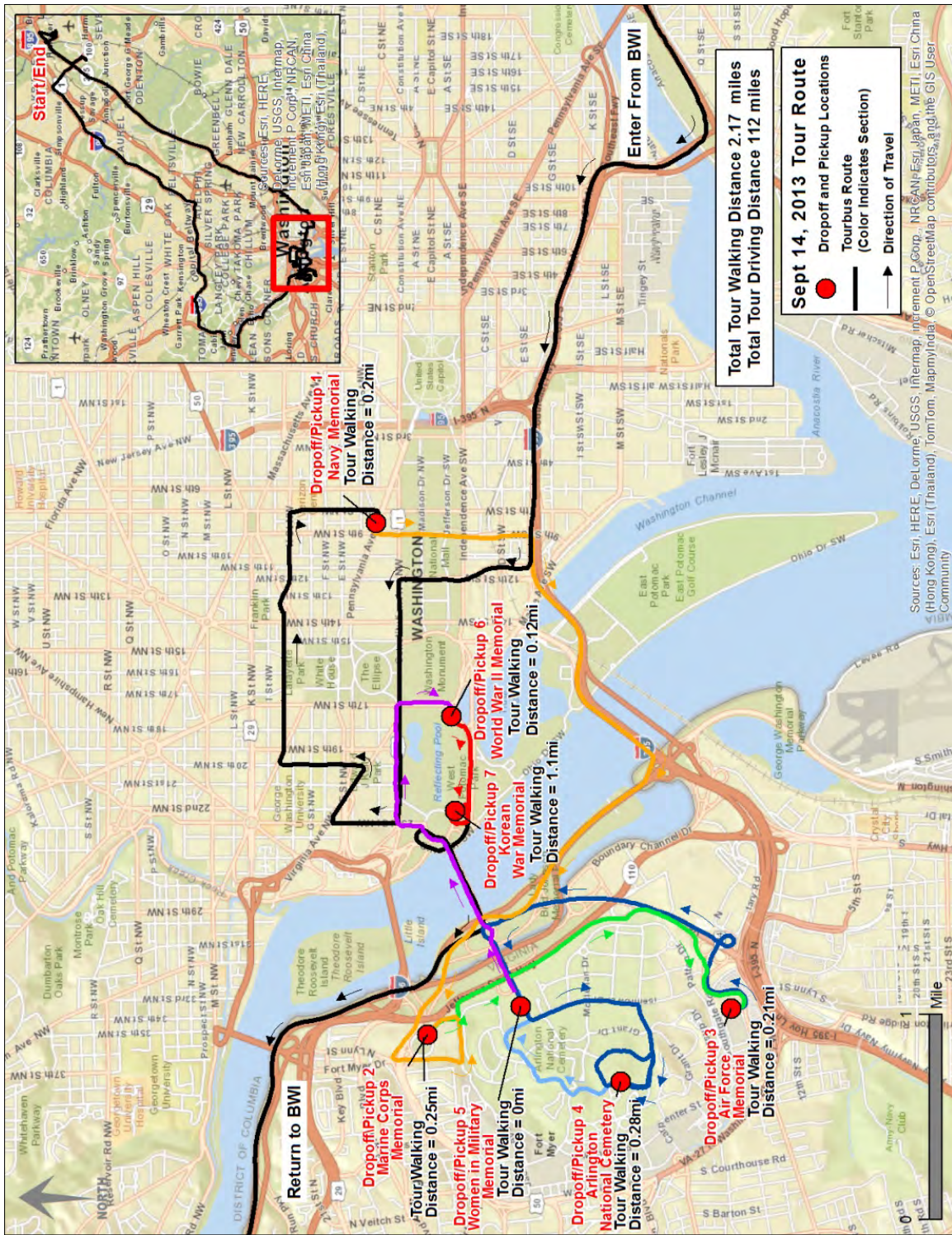
TABLE 5.11: HONOR FLIGHT GROUP 2 — DOCUMENTED ACTIVITIES, SITE ASSESSMENT / OBSERVATIONS, COMMENTS

Honor Flight Group 2 — Saturday, September 14, 2013 (109 Participants from Various Places of Origin)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Hilton Baltimore BWI Hotel / Loading	7:59 am – 8:20 am (21 min)	Trash containers available as loading. Orderly loading of Honor Flight veterans and assistants.	Volunteer / Mobility (8:17 am) Concern about accommodations for disabled passengers to load and unload. Passenger / Recreational Aspects of Visit (8:15 am) Everyone seemed very excited about motorcycle escort.
Leave hotel / in transit to D.C.	8:20 am – 9:33 am (1 hr 13 min)	Five volunteer veterans on motorcycles acted as escorts, leading the buses from hotel to D.C.	Group Leader / Regulations and Enforcement (9:12 am) Bewilderment over police closure of only access to World War II Memorial. Passenger / Traffic Conditions (9:17 am) dismay at closure of streets for marathon event without apparent notification to bus companies Driver / Regulations and Enforcement (10:04) "We'll make some illegal left turns, but we'll do what we gotta do." Group Leader / Safety and Security (9:22 am) "Because of marathon, roads are blocked and World War II is not accessible until 11:30 am We'll change the plan."
U.S. Navy Memorial and Naval Heritage Center / Unloading and Sightseeing (See Figure 5.8: Dropoff/Pickup 1)	9:33 am – 10:25 am (52 min)	Within walking distance there are trash and recycling containers, bathrooms, water fountains, site information, waysides and directional signage. Although parking was not permitted in front of the memorial, the buses parked there for the entire stop without being challenged by police/security.	
In transit	10:25 am – 10:52 am (27 min)	Traffic was moderate, but tight turns presented challenges in maneuvering large buses (especially at the site)	
Marine Corps War Memorial (i.e., Iwo Jima Memorial) / Unloading and Sightseeing (See Figure 3.8: Dropoff/Pickup 2)	10:52 am – 11:07 am (15 min)	Congested area. No parking available for buses. Buses had to drive in reverse and double park to unload and load passengers. Too little time for all passengers to visit the site.	Group Leader / Traffic Conditions (10:49 am). Truck unloading wheelchairs, no place to do it without blocking traffic around memorial. Group Leader / Safety and Security (10:15 am). Safety of the site for vets and seniors. The ground of the site is not safe and do not let all vets to get off the bus
In transit / U.S. Air Force Memorial / Unloading (See Figure 5.8: Dropoff/Pickup 3)	11:07 am – 11:24 am (17 min)	Easy access to site. Good unloading area. Adequate on-site parking for extended stay.	
U.S. Air Force Memorial / Group Photo / Lunch	11:24 am – 12:20 pm (56 min)	Group was organized for a group photo and then boxed lunches were provided and consumed onsite. Seating along low wall was adequate, but not enough table tops for those who could not balance their food on their laps while eating.	Passenger / Resource Aspects of Visit (12:22 pm) More restrooms should be available. Only two stalls for 100 people. Navy Memorial had a nice restroom but here is so bad.
In transit to Arlington National Cemetery	12:20 pm – 12:35 pm (15 min)	Group leader shared in-depth information about the cemetery and the Changing of the Guard ceremony.	
Arlington National Cemetery / Chang- ing of the Guard / Tomb of the Un- known Soldier / Unloading and	12:35 pm – 1:31 pm (56 min)	Veterans had special seating area to view the Changing of the Guard ceremony, but it was in the bright sun (uncomfortably hot).	

Honor Flight Group 2 — Saturday, September 14, 2013 (109 Participants from Various Places of Origin)			
Location / Activity	Start – End Time (Duration)	Site Assessment / Researcher Observations	Overheard Commentary: Speaker / Theme (Time) Comment Summary
Sightseeing (See Figure 5.8: Dropoff/Pickup 4)			
In transit	1:31 pm – 1:45 pm (14 min)		
Women in Military Service for America Memorial (See Figure 5.8: Dropoff/Pickup 5)	1:45 pm – 2:05 pm (20 min)	Very brief stop at Memorial, but unloading zone and parking was too far away. Most passengers stayed on bus.	
In transit	2:05 pm – 2:19 pm (14 min)	Traffic flowing smoothly. Parking available at the World War II Memorial.	
World War II Memo- rial / Unloading and Sightseeing (See Figure 5.8: Dropoff/Pickup 6)	2:19 pm – 3:55 pm (36 min)	Unloading/parking very close to memorial. Youth "honor squad" greeted veterans. Convenient restroom facilities, although line to get in with wheelchairs. Trash and recycling containers, bathrooms, water fountains, site information, waysides, directional signage at the site. After circling the monument, most looked for a shady spot in which to reflect on the experience.	Passenger / Traffic Conditions (4:02) Frustration at confusion and inability to handle volume of buses loading.
In transit / Unloading (See Figure 5.8: Dropoff/Pickup 7)	3:55 pm – 4:12 pm (17 min)	Driver unloaded at Korean War Veterans Memorial and parked beyond time permitted.	Group Leader / Safety and Security (4:06 pm). Caution when crossing the street. It is dangerous spot. There was an accident in the past that a person hit by a taxi while crossing the street.
Lincoln Memorial / Korean War Veter- ans Memorial / Vietnam Veterans Memorial	4:12 pm – 5:19 pm (1 hr 7 min)	Several passengers stayed on the bus, but air conditioning was not active. Uncomfortable.	Passenger / Resource Aspects of Visit (5:28 pm) Want to see more trash cans along with the path. Too few trash cans.
In transit to Golden Corral	5:19 pm – 6:46 (1 hr 27 min)		
Golden Corral Restaurant in Baltimore / Dinner	6:46 pm – 7:50 pm (1 hr 4 min)	Special bus unloading behind the restaurant, and separate entrance for the group.	
In transit to BWI Hilton hotel	7:50 pm – 8:00 pm (10 min)	Once in transit, everyone fairly quiet and appeared worn out.	
BWI Hilton Hotel / Unloading	8:00 pm – 8:15 pm (1 hr 17 min)	Orderly and safe unloading at hotel.	

5.4.8.3 Tour Route

FIGURE 5.8: TOUR ROUTE — HONOR FLIGHT 2, SATURDAY, SEPTEMBER 14, 2013



5.4.8.4 Photographic Documentation

PHOTO 5.21: BUS UNLOADED AND LOADED IN A NONDESIGNATED ZONE BY THE U.S. NAVY MEMORIAL.



Bus remained parked on street during the entire stop.

PHOTO 5.22: EXCELLENT TURNAROUND AND PARKING AT THE U.S. AIR FORCE MEMORIAL.



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6. OPERATOR AND CLIENT SELF REPORTS

6.1 STUDY OVERVIEW: OPERATOR AND CLIENT SELF REPORTS

This section of the report summarizes Phase VI and Phase VII findings, specific to perceptions of tour bus operators and clients. Data from six motorcoach company executives (i.e., President, Vice President or General Manager) representing tour bus operators sending approximately 4,385 buses to D.C. annually, and four clients representing leaders of tour groups were collected by GMU using a standardized instrument designed with input from NPS, Destination D.C. and DDOT. Board members of the ABA were interviewed prior to questionnaire distribution to ensure item validity. Variables were 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.

6.2 SUMMARY OF FINDINGS: OPERATOR AND CLIENT SELF REPORTS

6.2.1 Tour Bus Operators

The motorcoach operators interviewed collectively arrange transport for approximately 2,020 tour groups annually to D.C. in 4,385 buses, logging over 2.2 million miles. The average group size ranges from 30 to 129 with school groups comprising the largest target market segment.

Operators are cognizant of vehicle emissions and most typically control on-site emissions by encouraging drivers to limit idling time. However, operators simultaneously recognize that their drivers often cruise while in D.C. due to a lack of available parking. All operators reported driver safety training programs and were attentive to emergency preparedness.

Operators indicated some willingness to pay for parking but expressed concerns regarding NPS-proposed parking meters. These concerns included cost, length of stay, availability to drivers for short term pick-up/drop-off, the presence of law enforcement to ensure cars do not take up bus spaces and the availability of special spaces for buses needing to deploy wheelchair lifts. Itineraries are designed to account for traffic congestion in D.C. and drivers are trained to make schedule adjustments as needed when congestion causes significant delays.

In light of perceived overall benefits of tour bus travel to D.C., operators focused on the historical and political significance of the visit and also noted that tour participants are able to experience various cultures, enjoy the beauty of D.C., contribute positively to the local economy and engage in a sustainable practices by using motorcoaches rather than visiting in separate automobiles. Operators indicated that health and recreation benefits for participants included peacefulness, lower stress than driving themselves, exercise, a cleaner environment from fewer cars and spending time with friends and family. Educational benefits noted by operators included learning about history and politics specifically and encouraging inquisitiveness and studying generally. Operator ideas for increasing D.C. tour benefits focused on inclusion of more interactive experiences, increased participant free time to visit museums of choice, reducing risk by increasing the safety of areas where buses drop off, reducing fumes, better signage, more on-site interpretation, period-costumed guides and better marketing of benefits.

Operators expressed little interest in using alternative on-site transportation such as Metrorail or the D.C. Circulator. More parking, more restrooms, better pathways, safer crosswalks and drop-off zones near all locations requiring time entrances were suggestions for improving the pedestrian experience.

Complaints, concerns and suggestions from operators specific to bringing tour groups to D.C. were common to parking, drop-off zones, congestion, street closures, routing, enforcement, information provision and timed ticket restrictions.

6.2.2 Tour Bus Clients

Tour bus clients represented a public middle school group, two international groups from South Korea and the Honor Flight Network, which transports World War II veterans to D.C. Clients shared details about their most recent group trips to D.C., which included anywhere from 40 to 190 participants. Their itineraries were either self-defined or designed with assistance from a tour company and varied significantly, with groups visiting anywhere from 4 to 17 sites.

The overall benefits of tour bus travel to D.C. noted by tour bus clients included understanding citizenship, being comfortable, tour bus efficiency and, in the case of the client group that serves military veterans, it was noted that participants are afforded the opportunity to observe how the American public feels about their past service and sacrifices. Clients indicated that health and recreation benefits for participants included walking, spending time with friends and teachers, sightseeing and meeting new people. Educational benefits mentioned by clients included learning about history, information provision that complemented a school-based service learning project, and offering a greater understanding of the U.S. to foreign visitors. Ideas from clients for increasing D.C. tour benefits focused on variety of enhancements specific to circulation, lighting, food, bathrooms, water, information, special activities, itinerary suggestions and specialized tour guide usage.

Clients expressed little use of alternative on-site transportation such as Metrorail or the D.C. Circulator. These modes of transport were perceived to be too difficult for participants to negotiate, were not time effective and did not go to desired locations. Suggestions offered for improving the pedestrian experience included more careful itinerary planning, better food options, more water stations, clearly marked distance signs and improved loading and unloading locations to reduce chaos.

Complaints, concerns and suggestions from client representatives specific to bringing tour groups to D.C. pertained to food availability, water fountains, bathrooms and the impact of congestion on site access.

6.3 METHODS: OPERATOR AND CLIENT SELF-REPORTS

6.3.1 Respondent Pool

Twelve tour bus companies (i.e., operators) and five client groups were identified by the GMU, NPS, Destination D.C. and ABA as possible contributors to the study. Representatives from each company/client group were identified, contacted by GMU researchers and invited to participate in the study.

6.3.2 Data Collection Instruments

The two data collection instruments were constructed with significant input from NPS, DDOT and Destination D.C. In addition, prior to reaching out to the respondent pool, an in-depth interview was conducted by GMU researchers with members of the ABA executive team who provided a foundational industry perspective (see Section 3 of this report for a summary of this interview). This information was also used to confirm the validity of items included in both questionnaires.

For the tour bus operators, data were collected in six sections (see appendix I). Section A included company demographics specific to annual operations as well as the sizes, types and specialized needs of groups the company serves. Section B requested information regarding group itineraries. Section C included bus operational information, such as origination cities, bus miles travelled annually to D.C., miles travelled while in D.C, air quality control strategies, emergency preparedness, driver time management techniques and parking. Sections D and E asked for information regarding perceived and potential tour benefits overall followed by sub-categories of health benefits, recreational benefits and educational benefits. Information regarding intermodal capabilities was solicited in Section F, including group circulation methods in D.C., drop-offs/pick-ups, driver concerns/complaints and client concerns/complaints regarding transportation to D.C.

For tour bus clients, the questionnaire had five sections (see appendix J). Section A asked for information regarding the group represented, the tour bus company of choice for the group, the number of buses on a typical D.C. trip and facilities available on the bus. Section B allowed respondents to indicate a variety of demographics about the group's most recent D.C. visit, including group size, age, group type (e.g., school age, adult, military, etc.), use of assistive devices and primary language spoken. Section C had itinerary-specific questions from the most recent D.C. visit. Sections D and E asked for information regarding perceived and potential tour benefits overall followed by sub-categories of health benefits, recreational benefits and educational benefits

6.3.3 Data Collection Implementation

Using contact information for company and client representatives provided by GMU, ABA and Destination D.C., introductory emails were sent to the twelve tour bus operators and five client group representatives on April 7, 2014 (see appendix K and appendix L). Respondents were asked to either submit written responses via email, surface mail or fax or, alternatively, complete a phone or in-person interview with one of two GMU researchers by May 5, 2014. Follow up communication occurred as individuals responded. All non-respondents were contacted via email and given an extension to June 11, 2014, at which point data collection ceased.

6.3.4 Sample Size

Using the methods outlined above, data from six motorcoach company executives (i.e., President, Vice President or General Manager) representing tour bus operators and four clients representing tour groups were collected.

6.3.5 Data Analysis

Quantitative and qualitative findings are represented in tables with accompanying narrative to allow for ready comparison of operator data. The same approach was taken for the client data. In areas where operator and client questionnaire items are similar (i.e., perceived benefits) the two data sets were merged to allow for a comparison of industry and client perspectives.

6.4 RESULTS: OPERATOR AND CLIENT SELF-REPORTS

6.4.1 Industry Association Perspective

Board members from the ABA were interviewed on March 27, 2014 in order to ensure that the questions to be posed to operators and clients covered the range of concerns noted anecdotally to NAMA personnel over the years. During this in-person interview with two GMU researchers, the following questions were raised and accompanying, summarized responses provided.

Question 1: With respect to tour bus visitation in Washington, D.C. what is your ideal scenario?

Response: Looking at the changing market over past 15 years or so, group travel and the size of the motorcoach market are continuing to grow. For instance, 700 million passengers are moved through motorcoaches annually. This suggests D.C. would be a top destination among destination markets.

Increases in motorcoach volume plus reduced parking spaces as the result of policies implemented after 9/11 are contributing to an ill feeling towards D.C. among motorcoach operators. What was happening in New York City is now happening in D.C.

D.C. is unique because of the structure of the city, where people are moved from monument to monument as opposed to dropping visitors off for all-day trips. The dynamic structure of the D.C. tourism industry makes it a unique scenario in motorcoach parking because timed admissions are changing the itinerary and people's attitudes post 9/11 have changed to a heavier reliance on buses. People want to be mobile and be able to move around or get out in a hurry.

Question 2: Why do people want to be bused from location to location all day?

Response: Moving with a bus and the safety associated with having the bus in close proximity are incentives to bus travel.

Question 3: How do you feel about the idea of shaping itineraries to decrease the reliance on buses and increase pedestrian experience?

Response: Generally speaking a third party is planning the trip, with a constrained budget, and adding other variables to increase cost to the trip may not be welcome.

Question 4: How do we improve the situation?

Response: Don't remove any more parking spaces. An example of the parking problem is that Union Station has lost many spaces in the hopes and promises of expanding parking. But, they have not expanded the outdoor parking lot which is located at New York Avenue.

Question 5: How does D.C. compare in terms of paid parking?

Response: Owners would much rather pay for parking than not have a place to park. So the drivers are OK with the paid parking. An overall frustration for D.C. is that D.C. is not dealing with the tour bus industry as a whole. Other cities seem to have better signs, better maps, more spaces, and better collaboration between city and the industry. Consider that New York has added meters for buses, why can't D.C. add meters? The goal should be to work on how to add more motorcoaches for bringing in tourism instead of working to limit them.

Question 6: How do you feel about DDOT and Destination D.C.?

Response: There is no action coming out of DDOT. For example, consider the Ivy City Parking Lot which is located next to Love Nightclub. Coordination among partners has never led to action. A possible solution would that private lots could be converted to bus lots. Buzzard Point is an example of one Destination D.C. and DDOT have done, but nothing else has happened. Also, realize that not one single lot has overnight parking. There is also frustration with service types.

Many studies look at different things but they are all servicing the same industry. There is no coordination among organizations regarding results. Over 10,000 commuters are moving into the city every day with a motorcoach. There is a connection between these different types of buses.

Question 7: How do you feel about enforcement?

Response: The number of agencies enforcing is causing confusion. Collaboration of enforcement agencies through DDOT has not led to any solutions. The [District Department of Environment's] Air Quality Division enforcing idling is challenging. Signage is not clear for pick-up and drop-off locations. There is an overall negative feeling toward enforcement. Another issue is the conflicting definition between what a commercial vehicle means. In other cities the definition includes buses but not in D.C.

Question 8: Is parking underneath D.C. feasible?

Response: The concept is feasible but the funding is highly unlikely. Consider a European model that has worked in other cities.

Question 9: What motorcoach companies deal with international tourists?

Response: Companies with over 50 buses or the larger bus companies usually deal with international tourism. The majority of buses are on day trips, not overnight trips.

Question 10: Are itineraries specific to a tour or is there a standard or several standard tours?

Response: Both, they are standard but can be modified.

Question 11: Are planners willing to share itineraries?

Response: Yes many are, and several publish their itineraries on the web.

Question 12: Do drivers have a specific emergency preparedness plan for D.C.?

Response: Larger companies will have a specific plan but small companies may have no plan at all for day to day activities. One company had a sample emergency plan that some companies have adopted.

Question 13: Are planners looking at health benefits of tourism when making plans?

Response: No, they wouldn't think so. There is a frustration that the trip is the same every year but the client or teacher wants to stay the same.

Question 14: What is the permitting status of tour buses?

Response: Everyone needs to have a 6 day permit, except if they have the apportioned plates. Permits can be obtained online or over the phone. Commuter buses would have apportioned plates. Permit kiosks could be helpful but currently none exist, which limits when you could obtain a permit.

Question 15: What is the busiest day of the week?

Response: Thursdays are the busiest for school groups, weekends are the busiest for leisure travelers.

Question 16: Is there anything else you would like to add?

Response: Arlington Cemetery or Pentagon City could be considered for alternative tour bus parking. Overnight and driver comfort should be considered in plans. A feasible parking location must have a bathroom and a place to get a cup of coffee and other amenities. Restrooms are not required on buses.

6.4.2 Tour Bus Operator Results

6.4.2.1 Overview of Tour Bus Companies

Executives from each of the six tour bus companies provided information on their basic operations and the tour groups with whom they work on an annual basis. To maintain confidentiality, each tour bus operator was designated a letter of the alphabet, thus, all following data will refer to Operator A, B, C, D, E or F.

All six companies were based in either the northeastern or mid-Atlantic coastal region of the United States (Table 6.1). Each offered a variety of tour styles, accommodated both large and small groups and most allowed clients to either use a pre-designed itinerary or would work with them to design an itinerary meeting a group's particular interests. All motorcoaches provided by these companies offered basic amenities such as reclining seats, public address systems, stereo/CD players, air conditioning and DVD players. Larger motorcoaches also offered an on-board restroom and were typically wheelchair accessible.

TABLE 6.1: OVERVIEW OF TOUR BUS COMPANIES

Company	Characteristics	Services Offered
A	Northeast U.S. tour operator providing service within U.S. and allowing clients to purchase pre-designed itineraries or build-your-own itineraries. Approximately 435 buses sent to D.C. annually.	<i>Tours:</i> Vacation, corporate, schools, multi-day, 1-day, express, cruises, fly tours, sport tours <i>Equipment:</i> 56-passenger motorcoaches, 40-passenger motorcoaches, 29-passenger mini-coaches, executive limo vans, vans and school buses <i>Amenities:</i> DVDs, AM/FM radios, PA systems, reclining seats, A/C, individual reading lights and panoramic windows. 56-passenger coaches are wheelchair accessible
B	Northeast U.S. tour operator providing service to 48 states and Canada and allowing clients to purchase pre-designed or build-your-own itineraries. Approximately 600 buses sent to D.C. annually.	<i>Tours:</i> Vacation, schools, 1-day, multi-day <i>Equipment:</i> Motorcoaches for 20+ <i>Amenities:</i> restrooms, reclining seats, video systems, tinted windows and a public address system
C	Northeast U.S. tour operator providing service primarily along the east coast and in the northeast. Approximately 500 buses sent to D.C. annually.	<i>Tours:</i> Vacation, corporate, schools, football shuttling, cruises, primarily 1-day with some multi-day tours <i>Equipment:</i> 30-passenger limousine motorcoaches, stretch limousines and vintage trolley <i>Amenities:</i> TV, DVD/CD/Stereo, A/C, restroom, dry bar
D	Northeast U.S. tour operator providing local, regional and national service and allowing clients to purchase pre-designed or build-your-own itineraries. Approximately 200 buses sent to D.C. annually.	<i>Tours:</i> Weddings, vacation, groups, schools, dinners only, ski trips and will offer transport only, 1-day, multi-day <i>Equipment:</i> 54-person motorcoaches <i>Amenities:</i> WiFi, CD/Stereo, restroom, PA system, A/C
E	East coast U.S. tour operator providing local, regional, national and international service allowing pre-designed itineraries and chartered coaches. Approximately 2,500 buses sent to D.C. annually.	<i>Tours:</i> Vacation, schools, sports, 1-day, multi-day <i>Equipment:</i> 54-person motorcoaches, 36-person motorcoaches, 29- and 31-passenger minicoaches <i>Amenities:</i> A/C, DVD/video, cell phones, reading lamps, restroom
F	East coast U.S. tour operator providing local, U.S. and Canada service with a focus on mid-Atlantic coast and allowing pre-designed or build-your-own itineraries. Approximately 150 buses sent to D.C. annually.	<i>Tours:</i> Vacations, schools, special interest groups, soft adventure, 1-day, multi-day, shuttles <i>Equipment:</i> 56-person motorcoaches, 47-passenger motorcoaches, 29-passenger mini coaches, 9-passenger Sprinter vans, <i>Amenities:</i> A/C, Video, WiFi, DirecTV

The number of tour groups each company serves annually ranged from 665 to 7,000 (Table 6.2). Among those, 75 to 700 of the groups are being transported to D.C. Many of the groups require more than one

Operators

- A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes
- B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)
- C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles
- D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles
- E Tours to US and international; ~2,500 DC buses annually; origin NC and US; mid to large buses (29+ person vehicles)
- F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

bus to serve their larger group size (average group size ranged from 30 individuals/group to 150 individuals/group), thus, tour bus companies reported sending from 200 to 2,500 buses to D.C. annually.

TABLE 6.2: ANNUAL BUS USAGE

Company	Approx. No. of Tour Groups Transported per Year	Approx. No. of Buses Sent Out per Year	Approx. No. of Groups Transported to D.C. per Year	Approx. No. of Buses Sent to D.C. per Year	Average No. of Individuals in Each D.C. Tour Group
A	665	4,753	145	435	56
B	1,500	2,080	500	600	129
C	7,000	7,000	500	500	30
D	800	2,500	100	200	39
E	3,000	*	700	2,500	125
F	4,300	10,750	75	150	100
Total	17,265	27,083*	2,020	4,385	

*Information not provided.

Not all tour operators engaged in consistent travel to D.C. throughout the year. Operator E specified that Spring (February through June) and Fall (September through November) were the heaviest use times for the tour bus company. Other tour bus companies did not specify this information; however, visitation patterns in D.C. suggest that many companies experience similar peaks in travel times following this approximate schedule.

6.4.2.2 Tour Bus Client Information: As Provided by Operators

Tour bus companies bring a variety of client groups to the D.C. area annually. School groups are the primary client group served for each tour bus company at almost 1500 annually between the six tour companies (Table 6.3). Adult groups make up the second most frequent group served for all tour bus companies except Company C for whom senior groups are their second most frequently served client.

Client average ages ranged from 13 – 40, however, it should be noted that all respondents served either senior groups or military groups with older individuals. Therefore, the average age of clients served does not reflect the full range of client ages. For example, with Companies A, E, and F, though the average ages of their clients ranged from 13-16, they also serve the adults who accompany the school groups.

TABLE 6.3: CLIENT GROUPS TRANSPORTED TO D.C.: ANNUAL DATA

Company	Average Client Age	School	Adult	Seniors	Culture / Language Other Than English	Military	Groups Needing Assistive Devices	Groups with Special Medical Needs
A	15–16	130	0	15	0	0	10	0
B	27	300	75	25	190	20	20	50
C	30	300	60	70	20	50	**	3
D	40	100	55	37	5	3	8	0
E	13–14	600	100	10	5	15	25	2*
F	13–14	60	10	0	0	5	5	10
Total		1,490	300	157	220	93	68	65

*For this tour bus company, the specialized medical needs arise usually with a wounded warrior program.

**Information not provided.

In addition to the clients in Table 6.3, Operator B also indicated that the company provides service to approximately 60 political groups annually. Further, Operator E specified that any groups that desired language interpretation would bring their own interpreters with them; therefore, they do not track information on language needs of groups.

Operators

A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes

B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)

C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles

D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles

E Tours to US and international; ~2,500 DC buses annually; origin NC and US; mid to large buses (29+ person vehicles)

F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

For the final group characteristic, tour bus operators shared the origination locales of their primary groups who they typically bring to D.C. (Table 6.4). Origination cities ranged from the nearby states of Pennsylvania and North Carolina to global origins.

TABLE 6.4: STATE, CITY, REGION AND/OR COUNTRY OF ORIGIN FOR GROUPS COMING TO WASHINGTON, D.C.

Company	State, City and/or Country of Origin
A	<ul style="list-style-type: none"> Ohio: Cleveland, Akron, Youngstown Pennsylvania: Erie, Pittsburgh
B	<ul style="list-style-type: none"> Northeastern United States France Germany
C	<ul style="list-style-type: none"> Worldwide
D	<ul style="list-style-type: none"> Pennsylvania: Delaware Valley area of Philadelphia
E	<ul style="list-style-type: none"> North Carolina: Cities and schools throughout the state Throughout United States
F	<ul style="list-style-type: none"> North Carolina: Western and Central regions Tennessee: Eastern region South Carolina: Northern region

6.4.2.3 Washington, D.C. Itineraries

Tour bus operators were invited to share information regarding their itineraries when transporting clients to D.C. Standard itineraries provided by Operators A and D included visits to the Lincoln Memorial, Korean War Veterans Memorial, Vietnam Veterans Memorial, World War II Memorial, Thomas Jefferson Memorial, Franklin Delano Roosevelt Memorial, Arlington National Cemetery, the Pentagon, and at least one Smithsonian museum. Operators B and C noted that 75% and 10% of their itineraries, respectively, are standard but did not note specific sites. Operators E and F reported that all of their itineraries are customized.

Customized itineraries included visits to places such as Ford's Theatre National Historic Site, the John F. Kennedy Center for the Performing Arts, the Newseum, the U.S. Holocaust Memorial Museum, the Pentagon, the U.S. Supreme Court, and the Smithsonian National Zoological Park. Additionally, one or more of the Smithsonian Museums were included in most custom itineraries. One operator specified that groups would usually choose Smithsonian museums that aligned with their specialty interest areas. For example, a school group visiting with their science teachers would choose to visit the National Museum of Natural History as part of their itinerary.

Operator E explained that his motorcoach company partners with a separate organization whose employees coordinate the itineraries for his company, including reserving timed tickets for visits to places needing them, such as the White House. While they always include at least one of the Smithsonian museums in their tours, each group chooses the museum which best meets their needs or focus. The most common choices among the Smithsonian museums are the National Museum of Natural History, the National Archives, the National Air and Space Museum and the National Museum of American History. In addition, approximately 5% of the Operator E's groups include a trip to the Smithsonian National Zoological Park. In general, Operator E prefers to include itinerary items that do not require timed tickets.

Meal stops are included in most tour itineraries. Among the six respondents, two offered information regarding how they manage their groups' meal needs. Specifically, Operator D noted that tours typically

Operators

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 B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)
 C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles
 D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles
 E Tours to US and international; ~2,500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)
 F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

dine at the Union Station food court while Operator E generally plans for meals at the Old Post Office Tower, Ronald Reagan Building, one of the Smithsonian museums or the Pentagon City Mall food court.

6.4.2.4 Local Tour Guide Use and Alternative On-site Transportation

Operators were asked to indicate their use of local tour guides and alternative transportation while in D.C. In terms of local tour guides, responses varied significantly, ranging from 1% (Operator D) to 99% (Operator E) of itineraries (Table 6.5).

Public transportation, specifically use of Metrorail or the D.C. Circulator, was not identified as a significant component for tour operators when bringing groups to D.C. Those who report use of public transportation noted that they did so rarely and one operator stated their groups ride Metrorail from end of line to Smithsonian Metro Station or L'Enfant Plaza Metro Station for the experience only.

TABLE 6.5: LOCAL TOUR GUIDE USE

Company	Approximate % of D.C. Itineraries that Include a Local Tour Guide
A	15%
B	90%
C	10%
D	1%
E	99%
F	90%

6.4.2.5 Vehicle Miles Traveled

When combining all trips to D.C., the six companies log over 2 million miles, with three companies logging at least 400,000 miles each (Table 6.6). Operator E, for example, traveled approximately 1,000,000 miles in the previous year between departure points and NAMA. Additionally, while transporting clients between sites in D.C., buses accrue mileage. Both operators and bus drivers indicate that much of this onsite mileage involves cruising while empty during periods when clients are sightseeing if parking is not readily available (see also Phase V of this study). For instance, Operator E stated that the onsite mileage averages 50 miles per day but that this number increases if no parking is available at the Buzzard Point parking lot and the driver needs to drive around to find an alternative parking space.

TABLE 6.6: VEHICLE MILES TRAVELLED

Company	Annual Miles Traveled for D.C. Tours	Average per Bus Vehicle Miles Travelled for D.C. Tours	Average per Bus Vehicle Miles Travelled While in D.C.
A	435,000	335	15 / day
B	600,000	884	200 / trip
C	13,000	500	50 / day
D	72,000	360	7 / day
E	1,000,000	750	50 / day
F	93,750	1,300	175 / trip
Total	2,213,750		

Operators

A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes

B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)

C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles

D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles

E Tours to US and international; ~2,500 DC buses annually; origin NC and US; mid to large buses (29+ person vehicles)

F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

6.4.2.6 Methods Used to Reduce Vehicle Emissions

Tour bus companies use a variety of methods before travelling to D.C. as well as during their visit to attempt to reduce bus emissions (Table 6.7). Pre-trip methods among respondents varied and included sustainable education, upgrading equipment, inspections, and routine maintenance. Once in D.C., respondents' primary strategy was to reduce idling time.

TABLE 6.7: METHODS USED TO REDUCE VEHICLE EMISSIONS

Company	Prior to Travel	During D.C. Tour
A	Enrolled in university "Motorcoach Sustainability" program	Reduced idle time
B	State and local pollution inspection	Restrict idle time to minimum
C	Purchased newer equipment	Shut off buses
D	No idling at pick up points or rest stops to/from D.C.	No idling at pick up and drop off points unless needed to operate wheelchair lift
E	Not aware of anything we can do	Park, turn off engines and always attempt to find parking as soon as possible
F	Maintain vehicle emissions systems properly	No idling and have groups walk when feasible

6.4.2.7 Safety Training

Safety training is an essential element of tour bus driver education. Operators provided feedback regarding the extensive training their drivers receive regarding passenger safety and emergency preparedness. Passenger safety was primarily addressed through pre-employment and/or continuing education (Table 6.8). Operator E also employs a full-time Safety Director.

TABLE 6.8: DRIVER SAFETY TRAINING

Company	Driver Safety Training
A	Pre-employment: 100 hours classroom and on the road training Annual driver recertification
B	Courses in passenger safety
C	Pre-employment: 56 hours classroom and on the road training Quarterly safety meetings
D	FMCSA training Commercial driver's license requirement Company safety/service meetings
E	Driving training program (i.e., DOT regulations, bus operations, safety) Full-time Safety Director
F	Pre-employment: 40 online class hours, 40 in-class hours, 40 or more training on each vehicle to be used

6.4.2.8 Emergency Preparedness

Tour bus operators are attentive to emergency preparedness. While operators were asked to indicate the preparedness plan for D.C. specifically, several responses suggested that the plans did not vary from destination to destination. Specific measures are indicated in Table 6.9.

TABLE 6.9: EMERGENCY PREPAREDNESS

Company	Emergency Preparedness
A	Driver training — Operation Secure Transport Motorcoaches equipped with GPS 24-hour emergency dispatch
B	Group leader cell phone contact with motorcoach and tour bus company main office Passengers provided with contact information in some cases
C	Driver and office personnel training: C.A.T. Eyes (Community Anti-Terrorism Training Institute)

Operators

- A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes
- B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)
- C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles
- D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles
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- F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

Company	Emergency Preparedness
	Driver training: security practices, operational procedures, suspicious activity recognition and reporting
D	Same as other cities Be aware of surroundings
E	24-hour phone access IMG (International Motorcoach Group) member
F	Same as other cities 2-way radios and cell phones for drivers Multiple route planning/awareness Motorcoaches outfitted with Saucon Fleet Management system for onboard messaging and monitoring

6.4.2.9 Timed Tickets

All of the tour bus operators except Operator D indicated they include a visit to at least one D.C. site that requires a timed ticket (Table 6.10). Most noted that they adjust their schedules to accommodate for the inclusion of visiting a pre-scheduled location at a particular time. One company specifically noted that timed tickets are challenging while another company suggested that the difficulty level can vary depending on traffic and how quickly the group seems to be moving through their schedule that day.

TABLE 6.10: IMPACTS OF TIMED TICKETS ON ITINERARIES AND TRANSPORTATION.

Company	Impacts of Timed Tickets
A	Day is scheduled around those locations (usually U.S. Holocaust Memorial Museum and the Washington Monument)
B	Depends on traffic and group promptness
C	Difficult working around itinerary
D	*
E	Other visits become secondary, but this is not a problem
F	**

*This company does not include visits to locations needing timed tickets

**No response given.

6.4.2.10 Strategies for Managing Traffic Congestion

When faced with traffic congestion, all of the tour bus operators except Operator D noted that drivers add time into their schedules to allow for traffic congestion while in D.C. If, however, they do get behind schedule, each company has a slightly different approach to making up for lost time (Table 6.11). For example, Operators A, B, C and F make some kind of adjustment to the schedule while Operator E collaborates with the host hotel to develop best driving strategies for the day. In addition, Operator E does not allow new drivers to work in D.C. without assistance from a senior driver. Drivers working with Operator D do not attempt to make up for lost time.

TABLE 6.11: STRATEGIES FOR MANAGING TRAFFIC CONGESTION

Company	Strategies for Managing Traffic Congestion
A	Eliminate items from itinerary or shift items to a different day of the tour
B	Skip stops or shorten time at stops
C	Change schedule or cancel item
D	Drivers do not attempt to make up lost time and do not account for traffic congestion
E	High awareness of High Occupancy Vehicle (HOV) lane openings/closures Include senior driver with new drivers Work with hotels to discuss driving strategies
F	Make schedule adjustments and relay them to the group

Operators

A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes

B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)

C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles

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E Tours to US and international; ~2,500 DC buses annually; origin NC and US; mid to large buses (29+ person vehicles)

F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

6.4.2.11 Parking Fees and Meters

With respect to parking, most operators were willing to pay at some level, with perceptions of reasonable fees ranging from \$1/hour to \$20/hour (Table 6.12). One operator suggested that it would be helpful to:

... think about charging a bus company during the high months (e.g. Spring/Fall) and use the Hains Point area during that time. They (the HP spaces) appear vacant to the drivers most of the time so it appears to be an extreme loss of parking and drivers can't see rationale. The perception is that it must be much more offensive to bikers to have to ride behind buses who are trying to see if one of the 6 spaces are available than it would be if the buses were just parked there. Then, close off to buses for months where bus traffic isn't the highest.

Regarding NPS-proposed parking meters, operators were asked to indicate any concerns they had. Operators noted concerns such as cost, length of stay, availability to drivers for short term pick-up/drop-off, the presence of law enforcement to ensure cars did not take up bus spaces and the availability of special spaces for buses needing to deploy wheelchair lifts (Table 6.12).

TABLE 6.12: PARKING FEES AND METERS

Company	How Much per Hour is Reasonable to Pay for Parking Close to D.C. Sites?	Concerns Regarding Proposed Bus Parking Meters
A	\$5 / hour	Cost Limited availability Length of stay
B	\$10–20 / hour	Cars will park there — like Cherry Blossom Festival Too short of time allowed to accommodate group
C	We should not have to pay for parking due to revenue brought to city from clients.	Method of payment for drivers One bus arriving and staying all day
D	\$10 / hour	Will we be able to briefly pick-up/drop-off fee free? Will there be police present to keep cars out of bus slots? Will there be special locations for buses needing to deploy wheelchair lifts?
E	Depends on proximity, e.g. \$1 / hour is reasonable for bus to park within 1–2 miles of site.	For cars and buses? Will length of space accommodate bus?
F	No price indicated. Noted: Increasingly expensive to travel to D.C. — adding parking to various venues adds to the price burden. Some tour groups choosing closer to home trips due to increased expense of D.C. travel.	It will add another expense that trips cannot bear

Operators

- A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes
- B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)
- C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles
- D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles
- E Tours to US and international; ~2,500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)
- F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

6.4.3 Tour Bus Client Results

For the purposes of this study, tour bus clients are defined as the individuals who represented a tour group visiting NAMA and were present during the tours. Representatives from each of four client groups provided information on their basic characteristics and details regarding the groups' most recent trips to D.C. To maintain confidentiality, each client was designated a letter of the alphabet; thus, the following analysis will refer to Clients A, B, C and D.

6.4.3.1 Client Characteristics

Section A of the questionnaire invited tour bus clients to share four characteristics: 1) the group represented; 2) tour bus companies preferred by the group; 3) number of tour buses used on a typical D.C. visit; and, 4) restroom availability on buses used by the groups.

Groups represented included a public middle school, two groups of international travelers from South Korea and Honor Flight Network veterans (Table 6.13).

TABLE 6.13: TOUR BUS CLIENTS: GROUP CHARACTERISTICS

Client	Group Characteristics
A	Public middle school group originating from the northeastern U.S. Tour included primarily youth ages 12-15 and accompanying school personnel.
B	Adult group originating from South Korea. Tour included primarily adults ages 50-60 years old.
C	Adult group originating from South Korea. Tour included primarily adults ages 50-60 years old.
D	Honor Flight Network tour. Tour included World War II veterans and their companions, ages 70-90+ years old.

Table 6.14 summarizes the preferred tour bus companies, number of tour buses used during a typical visit to D.C. and restroom availability. Three clients had a particular bus company preference while Client C chartered from a variety of bus companies. The number of buses used on a typical D.C. visit ranged from 1 to 5. All clients selected tour buses with restrooms.

TABLE 6.14: TOUR BUS USAGE

Client	Tour Bus Companies Preferred	Number of Buses on Typical D.C. Visit	Buses Equipped with Restrooms?
A	Capital Tours, Inc.	4	Yes
B	Capital Executive Transportation	1	Yes
C	Charter from various bus companies	4	Yes
D	Dillon's Bus Service	2	Yes

Respondents next shared details of their most recent trip to D.C. All client groups had completed trips within three months or less of the data collection period. All groups had adult travelers, two included school-aged children and three included seniors (Table 6.15). English was the primary language spoken among the groups identified by Clients A and D, while Korean was the primary language spoken for the groups represented by Clients B and C. The Korean groups included Korean-speaking tour guides. Two groups required assistive devices for at least one member of their tour group.

TABLE 6.15: CLIENT DEMOGRAPHICS OF MOST RECENT TRIP TO WASHINGTON, D.C.

Client	Group Size	Average Age	School-aged in Group?	Adults in Group?	Seniors in Group?	International Travelers in Group?	Military Personnel in Group	Any Member Used Assistive Device?	Language Interpreter Used?
A	190	14	Yes	Yes	No	No	No	Yes	No
B	53	55	No	Yes	Yes	Yes	No	No	Yes
C	40	55	Yes	Yes	Yes	Yes	No	No	Yes
D	85	75	No	Yes	Yes	No	Yes	Yes	No

Clients

A Public middle school (12–15 yrs old), NE US

B Adults (50–60 yrs old), South Korea

C Adults (50–60 yrs old), South Korea

D Seniors (70+ yrs old), Honor Flight

6.4.3.2 Itineraries

Each client group visited a wide range of sites within the greater D.C. area (Table 6.16). Destinations included monuments, memorials and Smithsonian museums. All four client groups visited the Lincoln Memorial, but otherwise, itineraries varied significantly.

TABLE 6.16.: SITES VISITED DURING MOST RECENT TRIP TO WASHINGTON, D.C.

D.C. Destination	Client A	Client B	Client C	Client D
Air Force Memorial				X
Arlington National Cemetery	X			X
Ford's Theatre National Historic Site	X			
Franklin Delano Roosevelt Memorial	X			
Korean War Veterans Memorial	X		X	X
Lincoln Memorial	X	X	X	X
Marine Corps War Memorial (i.e., Iwo Jima Memorial)				X
Martin Luther King Jr. Memorial	X			
Mount Vernon	X			
National Air and Space Museum	X			
National Museum of American History	X		X	
National Museum of the American Indian	X			
National Museum of Natural History	X			
Newseum	X			
Pentagon Memorial				X
Smithsonian museums*		X		
Thomas Jefferson Memorial		X	X	
U.S. Capitol			X	
U.S. Capitol Visitor Center	X			
U.S. Holocaust Memorial Museum	X			
U.S. Navy Memorial				X
U.S. Supreme Court	X			
Vietnam Veterans Memorial	X			X
White House**	X	X	X	
World War II Memorial	X			X

*Museum names not specified.

**Groups A and C viewed the White House from the street for pictures.

Itineraries for each client were designed by either the tour company hired or the client group (Table 6.17). Two of the four groups were able to visit all destinations desired. However, Clients A and C were not able to visit the interior of the White House, primarily because of the advance notice required to do so. In addition, Client A was not able to visit the interior of the U.S. Capitol, the U.S. Supreme Court or the National Archives. Their group represented middle school students. As such, the tour leader stated that long lines in exposed areas and the size of the group were prohibiting factors.

Adhering to a specific timeline is often a challenge for many tour group operations within NAMA. While these respondents did not encounter problems with adhering to their most recent itineraries, Client A did note that in the past, weather had created timeline challenges. Only Client A used timed tickets during the most recent visit.

TABLE 6.17: ITINERARY DEVELOPMENT AND IMPACTS

Client	Who Created Itinerary?	Desired Destinations That Group Was Unable to Visit	Reasons for Inability to Visit Desired Destinations
A	Tour company with input from school teachers	National Archives White House tour Interior of U.S. Capitol U.S. Supreme Court	Long lines in sun and too long of a wait Group is large – hard to balance wait time with students
B	Tour company	None	n/a
C	Client C planners	Interior of White House	Needed recommendation in advance to visit inside
D	Client D planners	None	n/a

Clients

- A Public middle school (12–15 yrs old), NE US
- B Adults (50–60 yrs old), South Korea
- C Adults (50–60 yrs old), South Korea
- D Seniors (70+ yrs old), Honor Flight

6.4.3.3 Participant Feedback

Among the four client groups, Clients A and B reported that they gathered feedback from participants after their most recent visit to D.C. while Clients C and D did not. Client A gathered a breadth of information regarding destination rating, time management, meal satisfaction, a special outing (i.e., boat trip), flight satisfaction, preparation improvement suggestions, additional comments and bus utilization. Client B collected data regarding the bus, the guides and the food.

6.4.3.4 Improving Experiences

Clients were asked to detail suggestions they have learned that would assist others in having a successful visit to D.C. Client A was the only respondent to offer advice. Suggestions pertained to bringing student groups and included the following: room as close to city as possible; have security guards so teachers can sleep at night; consume big breakfasts, lunches and dinners; schedule in time for students to choose museums to visit; bring reusable water bottles, although there are not enough filling stations; have students dress in layers; ban electronic devices for students, as they are a distraction; be flexible and willing to change itineraries; always reexamine what tour operator suggests by doing “common sense” tests; count off system for large groups and review every stop; have students use a buddy system; wear comfortable shoes; bring extra flip flops on bus for students, as someone always breaks theirs; select museums and destinations for students carefully – do what they want to do; try to end on a high note, i.e., a tour of the U.S. Holocaust Memorial Museum right before you head home is depressing for students.

Clients

- A Public middle school (12–15 yrs old), NE US
- B Adults (50–60 yrs old), South Korea
- C Adults (50–60 yrs old), South Korea
- D Seniors (70+ yrs old), Honor Flight

6.4.4 Combined Results: Operator and Client Self-Reports

Both tour bus operators and tour bus clients responded to items regarding perceived benefits of visits to D.C. For comparison purposes, the results from both perspectives were merged. Perceived benefit areas were specific to overall followed by health, recreation and education. Respondents were then asked to rate the feasibility of enhancing these same four benefit areas and then urged to offer specific suggestions for enhancing benefits.

6.4.4.1 Overall Benefits

Both tour bus operators and clients perceived a wealth of overall benefits for those who participated in their tours (Table 6.18). A common benefit noted was the opportunity for tour groups to learn about how a democracy works as well as the political and historical significance of the U.S. government. Both groups also noted the value of tour bus travel in that it allows participants to visit D.C. economically and efficiently.

Among operators, it was further noted that tour participants are able to experience various cultures and the beauty of D.C. while contributing positively to the local economy and engaging in a sustainable practices by using motorcoaches rather than visiting in separate automobiles. Tour bus clients noted benefits of understanding citizenship, being comfortable, and, in the case of the client group that serves military veterans, it was noted that participants are afforded the opportunity to observe how the American public feels about their past service and sacrifices.

TABLE 6.18: PERCEIVED OVERALL BENEFITS OF PARTICIPATING IN A WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
Experience culture and diversity; observe diverse people (race, creed, religion) working together	Culminating 8th grade activity — theme of citizenship; connects to U.S. history studied
Understand greatness of U.S.	Comfortable transportation
Understand history	Professional tour guide
Understand how democracy and government work	Can visit most important tourist sites in limited time
Enjoy the beauty of city	Learning about political, historical and social aspects of U.S. capital city
Convenience for passengers	Veterans can see how American public feels about their service and sacrifice during war
Affordability	
Contributing to local economy	
Contributing to clean environment through use of motorcoach	

Ideas for enhancing overall benefits were limited among tour bus operators and related to the inclusion of more interactive experiences and participant free time to visit museums of choice (Table 6.19). Tour bus clients, however, suggested a variety of enhancements specific to circulation, lighting, food, bathrooms, water and information.

Operators	Clients
A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes	A Public middle school (12–15 yrs old); NE US
B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)	B Adults (50–60 yrs old); South Korea
C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles	C Adults (50–60 yrs old); South Korea
D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles	D Seniors (70+ yrs old); Honor Flight
E Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)	
F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

TABLE 6.19: IDEAS TO ENHANCE OVERALL BENEFITS OF PARTICIPATING IN WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
More hands-on and detailed experiences Include free time to visit museums and other guided activities	Simpler ways of moving around, i.e. drop-off and pick-up locations Better night lighting near monuments because kids have gotten lost and it's easy to get turned around at World War II Memorial, for example Better food on the National Mall More accessible bathrooms More accessible water stations Slideshow showing more period information, e.g. Ford's Theatre, would help kids visualize what is happening Kiosks showing mini videos at key sites along mall Would like to use NPS National Mall app, but downsides of cellphones for kids far outweigh upsides More parking lots More sites to visit at night Improvements in traffic Improvements in bus parking

6.4.4.2 Health Benefits

Among the operators and clients, physical exercise was identified as a primary health benefit (Table 6.20). Direct impacts of being able to engage in peaceful and less stressful visits to D.C. since tour participants were not required to drive were also noted as was the health benefit of contributing to less air pollution. Client D made a special note of the emotional health benefit to veterans on an Honor Flight tour of being able to experience gratefulness from the public.

TABLE 6.20: PERCEIVED HEALTH BENEFITS OF PARTICIPATING IN A WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
Exercise from walking Peacefulness Less stress since they are not driving Clean environment from reduced air pollution	Lots of walking / physical exercise Experiencing gratefulness from (the) public; in most cases it's the first time veterans have experienced this

Tour operators and clients shared how feasible they believe it would be to increase the potential health benefits for their participants (Table 6.21). Most of the operators and clients were neutral in their responses, suggesting that they do not have strong opinions on this topic. Three of the six operators did not respond to this item.

When asked to provide ideas for how health benefits might be enhanced on a D.C. tour, ideas from tour operators focused on risk, fume reduction and circulation (Table 6.22). Tour bus clients, on the other hand, focused on individual needs of participants by suggesting better food, more water filling stations or alternative water options, shaded areas and more accessible paths.

Operators	Clients
A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes	A Public middle school (12–15 yrs old); NE US
B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)	B Adults (50–60 yrs old); South Korea
C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles	C Adults (50–60 yrs old); South Korea
D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles	D Seniors (70+ yrs old); Honor Flight
E Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)	
F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

TABLE 6.21: FEASIBILITY OF INCREASING HEALTH BENEFITS

Respondent	Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible
Operator A*					
Operator B			X		
Operator C*					
Operator D			X		
Operator E*					
Operator F			X		
Client A		X			
Client B			X		
Client C				X	
Client D			X		

*No response given.

TABLE 6.22: IDEAS TO ENHANCE HEALTH BENEFITS OF PARTICIPATING IN A WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
Reduced risk regarding accessing bus in unsafe areas Reducing fumes from bus motors in operation To keep charter buses out of D.C., look at old Boeing Air Force Base or other locations in Maryland and Virginia – would it be feasible to have a central location that charter buses come to and the Circulator picks them up and takes them to city? Most companies would likely be willing to pay for something like this and the Circulator bus operators know the city better than charter bus drivers and would know about daily changes in traffic.	Better food More water filling stations Offer mineral water Shaded areas with benches to cool down in hot weather and for thunderstorm cover Gravel paths hard for strollers, people in wheelchairs or people with mobility challenges

6.4.4.3 Recreational Benefits

Operators and clients noted a variety of recreational benefits including exercise, spending time with friends and family, and meeting or engaging with new people and sightseeing (Table 6.23).

TABLE 6.23: PERCEIVED RECREATIONAL BENEFITS OF PARTICIPATING IN A WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
Exercise from walking Being with family and friends	Chance to see U.S. Capitol Be with friends and teachers See museums and monuments Tour guide was fun and kind Fun day to meet new people

Tour operators and clients shared how feasible they believe it would be to increase the potential recreational benefits for their participants (Table 6.24). Most of the operators and clients were neutral in their responses, suggesting that they do not have strong opinions on this topic. The exceptions were Operator E who believed it was very unfeasible to increase recreational benefits for participants and Client A who believed it was very feasible to increase recreational benefits. Two of the six operators did not respond to this item.

Operators	Clients
A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes	A Public middle school (12–15 yrs old); NE US
B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)	B Adults (50–60 yrs old); South Korea
C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles	C Adults (50–60 yrs old); South Korea
D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles	D Seniors (70+ yrs old); Honor Flight
E Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)	
F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

When asked to provide ideas for how recreational benefits might be enhanced on a D.C. tour, no ideas were provided by tour bus operators (Table 6.25). Tour bus clients suggested creating itineraries for those with specialized interests such as animal lover tours, developing youth-oriented scavenger hunts, providing distance markers to allow recreational walkers/joggers to quantify distances and suggesting mini-exercise activities for participants.

TABLE 6.24: FEASIBILITY OF INCREASING RECREATIONAL BENEFITS

Respondent	Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible
Operator A*					
Operator B			X		
Operator C*					
Operator D			X		
Operator E					X
Operator F			X		
Client A	X				
Client B			X		
Client C				X	
Client D			X		

*No response given.

TABLE 6.25: IDEAS TO ENHANCE RECREATIONAL BENEFITS OF PARTICIPATING IN WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
Everything is already there that you need to do.	Distances marked so people could walk and jog and know how far they went. Suggested itineraries for people interested in certain subjects, such as museum exhibits, veterans tours, animal lover tours, history tours, that could be pre-printed and used by tour groups Museum scavenger hunts for kids to get them to engage in locations more. Mini-exercise suggestions (stretching, jumping jacks, etc.)

6.4.4.4 Educational Benefits

The most commonly mentioned educational benefit was specific to historical knowledge and learning (Table 6.26). Operators noted benefits pertaining to learning about society, current politics, future planning and igniting/encouraging additional education. Clients centered more on their group type; for instance, Client A shared the educational value of students engaging in a complementary service learning project as a critical outcome while C specifically noted potential educational benefits to foreign visitors in terms of understanding history of the U.S.

TABLE 6.26: PERCEIVED EDUCATIONAL BENEFITS OF PARTICIPATING IN WASHINGTON, D.C. TOUR

Operator Perspectives	Client Perspectives
Learn about history Learn about current politics Understand how to plan for future Ignites inquisitiveness Encourages more studying Encourages continuing education	Learn about history Learn about society Complements service learning project – each kid has been active in a Citizen Action Group of choice throughout year planning and completing service projects Learn about Washington, D.C. Museums and monuments offer new understanding about U.S. history to foreign visitors

Operators

- A** Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes
- B** Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)
- C** Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles
- D** Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles
- E** Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)
- F** Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

Clients

- A** Public middle school (12–15 yrs old); NE US
- B** Adults (50–60 yrs old); South Korea
- C** Adults (50–60 yrs old); South Korea
- D** Seniors (70+ yrs old); Honor Flight

Tour operators and clients shared how feasible they believe it would be to increase the potential educational benefits for their participants (Table 6.27). The most common response given by operators and clients was “neutral,” suggesting that they do not have strong opinions on this topic. Notable exceptions are Operator D, who indicated that is very unfeasible to increase educational benefits and Client A, who indicated it is very feasible to increase educational benefits.

Operator ideas for enhancing educational benefits of participating in D.C. tours included better signage, the use of on-site speakers, general guides and period costumed guides. Clients also suggested greater use of guides as well as contests and creating opportunities for participants to see demonstrations (Table 6.28).

TABLE 6.27: FEASIBILITY OF INCREASING EDUCATIONAL BENEFITS

Respondent	Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible
Operator A*					
Operator B			X		
Operator C*					
Operator D			X		
Operator E					X
Operator F		X			
Client A	X				
Client B			X		
Client C				X	
Client D			X		

*No response given.

TABLE 6.28: IDEAS TO ENHANCE EDUCATIONAL BENEFITS OF PARTICIPATING IN WASHINGTON, D.C. TOUR

Tour Bus Operator Perspectives	Tour Bus Client Perspectives
Better signage On-site speakers Guides to allow for questions Period costumed guides Current education benefits are phenomenal, but may be underestimated and under-marketed	Touring guides aimed at school groups Fun contests – Park Service Rangers are awesome and have been, engaging, invaluable and great at answering student questions More consistently good tour guides; have been mixed in terms of engaging the audience well Love seeing demonstrators at the White House – people need to see First Amendment in action!

6.4.4.5 On-site Travel Modes Used

Respondents were invited to indicate the modes of transportation used once on-site at NAMA (Table 6.29). With the exception of Honor Flight veterans, all respondents who answered this question indicated that walking is common, while only one indicated alternative public or private transport in the form of loop services and Metrorail.

Operators	Clients
A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes	A Public middle school (12–15 yrs old); NE US
B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)	B Adults (50–60 yrs old); South Korea
C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles	C Adults (50–60 yrs old); South Korea
D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles	D Seniors (70+ yrs old); Honor Flight
E Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)	
F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

TABLE 6.29: ON-SITE TRAVEL MODES USED

Respondent	On-site Travel Modes Used
Operator A	Additional motorcoach pick-ups and transfers Walking where motorcoaches are restricted
Operator B	Walking
Operator C	Walking
Operator D	Walking first Private tour buses running loop services Metro subway system last
Operator E	Walking
Operator F	Groups walk between museums (e.g., drop-off: Air and Space; pick-up: American History Museum)
Client A	Walking: we do a ton of walking Bus
Client B*	
Client C	Buses between stops Walking to individual sites from bus pick-up/drop-off
Client D	Use buses to get to all of our stops

*No response given.

6.4.4.6 Maximizing the On-site Pedestrian Experience

Respondents were asked to share ideas for what might be done to maximize a tour group's pedestrian experience to decrease the number of bus pick-ups and drop-offs (Table 6.30). Responses from operators were specific to the provision of better services and an improved transportation infrastructure while clients additionally noted that careful itinerary planning can lead to improvements.

TABLE 6.30: MAXIMIZING THE ON-SITE PEDESTRIAN EXPERIENCE

Respondent	Suggestions for Improving the Pedestrian Experience
Operator A	If walking is mandated, provide seasonal items for tour participant comfort free of charge, e.g. umbrellas
Operator B	More restrooms Better pathways Small tourmobiles for people with disabilities
Operator C	More parking
Operator D	More Metro loop buses with one-fee all-day pass Offer RFK or Union Station as a base location for coaches (no tour/charter coaches on the National Mall and use Metro loop buses accordingly)
Operator E	Infrastructure, but not pedestrian overpasses (those are gaudy) – underwalkways Stoplights and crosswalks across major roads are quite dangerous – but not sure what best strategy is for pedestrians to have to make these crossings. We want to take the tour bus to the place that is closest to those areas where tour groups do not have to cross streets.
Operator F	Drop-off and pick-up zones neared all of the locations which require timed entrances
Client A	Sometimes it is better planning on our part (watching the clock more carefully, not having to wait for kids). Traffic always awful and the monuments at night are challenging. Better food option and water stations. Kids love the sculpture garden by Natural History and putting hot feet in the fountains. Ice cream vendors are always a hit. Clearly marked signs with large letters saying "Air and Space ¼ mile across National Mall" etc. would really help. Large readable signs with maps that are labelled with names and "You are here" symbols. Better pick-up and drop-off locations. It is chaos with all the buses!

Operators

- A** Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes
- B** Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)
- C** Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles
- D** Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles
- E** Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)
- F** Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes

Clients

- A** Public middle school (12–15 yrs old); NE US
- B** Adults (50–60 yrs old); South Korea
- C** Adults (50–60 yrs old); South Korea
- D** Seniors (70+ yrs old); Honor Flight

Respondent	Suggestions for Improving the Pedestrian Experience
Client B*	
Client C*	
Client D	We do not wish to reduce the number of stops

*No response given.

6.4.4.7 Client Use of D.C. Circulator and Metrorail

Tour bus clients were asked to indicate their willingness to put tour group members on the D.C. Circulator or Metrorail as part of their itinerary (Table 6.31). Only Client A was willing to consider using these modes of transportation if they could be implemented efficiently and cost effectively. Clients B, C and D replied that they would not use these modes of transport because they were perceived to be too difficult for participants to negotiate, were not time effective and did not go to desired locations.

TABLE 6.31: USE OF D.C. CIRCULATOR AND METRORAIL

Respondent	Would you be willing to put tour group members on the D.C. Circulator or Metro as part of your itinerary?	Rationale for Response
Client A	Yes	As long as it was manageable and did not add significantly to our costs. We hire tour guides that are with us the entire time and we use all bus time with them fully! Not sure what the Circulator is. I also happen to love guided bus tours if the guides are good.
Client B	No	Too many people, hard to find, control
Client C	No	Time limit concerns, can have similar experience in any other big city in the world
Client D	No	The Metro does not go where we want to go

6.4.4.8 Concerns and Complaints when Bringing Tour Groups to Washington, D.C.

Tour bus operators were invited to share their primary concerns and complaints when sending tour groups to D.C., as well as the issues raised by their drivers and customers. Tour bus clients asked to share what their personal concerns and complaints when bringing tour groups to D.C. (Table 6.32).

TABLE 6.32: CONCERNS AND COMPLAINTS WHEN BRINGING TOUR GROUPS TO WASHINGTON, D.C.

Respondent	Primary Concerns and Complaints
Operator A	Lack of parking Lack of convenient drop-offs Law enforcement Auto traffic congestion Permit fees Inaccessibility of motorcoach
Operator B	Lack of information Lack of control of intersections by D.C. Police Lack of understanding by U.S. Park Police about bus loading policy Little available help if bus has mechanical issue The theory that if the police prevent buses from parking, they will just go away when, in fact, they ride around creating more pollution The apparent glee that U.S. Capitol Police demonstrate by forcing buses to move just as the group returns to be picked up Need for more formal food stops, e.g. food courts

Operators	Clients
A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes	A Public middle school (12–15 yrs old); NE US
B Tours to US and Canada; ~600 DC buses annually; origin NE US, France and Germany; mid to large buses (20+ person vehicles)	B Adults (50–60 yrs old); South Korea
C Tours to US East coast and Northeast; ~500 DC buses annually; origin worldwide; 30-person vehicles	C Adults (50–60 yrs old); South Korea
D Tours to US; ~200 DC buses annually; origin PA; 54-person vehicles	D Seniors (70+ yrs old); Honor Flight
E Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)	
F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

Respondent	Primary Concerns and Complaints
Operator C	No place to park Street closings Not enough time to see everything
Operator D	Lack of parking space for our coaches with protection from the elements. We cannot idle for clean air reasons so to have a building to shelter drivers all day from extreme heat or cold. Sitting inside a tour bus during the summer temperatures reach 140 degrees. Sitting outside the coach on the hot macadam is little relief for the summer weather as the black asphalt retains heat. During the winter a driver will freeze in the coach. Are you aware some drivers bring portable heaters to heat the bus inside during a long layover to keep warm because they cannot idle the bus and there is no building close by to go into to escape the cold weather? Police eager to chase us away when trying pick up our passengers on the National Mall. The RFK stadium should be open all year long for coaches to park there with more loop buses and Metro trains to get the passengers into and around the Mall area all day to all the monuments, memorials and museums. Clients expect us to provide door to door type service all day in Washington and we are unable because it is a long day for us and the drivers need off-duty time to remain in compliance with FMCSA regulations.
Operator E	Drop-off and pick-up locations Parking Groups don't understand that when we roll up to the Capitol we have 45 seconds to drop off. And, don't understand that everyone must be there when a bus rolls up to pick them back up again. They do understand it's challenging, but we hear the comments that it would be nice if there was a more relaxing drop off location. Same with Smithsonian Air and Space.
Operator F	Parking Unfriendly and overzealous cops How hard it is to get to see certain things because of ticket restrictions such as the Capitol, Holocaust, National Archives, Fords Theatre, the Bureau of Printing and Engraving, etc. – many larger tour companies book all the time slots on all the popular days and do not release them once they have scheduled their groups.
Client A	We are exhausted by the end with all the walking we do and because we come for 3 days with tons of kids and try to see a LOT of the city. We prefer vendors on streets for souvenirs to shops. Food is tougher due to group size and locations. Screenings like at Reagan building where we eat lunch do take time. Can't always get in places like the Capitol Visitor Center. Bathrooms and water fountains are a perennial problem and we try to have the kid bring reusable water bottles.
Client B	The tour guide couldn't get into sites with the group, because he had to stay in the vehicle (because of the parking) Using 15-person van — very hard to drop-off and pick-up people at Lincoln circle because van not permitted to enter)
Client C	DOT checks and road blocks
Client D	Traffic congestion

6.4.4.9 Additional Comments

The final item on both the operator and client questionnaires invited respondents to share any additional comments (Table 6.33). Operators A, B and E responded with a variety of comments including perspectives regarding the use of Circulator vehicles, responses to route changes and associated bus drop-off and pick-up issues, and an offer to participate directly in additional bus traffic discussion meetings.

Operators	Clients
A Tours to NE region of US; ~435 DC buses annually; origin OH and PA; range of bus sizes	A Public middle school (12–15 yrs old); NE US
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E Tours to US and international; ~2500 DC buses annually; origin NC & US; mid to large buses (29+ person vehicles)	
F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

TABLE 6.33: ADDITIONAL COMMENTS

Respondent	Comments
Operator A	Use of Circulator vehicles is going to lead to congestion and it will not allow for flexibility, appropriate vehicle size, or special access. It will cause increased cost, issues with scheduling and transferring groups. Additionally, the group will be forced to leave their safe, secure motorcoach for the use of a public Circulator.
Operator B	I liked the changes in Potomac Park that made the drive one way from Jefferson to Lincoln. However, it would have been nice to have at least one or two signs advising of that fact on the routes inbound to D.C. Many buses were not able to make scheduled pick-ups because the normal route was closed. Also, if you are going to create a mile of bus drop-off and pick-up on the drive, it might be better used for bus parking as my observation was that the park police threw the buses out immediately after they unloaded and refused to let them back in unless the groups were standing next to the road. In the 4 days I was there, the bus loading areas were empty and few buses used them because the police did not have a good understanding that the bus needed to be parked there 15-20 minutes to accommodate passengers returning at different rates of speed due to age, physical abilities and condition.
Operator C*	
Operator D*	
Operator E	Would welcome being invited to any conversations with DOT, NPS, GMU folks...very willing to openly discuss with folks and learn about what kinds strategies are being used to address and impacts. (Operator) recognizes he may not be aware of negative impacts to all sides regarding various decisions and is very open to learning. Would be happy to participate to make it better for everyone. Very willing to travel to D.C. for such a meeting.
Operator F*	
Client A	Thank you for asking our opinions!
Client B*	
Client C*	
Client D*	

*No response given.

Operators	Clients
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F Tours to US and Canada; ~150 DC buses annually; origin NC, TN and SC; range of bus sizes	

APPENDIX A: COVER SHEET FOR LOADING AND UNLOADING ZONES DATA COLLECTION

(Please be sure to hand this in with completed data sheets)

Researcher Name: _____

Date: _____

Start Time: _____ am/pm End Time: _____ am/pm

Approximate Temperature: _____ °F

Day of Week: Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Weather Conditions: Sunny Partly Sunny Cloudy Light Precip (rain/snow) Heavy Precip (rain/snow)

Weather Comments:

Research Zone (please circle one)

- 1 = Lincoln Memorial, North, Henry Bacon Dr. between Constitution Avenue and Lincoln Circle
- 2 = Lincoln Memorial, South, Daniel French Dr. between Lincoln Circle and Independence
- 4 = Natural History Museum, Madison Dr. at 9th Street
- 5 = National Air and Space Museum, Jefferson Dr. at 7th Street
- 6 = National Museum of the American Indian, Jefferson Drive between 3rd and 4th Streets
- 7 = Ellipse, 15th Street, NW between Pennsylvania Avenue and Constitution Avenue
- 8 = World War II Memorial, Homefront Dr.
- 9 = Thomas Jefferson Memorial, East Basin Dr.
- 10 = National Museum of American History, Madison Drive between 12th and 14th Street
- 13 = Ford's Theatre, 500 block 10th Street
- 14 = Ford's Theatre, North, 600 Block 10th Street
- 15 = Ford's Theatre, West, 1000 block F Street
- 18 = Franklin Delano Roosevelt Museum / Martin Luther King, Jr. memorial, West Basin Drive
- 20 = 14th Street, west side of Ronald Reagan Building
- 22 = Constitution Avenue, eastbound between 23rd and Henry Bacon Drive
- 23 = Constitution Avenue eastbound between Henry Bacon Drive and 21st
- 25 = Constitution Avenue eastbound between 19th and 18th and Constitution eastbound between 18th and 17th
- 27 = Constitution Avenue westbound in front of National Archives
- 28 = U.S. Holocaust Memorial Museum, 100 Raoul Wallenberg Place

APPENDIX B: DATA COLLECTION INSTRUMENT FOR LOADING AND UNLOADING ZONES DATA COLLECTION

Off-Vehicle Information

Questionnaire # _____

1. Circle the style of bus which best represents the bus you are observing (BE SURE TO ALSO TAKE PHOTO OF BUS):



If other, please take a photo & indicate the photograph # here

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
(e.g. open-top, 2-deck, trolleys, etc)

NPS visitor bus

School bus
of any size

Other type of bus:

BUS INFORMATION

2	3	4	5	6	7	8	9	10	11	12
Bus Company OR School bus/group name	Full DOT #	Last 3 digits of LICENSE PLATE	Did bus pull in within the loading zone? (circle one)	Did bus load or unload? (circle ALL that apply)	Did bus unload at the curb? (circle one)	If NO to #7, please describe where bus unloaded or loaded...	Bus Pull-in Time (e.g. 9:15 a.m.)	Bus Pull-out Time (e.g. 9:30 a.m.)	Engine Idling Time (circle one)	Notes : Additional observations not collected in other columns
			No Yes	Loaded Unloaded Neither	No Yes n/a				< 3 min. 3-10 min. > 10 min.	

PASSENGER INFORMATION

13	14	15	16	17	18
Are there passengers on the bus? (circle one)	Orderliness of passenger entrance/exit to bus (circle one)	Approx # of passengers in each age group	Did any group members use an assistive device? (e.g. wheelchair, walker)	Did you overhear any language besides English spoken?	Notes: Additional observations not collected in other columns
No Yes	Orderly Chaotic	Pre-teens (0-12 yrs) Teens (13-18 yrs) Adults (19-60 yrs) Seniors (60+ yrs)	No Yes	No Yes	

LOADING/UNLOADING ZONE ACTIVITIES

19	20	21	22	23	24	25	26
Was trash dumped at the site? (circle one)	If yes to #19, where was trash dumped?	Was any other waste dumped at the site? (circle one)	If yes to #21, what was dumped & where was material dumped?	ALL operational issues observed (circle all that apply)	General direction where the group headed after leaving the bus (briefly describe target monument, memorial, or museum)	If multiple buses in the group from the same company, indicate how many	Notes: Additional observations not collected in other columns
No Yes		No Yes		a. Bus stopped in zone beyond time needed to load/unload b. Bus pulling into traffic in dangerous way c. Bus blocking pedestrian traffic d. Bus blocking bicycle lane e. Bus blocking facility entrance f. Double parking g. Unloading/loading in a non-designated loading zone h. Unloading/loading on roadside (rather than curbside) i. Other-please describe in 26			

APPENDIX C: ALL COMMENTS AND OBSERVATIONS FROM LOADING AND UNLOADING ZONES DATA COLLECTION

Zone 1: Lincoln Memorial North	
24 March 2012	Just then loaded after long time / loaded at 10:17 a.m.
	Just parked then loaded at 10:15 a.m.
	No passenger off just stop by and pull out immediately.
	Come to pick up passenger.
	10:37 a.m started to leave but pulled over at the top of the loading zone and parked.
	Not a good crosswalk from Vietnam to loading.
	Took forever to load bus.
	Waiting for people to get food and beverage.
	No Passenger drop off or hop in.
	9:53 a.m. passengers begin to load.
	6 hop off / 4 hop in.
	6 April 2012
	Asian Tour Group.
	Asian Tour Group.
	Private vehicles Loaded/unloaded in bus zone.
	Private vehicles and other taxi curbs load/unload too.
	Private vehicles unloading.
	Private vehicles unloading.
	This zone is severely under-utilized.
22 May 2013	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked. Waited while people walked around.
	Parked. Walked to Lincoln memorial.
	Lots of buses unloading or stopping on Constitution and 22ng at Metro Bus Stop / Was very slow at first. With Multiple data collectors was close to an hour before my first one.
	Noticed several buses that appear to be circling an Constitution.
	Wanted to park - asked us if he could park influenced behavior here.
	After 9:30 a.m. Lots of cars parking still bus withstand beeping horn to make them move.
	Two private cars parked and the honked to make them leave and make space to park.
Zone 1 doesn't allow loading or unloading from 4:00 p.m. – 7:00 p.m.	
Stopped in the middle of the road.	
Zone 2: Lincoln Memorial South	
24 March 2012	Began idling 12:22 p.m. but not loading.
	Cop.
	Cop stopped by.
	Parked. Cop moved buses along.
	Cops came by and cleared out all buses.
	Caused delay for others.
	Idled the whole time.
	Passengers stayed for 5 min in the bus and then got off.
	Parked for a minute then left.
	Turn off the engine after stop.
	Bus stopped for 2 minutes w/ engine off.
	Did not stop; just came through and left.
	Turned off engine when unloading people but then turned it back on.
	Engine off stayed parked behind another bus for 12 minutes.
	Has parked behind another bus.
	Has parked behind another bus.
	Driver left vehicle with group moved when directed by police.
	One cane.

	One cane.
	One cane.
	A cane.
	A cane.
	Cane.
	Did not stay long enough.
	Quick stop and go. Did not stay long enough for anyone to load/unload.
	All of Asian descent.
	Holding up traffic because they are not moving.
	Blocking traffic. Moved up to provide more space.
	KISMET came back around 11:29 a.m.
	Pull in 11:37 a.m. Observed KING COAL still parked in loading zone. 11:50 a.m. – left.
	Bus driver refuse to load passengers. Caused confusion. Driver is just waiting.
	12:10 p.m. made a loop.
	8:42 p.m. Directed by police to move-on. Began idling.
	Only 1 bus parked on curb the others stopped in the street.
	50 on each bus.
	Van parked after passengers got off. Not causing any traffic congestion.
	Bus not moving because of the traffic problems.
	Stroller / Spanish.
	Unloaded 8 people: 1 child, 7 adults. Loaded 4 people: 2 children, 2 adults.
	Loaded - 1 child - 1 senior - 1 adult.
	3 adults loaded - 5 adults 2 kids unloaded.
	Loaded 2 kids 2 adults. Unloaded 4 adults 2 seniors.
	Circle and return.
	Pulled up and stopped (parked).
	Turned off engine.
	Quick unload.
	Did not stop.
	Passenger got on to ask a question then got off.
	Pulled up to loading zone (parked).
	Parked.
	RTW trip pick up passengers 000043.
	Driver left bus unattended.
	2 horse police came up, did not say anything to driver. Driver said to customer the bus was just a ticket bus.
	Did not cause congestion (at first).
	Unloaded. Moved forward to park.
	Pulled in backed up to park.
	Drove through loading area twice then parked.
	Washington Monument.
	Parked while unloading moved up and parked again.
	All buses stopped on curb to load.
6 April 2012	Unloaded into another old town trolley bus.
	All Asian.
	8 more elderly than young adults.
	Majority are 13-18.
	Passengers seemed rushed.
	Asian tour, orderly but a little rushed/rush to cross street.
	Zone 2 not 1.
	Zone 2 private vehicle idling.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
	Zone 2.
22 May 2013	Parking.
	Parking.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked, engine on at 7:40 p.m.

	<p>Engine turned on at 8.30 p.m. Idling. Loading began at 9:18 p.m. Created traffic by taking up space when other buses were trying to find places to load/unload. Created traffic, other buses were trying to find a space to unload/load. Around 9:10 p.m. another law-enforcement appeared. Bus blocking traffic. Police appeared around 8.30 p.m. and asked parked buses to leave. Jaywalk into WWII direction, looked dangerous. Second bus double parked. Not unladed at the curb. Jaywalk toward Korean War Monument. Jaywalk. Jaywalk. Jaywalk. Jaywalk. Jaywalk. After 7:00 p.m., so many buses violating loading/unloading, parking.</p>
Zone 4: Natural History Museum	
31 March 2012	<p>He did not load or unload. Just parked and left 40 minutes later. Driver came out to smoke but turned off engine. Same group returned at 1:15 p.m. RT 505/ engine still running/ still here when left at 2:00 p.m. #95/ still here when left at 2:00 p.m. There were 5 buses standing when we arrived. Standing without engines. They didn't pick up passenger. Just for parking. Standing forever. No idling. No pick up. Just standing for an hour. Standing without idling. In the middle of the road. the bus unloaded passengers. Just left without loading or unloading. Found it in front of the road, close to the Natural History Museum in a nondesignated loading zone. Standing and left without loading people. Standing and just left without loading people. Passengers began to load at 1:54 p.m. Move up to a nondesignated loading zone. College age kids. Unloaded food boxes. Mega with lots of traffic. Private cars parking in the spot. There are bicycle traffic too. Passengers begin to load at 1:20 p.m. Because of the wheelchair person it caused a traffic jam and then was honks and verbal complaints from other buses (bus driver). Korean. Korean. People begin to load at 1:59 p.m. and left at 2:04 p.m. We accidently documented this bus twice. Never loaded or unloaded. We got the same bus twice again. Stopped in street cross walk to pick up 2 people. Drivers approached the researcher and asked question about ticket. They commented on more parking spaces needed. Standing without idling. Wait passenger to come back. Loading/unloading zone is not clear. Zone must be clearly designated with better signage. Lots of private cars (family) load, unload or stand. Matt got the same bus. Matt got the same bus. One bus (venture) was standing all morning until 2:00 p.m. Finally they loaded passengers (teenagers of go a 100) and left at 2:00 p.m. Not sure if picture was taken, out of film. Just parking for about 20 minutes. Just parked for 20 minutes. Just pick-up one person (seemed to be tour operator) and left. Maybe because of the presence of researcher.</p>
6 April 2012	<p>Loaded at 2:30 p.m. Turned flashers on. Pulled up and parked at 11:57 a.m. with flashers. It took a while for all passengers to exit, but bus left right way. Pulled forward at about 12:10 p.m. Loaded at 2:00 p.m. A little in front of load zone. Loaded at 2:33 p.m.</p>

	One child got on 12:00 p.m.
	Was with previous ABOTT bus.
	Snack time at unloading station.
	Parked in the loading zone and main road.
	Came back 3:51 p.m.
	Came back at 3:51 p.m.
	Dumped coffee out, looked around to make sure no one saw.
	Came back around 3:46 p.m.
	Bus drivers talked to each other, noticed me and left.
	Bus drivers talked to each other, noticed me and left.
	Stop in front of fire hydrant.
	Penn State University group.
9 October 2012	Driver left vehicle unattended partly in crosswalk area.
	US Government Plates 030483.
	From Saint Paul's Private School.
	No DOT # - walked around bus and found nothing.
	Opened door but no loading or unloading.
	Sat and parked.
	Pulled into loading zone then moved to no loading zone and sat.
	Phone # 410-224-7222. 11:44 am moved forward and continued to park.
4 June 2013	Pulled past loading zone.
	Pulled past.
	Still parked when left at 3:45 p.m.
	Still parked when left at 3:45 p.m.
	Still parked when left at 3:45 p.m.
	Pulled into loading zone and then pulled passed it.
	Wheelchair.
	Parked.
	Parked.
	Parked.
	Parked and waited for group.
	Parked and waited for group.
	Parked; parked in a way that made it hard for any bus to unload.
	Parked; was there when began collection.
	Was parked when arrived at site.
	Was parked when arrived at site; really hindered the use of the load/unload zone.
	Was parked when arrived at site.
	Parked for a few minutes then the students came.
	Parked and then people came.
Zone 5: National Air and Space Museum	
4 April 2012	Pulled up no passengers; color-purple and white.
	Tan bus.
	Bus color: black and silver.
	No idle time; color blue/white.
	Idle complete time; color: white bus.
	Idle complete time; took picture with cop.
	Driver eating lunch in bus.
	Relocated to spot closer to entrance from 12.21 p.m.—12.24 p.m. then headed out; Frank's picture #8 (in crosswalk).
	Started idling again at 1:00 p.m.
	Started idling at 2:00 p.m.
	No DOT#; no license plate #.
	Just stopped then moved to another site.
	Stopped idling at 2:00 p.m.
	5 buses parked in loading and unloading zone when we arrived.
	Did not load or unload; no passengers.
	Asked what we are doing.
	5 buses were parked; undesignated when we arrived.
	5 buses parked before arrival.
	5 buses parked before arrival.
	Police pulled up behind and sounded siren. Bus moved immediately.
	Seats 40; In no standing lane for 2 hours.
	Parked in front blocking crosswalk and traffic.
	Driver left bus unattended.
	Girl on crutches.
	Police told to move.

	Student age.
	Unloaded in crosswalk.
	Note: 1:58 p.m. moved forward and parked.
	Cop told to leave.
	Stayed in cross walk.
	Police/cop is ticketing bus at 2:25 p.m., took license plate info.
	Police assisted to move bus promptly.
	Almost impossible to assess language differences in this crowd by air and space.
	Passengers loaded sporadically over about an hour's time.
	Used walker.
	No photo-white van.
	Police on bike. Everyone cleared out.
	Had a hard time telling age.
	Police on bike at 2:32 p.m. Got rid of everyone.
	6 people sitting on bus on arrival; Loading started at 12:55 p.m.
	Started loading at 1:35 p.m.; kids running wild.
	Started loading at 2:10pm.
	Started loading at 2:10pm.
	In a no standing zone.
	Blocking traffic.
	Blocking traffic.
	Air and Space Museum.
	Air and Space Museum.
	Air and Space.
	Driver left bus unattended.
	No rush; took their time.
	Once one bus pulls into the unauthorized zone others follow.
	Once one bus pulls into the unauthorized zone others follow.
	This bus returned at a later time.
	Bus stopped in no stopping/standing.
	Appeared to leave because we were watching.
	Bus blocking traffic then turning from the wrong lane.
	We documented the parked buses.
	May have influenced behavior, seemed to be looking for somewhere to park.
	It may make sense to turn this zone into a parking zone or 30 minute zone.
	It is unclear what this zone is, but appears to be nondesignated.
	Primarily parking in this zone-some loading and unloading witnessed.
	Just pulled up. Spoke to another researcher (Frank)-this bus had just moved from previous zone.
	Parking.
	Documented parked bus.
	Documented parked bus.
	Drivers asked what we were doing. Parked along no standing zone.
	No standing zone; cut engine off at 12:10 p.m.; Driver standing outside of bus.
	Quick Drop-off;
6 April 2012	Didn't do anything.
	Left engine on whole time.
	Turned engine off.
	Turned engine off.
	Engine turned off.
	Left engine on the whole time.
	Chatted with us and left engine on.
	Near the zone but slightly off out of the zone.
	Just standing no idling.
	No idling standing.
	No idling standing.
	No idling.
	Standing after unloading people no idling waited for tour operator to come back.
	Stopped but left soon after research arrived.
	Engine was off during the unloading after unloading bus is standing.
	Unloaded half in and half out of zone.
	People to people tour was using the bus.
	Some passengers got on, got stuff and left.
	Turn off engine right away.
	Small slide open door.
	Backed up to get into loading zone.
	See 950 for drop off.

	Adjusted and parked.
	Korean.
	Bus stopped in crosswalk, opened door, single passenger entered then bus left.
	No people loaded/unloaded.
	Passengers began to load at 1:26 p.m.
	Some passengers seem to finish their itinerary here and were picked up by someone.
	No unloading/loading.
	Student group.
	Student group.
	No loading people began to load 2:32 p.m.
	People began to load at 2:25 p.m. but student group headed to space museum again once they stop by the bus.
	Person on walker took an extended amount of time to get off the bus.
	Passengers were going into luggage stored underneath bus.
	Passed loading zone so backed up to get to curb.
	Passengers were slowly arriving.
	Left too quickly to take picture.
	Stayed on bus for a time before getting off.
	Just came and sat for 15 minutes.
	Multiple strollers were loaded.
	Unloaded stroller, moved up while waiting.
	Emptied luggage for about 8 people.
	Narrow space because taxi was double parked on the other side.
	Stopped then left shortly after.
	Working like a base camp students stop by and leave for other places.
	No picture was taken for this one.
	Stepped out to check the outside of the bus.
	Driver exited bus in order to get walker stored under bus and driver talked to passengers.
	Had to wait for passengers to arrive, who were not waiting.
	Passengers were not waiting to board so long loading.
	Sat for a half an hour and didn't load or unload.
	Finally left after unloading an extra 2 passengers.
Zone 6: National Museum of the American Indian	
4 April 2012	Pulled away at 11:39 a.m. and parked again.
	Bus drivers talking to each other to move out; driver said "parked here for hours".
	Pulled up and stopped again.
	2:14 p.m. – other bus drivers talking to each other from other companies; still parked at 2:45 p.m.
	Bus drivers talking, "See those people taking pictures of us".
	Parallel parked; still parked at 2:45 p.m.
	Still parked at 2:45 p.m.
	Idle from 2:32 p.m. – 2:37 p.m.
	Still parked at 2:45 p.m.
	Still parked at 2:45 p.m.
	Police passed and sounded his alarm; buses pulled out at police insistence.
	At 1:34 p.m., one woman got on the bus.
	7 pulled up at same time.
	Police officer came and noticed us taking notes.
	Saw us, decided to move out.
	Bus driver saw police and us, and then left.
	Pulled up and re-parked.
	Taekwondo van pulled up.
	Driver asked what we were doing.
	No one is moving.
	Police pulled up, a whole bunch left.
	This spot is used for parking even though it is loading and unloading only.
	Drivers talking to each other about cops.
	Taxi van pulled up-buses beeped at it to move.
	12:42 p.m. moved out of violation zone (curb cut).
	Still parked at 2:45 p.m.
	Everyone is parking and hanging out.
	We have seen this bus circle around multiple times and for the most part not stopping after the first time.
	Re: Cops "They have been chasing us. I have been going around the block"; As of 12:15 p.m. we have seen no passengers load or unload off a large tour bus.
	Drivers all complaining about cops.
	Close to 10 buses pulled up at same time; still parked at 2:45 p.m.
	At curb cut.
4 June 2013	Still parked when I left at 3:45 p.m.

	Parked in traffic turning lane. Parked into vacated space at 12:17 p.m. No Parking on Tuesdays.
	There is daily parking but technically not on Tuesdays.
	No parking-except official sightseeing vehicles only.
	JAD Business Services parked in Official Sightseeing vehicle parking only.
Zone 8: WWII Memorial	
6 April 2012	No bus name or DOT #. Just a plain private bus.
	From MD.
	Illinois (bus license).
	Mercedes.
	Parked in non-parking zone.
	Parked in non-parking zone.
9 October 2012	Designated spots to unload are full.
	Driver jumped out and got a brochure.
	Pulled in, waited until space became available. Then pulled up to unload.
	End is hanging out.
	Sat idling the entire time.
	Honor flight northland.
	Honor flight northland.
	Waiting to get in 4 buses in the way.
	All available loading space occupied. Kept moving up as space is available.
	Moved but didn't leave.
	Honor flight group.
	Passengers do not spend much time at the memorial. Maybe because of cold weather.
	Military group- honor flight northland.
	Honor flight northland.
	Honor flight northland.
	Waiting for turn. Gave up and unloaded.
	Passenger asked when bus would return. It was 10:15 a.m. and no bus has returned.
	Driver used restroom then returned to bus.
	Honor Guard on bus also police escort in and out photographers too. Unloaded wheelchairs too.
	Most were in wheelchairs but some walked and some with cane. Police escorts in and out photographer too.
	Cane. Operator approached us to ask what we are doing.
	Driver asked what I was doing. (Operator not driver). One man was with urban development.
	A bunch of buses pulled up at once. This bus was last and pulled half-way into zone.
	Cane. Perhaps parked there because of curb cut and easier access.
	A number of buses came through without stopping. Seems to be a cut through area.
	Large tour bus with a minimal number of passengers.
	15 Wheelchairs and many canes.
	13 Wheelchairs and many canes.
	Returning for pick up. One cane.
	No place to pull in.
	Everyone is backed up because group of 4 buses stayed.
	Cane.
	Cane.
	Cane.
	Cane.
	Cane.
	Stopped in nondesignated area and jumped in and out.
	Senior kids from other bus applauded the veterans!
	EMT accompanied veterans.
	Bus waited longer because seniors were applauding the veterans on another bus. * Forgot to get picture= same as bus 000339.
	Operator (not Driver) explained that with 15 minutes planned for this stop in itinerary that the drivers are directed to stay because it takes longer to go around then the itinerary.
	As left scrapped dumper on concrete barrier.
	Waited for passengers to look at memorial-stayed whole time.
	Passengers were on bus for a long time (15 minutes) before unloading. Bus idled the whole time. Probably because of the cold weather. May have been waiting for a tour guide.
	Bathroom breaks for driver. No passengers.
	Buses in this zone tend to park and wait for passengers. Only left because four buses came in at same time. To see the memorial.
	Police escort-Idled during all loading. Did not leave after unloading. Started loading back up at 11:42 a.m.
	Police escort-Idled during all loading. Did not leave after unloading. Started loading back up at 11:45 a.m.
	Waited whole time while visitors at memorial. Idled the whole time.
	8 buses lined up-spaces for four.
	Stayed the whole time while visitors were there.

	There is no space in loading zone so not surprising to see violation.
	No place to pull up. Stayed the whole time while visitors were there.
	Stayed the whole time while visitors were at WWII.
22 May 2013	Held up traffic.
	Circled around.
	Buses backed up so no room.
	Arrived before I was onsite.
	Couldn't pull up to curb completely, bike in the way.
	Loaded after waiting 17 minutes.
	Idled whole time.
	Idled whole time.
	Picked up two ladies and left.
	Blocked vehicle from exiting.
	Wheelchair.
	Wheelchair, crutches.
	Crutches, cane.
	5-6 cars backed up.
	Parked and held up traffic.
	Parked and waited to reload.
	Parked and waited for passengers to reload.
	Parked and waited for passengers to reload.
	Parked and waited.
	Parked and waited.
	Parked, waited.
	Parked and waited.
	Parked and waited.
	Parked and waited.
	Parked and waited.
	Parked and waited.
	Parked and waited.
	Parked and waited.
	Parked, waited.
	Parked, waited.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked whole time waiting for group.
	Parked whole time.
	Parked whole time.
	Parked; could have moved up to allow more buses.
	Parked and waited from group.
	As I was leaving 5-6 buses were backed up.
	Backed up and left through entrance.
	Waiting in line to get out; blocking cars from leaving.
	Doubled parked and kept other buses from leaving.
	Only picked up passengers.
	Blocking traffic.
4 June 2013	Unloaded at parking entrance.
	Returned to pick up.
	Pulled behind handicapped parking to unload then moved into loading zone to park at 4:40 p.m.
	Bus parked in loading/unloading zone.
	Children took their time getting to the bus.
	Cane.
	Pulled in just before loading zone and 3ft. From curb.
	Pulled in and blocked walkway.
	Blocked crosswalk.
	Bus became blocked by Lakefront that double parked next to it.
	Arrived at Zone 8 at 3:18 p.m. and 2 buses were parked in loading/unloading zone.
	4 buses in total from Washington Co. Schools but they arrived in twos.
Zone 9: Thomas Jefferson Memorial	
22 May 2013	Pulled up and pulled right out.
	Wheelchair.
	Drove away bus pulled up.
	Bus pulled onto curbside then drove away.
30 May 2013	Unloaded then pulled up to proper zone.
	Driver overly friendly.

	Parked and sat.
	Pulled in unloading zone and parked.
	Restarted engine when passengers arrived back.
	Pulled in before loading zone.
	Driver spoke to me and asked what I was doing.
	Still there when we left at 2:45 p.m.
	Pulled in before loading zone in authorized sightseeing parking.
	Arrived on site at 10:15 a.m. and 4 buses were sitting parked and empty.
	Moved from non-loading zone to loading zone after unloading.
	At 10:47am, moved into unloading zone to park.
	Pulled into handicapped parking zone.
	Bus stayed on while children slowly got on the bus.
	Same bus left and returned to park with second bus from same company.
	After informing him that he was actually not in unloading/loading zone he moved to the zone.
	Tour guide had a cane.
	2nd bus stayed at non designated zone with wheelchair ramp down.
	Stopped and parked in sightseeing use bus stop.
	Park police drove by but didn't stop to say anything to parked buses in loading/unloading zone.
	Old Town Trolley pulled in beyond loading zone b/c of the parked buses.
	Old Town Trolley is doing a good job of loading and unloading in the correct way.
	Big Bus Tours and Hop On Hop Off tours are using the area well and Old Town Trolley uses end of loading/unloading area well.
	The sightseeing bus are hard to capture all info b/c they stop so quickly but they are in their own zone.
	Cars began to park in bus loading/unloading zone/ handicapped zone.
Zone 10: National Museum of American History	
31 March 2012	Standing with no passenger, not idling, turn off engine.
	RT:75.
	RT #418-No DOT #.
	9:56 a.m. started to load kids.
	One of coordinator asked if he was going to get fined and mentioned that driver knew he was not supposed to unload on zone.
	Dropped passenger earlier today, come back to load.
	Picture was taken with Tom's camera #4.
	Picture was taken with Tom's camera #4.
4 June 2013	Pulled about 10 feet from curb.
Zone 13: Ford's Theatre 500 Block 10th St.	
31 March 2012	Private vehicle blocked zone than bus pulled up beyond loading zone.
	Wrong side of the road.
	At 12:16 p.m. tried to leave but was blocked in.
	Tried to leave, blocked by two buses ahead of them in regular traffic.
	12:54 p.m. – 1:07 p.m. parked in loading zone with engine off. Time was appropriate time for the passengers' ability. 1:07 p.m. – 1:15 p.m. idling again.
	Honking at car blocking him from behind. Stopped idling when pulled in driver left buses off in zone. Van then pulled up and unloaded in road.
	Bus idling in a non-loading zone in front of them. Had trouble getting out.
	Was blocked by another bus.
	Unloaded in the middle of the road.
	Unloaded in the middle of the road.
	Took longer because of passenger paying.
	Dot on other side (drivers).
	Stopped past loading zone in front of hydrant on curb.
	Started to move away then stopped for another minute.
	Turning engine off right after pulling in.
	DOT on driver side.
	Loaded on E St. By 10th St.. Turned off engine soon after pulling in.
	Turned off engine right away.
	Turned off engine upon stopping.
	Turned off engine right away.
	Stopped for passenger after leaving.
	Promotional vehicle.
	Middle Q street.
	Half in.
	Middle of road.
	Everyone beeping at him.
	Bus seemed to be waiting pulled away after a while may have not seen researchers.
	Middle of road.

Moved to find passengers.
Hop on in front then cannot pull out.
Unloaded In the middle of the road.
Illegally parked but put down cone.
School group.
Didn't load or unload, stopped opened doors and left.
Exit was orderly but they went into the street to cross into oncoming traffic.
Looked like it was coming back to pick up one more person who loaded from the street side.
2 people with wheel chairs at different points in the line.
Had to estimate # of teens. They were in a big group.
Multiple people with canes, mostly elderly group who move slowly.
Kid with crutches, bus turned off but was also blocked by bus idling in road.
Two families with strollers.
Teens/preteens.
Stopped longer than needed.
A bus company had a on-street coordinator.
Onsite workers of company were running and coordinating in and around bus.
Parked in Trolley loading area -driver exited vehicle.
Driver exited and got back on -after 11min turned on vehicle again and let sat on for 2 minutes.
Man with cane.
Looks like mess/spill needs to be taken care of. Man entered bus switch trash bag and paper towels.
Guide on bus continued to talk while parked so people did not unload right away.
Driver on cell phone.
Mixed ages.
Private vehicle pulled up to unload.
School Group.
Private SUV pulled up.
Two private vehicles stopped.
Passengers walking out and wandering a few minutes. It seems they were unsure what to do.
Pulled in then went down to next block. Pulled in again illegally and loaded.
Loaded right under the stop light.
Some might be preteens.
Cane. Mostly elderly group.
Completely blocking traffic.
Wheel chair.
Bus blocked part of street.
Bus blocked part of road b/c other buses were blocking loading zone, passengers exited bus and crossed directly into the street.
Just idled in loading zone.
Had to lower wheelchair equipment at 2 different times.
Bus pulled past zone/ right next to zone but in the street.
At 1:07 p.m. police stopped to talk to bus driver but left and bus driver turned on engine.
Bus was blocked in, engine off.
Unsure of where unloading and loading blocks.
Pulled halfway in- halfway in street.
2 pull up at same time.
Stopped in the middle of the road.
Passengers got off in the middle of the road.
Unloaded in the middle of the road until 12:02 p.m., then moved curbside until 12:04 p.m.
Partially in the middle of the road.
Middle of the road- unloaded/loaded. Stayed in road the whole time.
Just sat in loading zone and trickled in passengers.
Sign says "No Parking 9am-7pm daily Old Town Trolley Tour Only".
Parked in own "parking area" -sat and waited for passengers to pay and get on.
Turned on engine again for 4 minutes.
Even with talking they made it out quickly.
Parked in unloading zone.
Bus did not fully pull in.
South on 10th street.
South on 10th street.
Pedestrian asked what we are doing.
Private car in the way moved over bus came up.

	Blocked by first.
	Kid running to middle of street.
	Only documents people could see.
	Stopped in middle of road.
	A child with a disability on this bus.
	It was hard to tell the number of passengers and on where loaded.
6 April 2012	Unloaded one passenger empty bus.
	Turned off ignition Mechanical Issues.
	Turned off ignition picked up employee at company office.
	Turned off ignition driver standing outside bus.
	Cut ignition at 2:43 p.m. group leader told group to be back on bus at 3.
	When pulling in loading zone bus hit curb hard with tire.
	Tour operator moved passengers from top tier to lower tier because of overcrowding on top.
	Started loading at 2:30 p.m.
	Back of bus blocked traffic.
9 October 2012	Two buses arrived at the same time.
Zone 14: Ford's Theatre 600 Block 10th St.	
6 April 2012	Began idling at 12:10 p.m.
	Moved to F street and unloaded.
	Just parked.
	Stopped six feet into roadway.
	#0935.
	Just parked.
9 October 2012	Turned engine off first then backed up.
	Driver saw researcher and left very short stop.
	Parked in nondesignated area. Looked like commuter bus. This bus moved to park at #13 at 11:00 a.m. At 11:15 a.m. begin to pick up.
Zone 15: Ford's Theatre 1000 Block F St.	
9 October 2012	Looks like a commuter + sightseeing bus parking (parked at 15 parking area) idling.
	Parked. Moved to #13 at 11:15 a.m. and began to load people.
Zone 18: FDR/MLK West Basin Drive	
24 March 2012	In media only parking.
	Started to rain at 11:15 a.m.
	Trolley.
	At media only parking.
	Yelling hurry. Watch out get on.
	Turn off the engine right away.
	Hang out.
	Just hanging out around tap bus for a long trip.
	Preteen group.
	Crutches.
	Cars pulling up too.
	School age.
	Turn off the engine at 11:56 a.m. Turn on the engine again at 12pm.
	Unload at tidal basin is all over the place.
	All parking in media parking only spots.
	Police does not care.
	No photo or DOT - too fast.
	NPS should open the loading / unloading they are doing anyway.
	Parked in middle of roads.
31 March 2012	Driver left bus unattended.
	Dropped off pulled up to park.
	Took out strollers from luggage area.
	Stopped in handicapped zone.
	Sticking out in roadway.
	Moved to regular loading, then parked.
	Began idling at 1:34 p.m.
	Driver told car parking behind him he needed to move- no parking.
	First round of passengers get off- few minutes go by and more come off.
	Can used by one passenger. Diver taking pictures for passenger getting on bus.
	Handicapped Zone.
	Circled around, then parked.
	Directed by NPS employee.
	Just parked. No loading or unloading.
	Left without re-loading.
	Park ranger told bus driver that he cannot stop at that location.

	Bus stopped in no standing zone.
Zone 23: Constitution Eastbound between Henry Bacon Drive and 21st	
4 June 2013	Bus parked.
	Two buses were parked when I arrived at 1:30 p.m.
	Wheelchair.
	Quick pick up of people.
	One bus has remained parked with flasher since 2:20 p.m. across from zone 23 in no stopping zone and second bus joined it at 2:55 p.m.
Zone 24: Constitution Westbound between 20th and 21st	
4 June 2013	Zone 24.
	Area/Zone 24 had no buses stop between 1:30 p.m. – 3:00 p.m.
	Zone 24 should be used as 3 hr parking zone, not pick up/drop off zone.
Zone 25: Constitution Eastbound between 19th and 18th and Constitution Eastbound between 18th and 17th	
30 May 2013	Parked on the street.
	No passengers exited the bus.
	No passengers exited the bus.
	No passengers exited the bus.
	Crutches.
	Crutches.
	Bus loaded after sitting for about an hour.
No passengers loaded/unloaded.	
Zone 27: Constitution Westbound in Front of National Archives	
30 May 2013	Note from cover sheet: Zone 27- no official unloading/loading zone, it is a "tow away zone" with no standing/parking and 2 hr parking 9:30 a.m. – 4:00 p.m.
	Driver circled the block more than 3 times while waiting for his tour group.
4 June 2013	Wheelchair.
	Bus was blocking the right traffic lane.
Zone 28: U.S. Holocaust Memorial Museum — 100 Raoul Wallenberg Place	
4 June 2013	Engine was not idling. Parked when I arrived.
	Engine was not idling. Parked when I arrived.
	Engine was not idling. Parked when I arrived.
	Engine was not idling.
	Engine was not idling.
	Engine was not idling.
	Engine was not idling.
	Engine was not idling the whole time.
	Engine was not idling entire time.
	Loading in "government vehicles only" zone.
	Parked in "government vehicle only" zone.
	Parked in "government vehicle only" zone.
	Parked in "government vehicle only" zone.
	Parked in "government vehicle only" zone.
	Parked in "government vehicle only" zone.
	Unloaded in "government vehicle only" zone.
	Parked in no standing zone.
	No standing zone.
	Bus pulled up to curb only halfway. Backend was blocking passing lane.
	Pulled into non-loading zone even though there was space in loading zone.
Loaded in non-loading zone even though there was space in loading zone.	

APPENDIX D: PARKING ANALYSIS DATA COLLECTION INSTRUMENT



Survey Name:	Tour Bus Study: Parking Analysis
Description:	For the first survey, fill all the questions except End time. For the rest of the surveys, first page is not necessary. End time is required only for the last survey.
Introduction:	Welcome to the Tour Bus Study: Parking Analysis. Touch the Start button to continue
Conclusion:	Thank you for completing the survey
Survey Created by:	George Mason University
Survey Created on:	12/4/2012 8:59:31 PM

Survey Questions and Flow

Question Type	Question	Settings	Statements Answers/Ratings	Next Question
1:	Date			2
	Date			
2:	Recorder	• Answer Required		3
	Text			
3:	Location	• Answer Required		4
	Text			
4:	Start Time			5
	Time			
5:	Circle the style of bus which best represents the bus on which you are traveling today	• Answer Required • Specify Answer • Min Answers-1	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 (e.g. open-top, 2-deck, trolleys, etc) NPS visitor bus School bus of any size If other, please take a photo If other, please take a photo & indicate the photograph # here Other type of bus	6 6 6 6 6 6 6 6 6 6
	Multi Select			
6:	DOT #	• Answer Required		7
	Numeric			

Question Type	Question	Settings	Statements Answers/Ratings	Next Question
7 :	Last 3 digits of LICENSE PLATE	+ Answer Required		8
	Text			
8 :	Comments			Conclusion
	Text			

APPENDIX E: ON-VEHICLE COVER SHEET FOR DAILY BUS OPERATIONS



Survey Name:	ON-Vehicle Cover Sheet
Description:	Fill this out once for the whole day
Introduction:	Welcome to the survey. Touch the Start button to continue
Conclusion:	Thank you for completing the survey
Survey Created by:	George Mason University
Survey Created on:	11/13/2012 4:36:28 PM

Survey Questions and Flow

Question Type	Question	Settings	Statements	Answers/Ratings	Next Question
1: Text	Researcher name	° Answer Required			2
2: Numeric	Height	° Answer Required ° Decimal Places-1			3
3: Numeric	Weight	° Answer Required ° Decimal Places-2			4
4: Numeric	Age	° Answer Required			5
5: Single Select	Sex	° Answer Required	Male Female		6 6 6
6: Date	Date	° Answer Required			7
7: Single Select	Day of the week	° Answer Required	Sunday Monday Tuesday Wednesday Thursday Friday Saturday		8 8 8 8 8 8 8
8: Time	Start Time				9
9: Text	Start locations	° Answer Required			10
10: Numeric	Approximate Temperature	° Answer Required			11
11: Multi Select	Weather	° Answer Required ° Min Answers-1	Sunny Partly Sunny Cloudy Light Precip (Rain/Snow) Heavy Precip (Rain/Snow)		12
12: Text	Weather Comments				13

Question Type	Question	Settings	Statements Answers/Ratings	Next Question
13: Multi Select		° Answer Required ° Specify Answer ° Min Answers-1	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 (e.g. open-top, 2-deck, trolleys, etc.) NPS visitor bus School bus of any size If other, please take a photo If other, please take a photo & indicate the photograph # here Other type of bus	14
14: Text	Bus Company OR School bus/group name	° Answer Required		15
15: Numeric	Full DOT #	° Answer Required		16
16: Text	Last 3 digits of LICENSE PLATE	° Answer Required		17
17: Text	Name of Group or Primary Affiliation	° Answer Required		18
18: Single Select	Was a professional guide part of the tour group?	° Answer Required	Yes No	19 19 19
19: Numeric	Number of group leaders (excluding professional guides)	° Answer Required		20
20: Single Select	Type of Group	° Answer Required ° Specify Answer	School Group Cultural Group Honor Flight General Tour Other (Describe)	21 21 21 21 21
21: Text	Number of Pre-teens (0-12 yrs) in the group?	° Answer Required		22
22: Text	Number of Teens (13-18 yrs) in the group?	° Answer Required		23
23: Text	Number of Adults (19-60 yrs) in the group?	° Answer Required		24
24: Text	Number of Seniors (60+ yrs) in the group?	° Answer Required		25
25: Numeric	How many group members used any sort of assistive device (e.g., cane, wheelchair, stroller)	° Answer Required		26
26: Text	If assistive devices used, what type of devices were used?			27
27: Single Select	Any language besides English spoken from members of the group?	° Answer Required	Yes No	28 28 28
28: Text	If yes to above question, please mention the languages used.			Conclusion

APPENDIX F: ACTIVITY SHEET FOR DAILY BUS OPERATIONS



Survey	Activity Sheet
Description:	Complete a new sheet for each activity
Introduction:	Welcome to the Activity Sheet. Touch the Start button to continue
Conclusion:	Thank you for completing the survey
Survey Created	George Mason University
Survey Created	11/15/2012 10:29:54 PM

Survey Questions and Flow

Question Type	Question	Settings	Statements Answers/Ratings	Next Question
1: Time	Start Time of each event			2
2: Single Select	Bus Activity	^a Answer Required ^a Specify Answer	Unloading Loading Parked In Transit Cruising (Empty) Other/Onsite Activity (Describe)	3 3 3 3 3 3
3: Text	Start Point	^a Answer Required		4
4: Single Select	If in motion, how congested is traffic?	^a Specify Answer	Not at all congested (i.e., free flowing) Moderately congested Very congested Other	5 5 5 5
5: Text	If congested, what appears to be the cause of congestion or delay?			6
6: Multi Select	ALL operational / behavioral issues observed. (Select all that apply.)	^a Answer Required ^a Specify Answer ^a Min Answers-1	Bus stopped in zone beyond time needed to load/unload Bus pulling into traffic in dangerous way Bus blocking pedestrian traffic Bus blocking bicycle lane Bus blocking facility entrance Double parking Unloading/loading in a nondesignated loading zone Unloading/loading on roadside (rather than curbside) Driver talking/texting on cellular phone Idling more than 3 minutes Unsafe behaviors on bus (e.g., passengers standing while in transit) None of the above Other (Describe – e.g., driver behaviors when stopped/parked)	7

Question Type	Question	Settings	Statements Answers/Ratings	Next Question
7: Multi Select	Loading/unloading behaviors of passengers. (Select all that apply.)	° Answer Required ° Specify Answer ° Min Answers-1	Unsafe entering/exiting of bus Trash dumped Soil compaction (Not using walkways) Viewed interpretive signage (e.g., wayside, educational, interpretive) Viewed directional signage (e.g., way-finding) Other (Describe additional behaviors)	8
8: Multi Select	Place Assessment. (Select all that apply.)	° Answer Required ° Specify Answer ° Min Answers-1	Trash containers Recycling containers Waysides Directional signage NPS Ranger Other (Describe additional surroundings)	9
9: Multi Select	Activities passengers engaged in at the site. (Select all that apply.)	° Answer Required ° Specify Answer ° Min Answers-1	Ranger program Site program Eating Group photos General sightseeing Other (Describe additional activities)	10
10: Information	At end of activity, make notations of Distance, Calories.			11
11: Numeric	Distance	° Answer Required ° Decimal Places-1		12
12: Numeric	Calories	° Answer Required		13
13: Time	End Time			14
14: Text	End Point	° Answer Required		15
15: Text	Comments			Conclusion

APPENDIX G: OVERHEARD COMMENTARY SHEET FOR DAILY BUS OPERATIONS



Survey Name:	Overheard Commentary Sheet
Description:	Complete throughout the day
Introduction:	Welcome to the Overheard Commentary Sheet. Touch the Start button to continue.
Conclusion:	Thank you for completing the survey.
Survey Created by:	George Mason University
Survey Created on:	11/15/2012 11:08:21 PM

Survey Questions and Flow

Question Type	Question	Settings	Statements / Answers/Ratings	Next Question
1: Time	Time			2
2: Single Select	Bus On/Off		On Off	3 3
3: Single Select	Who made the comment?	* Specify Answer	Driver Passenger Group Leader Tour Guide NPS Ranger Other (Describe)	4 4 4 4 4 4
4: Text	Approximate Location			5
5: Single Select	Comment theme	* Specify Answer	Traffic conditions Mobility (Ability to get around) Accessibility (Access / Barriers to site) Directions / Orientation / Signage / NPS App Safety / Security (Safe havens, Disasters) Educational aspects of visit Recreational aspects of visit Resources aspects of visit (e.g., trees, grass, etc.) Regulations / Enforcement Other (Describe)	6 6 6 6 6 6 6 6 6
6: Text	Summarize comment	* Answer Required		Conclusion

APPENDIX H: PHOTOLOG FOR DAILY BUS OPERATIONS



Survey Name:	Photolog
Description:	Use for taking Pictures
Introduction:	Welcome to the Photolog. Touch the Start button to continue
Conclusion:	Thank you for completing the survey
Survey Created by:	George Mason University
Survey Created on:	11/29/2012 6:08:20 PM

Survey Questions and Flow

Question Type	Question	Settings	Statements Answers/Ratings	Next Question
1: Photo Capture	Please capture a picture	<ul style="list-style-type: none"> ◦ Answer Required ◦ Min Answers-1 ◦ Max Answers-1 		2
2: Text	Please add your comments regarding the location and why you took the picture.			Conclusion

APPENDIX I: MANAGER/TOUR OPERATOR DATA COLLECTION INSTRUMENT

National Mall and Memorial Parks Tour Bus Study Self-Report from Tour Bus Executives

Thank you for responding to the following questions regarding tour bus operations in Washington D.C. (D.C.) and the National Mall and Memorial Parks (National Mall). Please respond to all items that relate to your organization. You can skip any item that you are not able to answer. The questionnaire can be returned by email, fax or surface mail. All contact information can be found on the last page.

SECTION A: Demographics. This first section of our questionnaire asks you to share demographics of your basic operations and tour groups with whom you work.

1. What tour bus company do you represent?

2. Approximately how many tour GROUPS does your organization transport in a year, including all destinations?

3. Approximately how many tour BUSES does your organization send out in a year, including all destinations?

4. Approximately how many tour GROUPS does your organization transport to D.C. in a year?

5. Approximately how many tour BUSES does your organization send out to D.C. in a year?

6. Are the buses that your organization sends to D.C. equipped with restrooms? Yes ____ No ____

7. What is the average number of individuals in each D.C. tour group?

8. What is the average age of your D.C. clients?

9. Please indicate the approximate number of groups your organization transports to D.C. in a typical year that represent each characteristic in the table below:

GROUP TYPE	School Groups	Adult Groups	Senior Groups	Cultural Groups	Military Groups	Other - please describe:
# OF GROUPS (per year)						

10. Please indicate the approximate number of groups your organization transports to D.C. that have the following needs each year:

GROUP TYPE	Assistive Devices	Specialized Medical Needs	Language Accommodations - please state language:	Language Accommodations - please state language:	Language Accommodations - please state language:
# OF GROUPS (per year)					

SECTION B: Itineraries. The second section of our questionnaire asks you about the group itineraries you provide and your participants' feedback.

11. What aspects of your itineraries to D.C. are standardized, meaning they do not change from group to group?

12. What aspects of your itineraries to D.C. are customized for each client?

13. What is the approximate percentage of your D.C. itineraries that include local tour guides? _____%

14. Are you willing to share a sample itinerary to D.C. that is offered by your organization?
 Yes ____ No ____ If yes, please send it with the completed questionnaire.

15. Do your clients ever use the Metro or D.C. Circulator as part of the itinerary?
 Yes ____ No ____

SECTION C: Bus operational items. This next section of our questionnaire asks you to share information regarding bus operations.

16. For your D.C. itineraries, please list common cities/states of origin of the primary groups that you serve (i.e., Where are your clients coming from?)

17. Approximately how many total miles do your buses travel per year to D.C., when combining all trips to D.C.?

18. What is the average per bus vehicle miles traveled associated with trips to D.C., when considering the average individual round trip? (Please provide a sample log, if feasible)

19. What is the average vehicle miles traveled per bus while in D.C.? (Please provide a sample log, if feasible)

20. What methods, if any, does your company use to reduce tour bus pollution:

a. Prior to trips to D.C.:

b. During trips to D.C.:

21. What kind of training do your drivers take to ensure the safety of their passengers?

22. Please explain your emergency preparedness plan for tours going to D.C.

23. Do your itineraries include visit sites in D.C. that require timed tickets? Yes ____ No ____

If yes, how do these sites impact your itinerary and transportation around D.C.?

24. Do your drivers add in time for congestion when in D.C.? Yes ____ No ____

25. How do your drivers make up for lost time when they get behind their schedule in D.C.?

26. How much is reasonable to pay per hour for parking close to specific sites in D.C.? \$_____/Hour

27. The National Park Service will soon install parking meters at several bus parking sites close to the National Mall. What are your primary concerns regarding the plan to install parking meters for tour buses?

SECTION D: Perceived benefits for tour participants. The fourth section of our questionnaire asks you about the benefits you believe individuals may gain from participating in your group itineraries.

- 28. What do you believe are the primary **OVERALL** benefits of your tours to D.C. for participants?

- 29. What do you believe are the primary **HEALTH** benefits of your tours to D.C. for participants?

- 30. What do you believe are the primary **RECREATIONAL** benefits of your tours to D.C. for participants?

- 31. What do you believe are the primary **EDUCATIONAL** benefits of your tours to D.C. for participants?

SECTION E: Feasibility of increasing benefits for tour participants, and specific ideas: This next section of our questionnaire asks you to think about and share possible strategies for enhancing benefits to participants.

- 32. What are some specific ideas you have for enhancing the **OVERALL** benefits of your tours to D.C. for participants?

For the next three questions, please indicate how feasible you believe it would be to enhance each type of benefit for your tour participants. Then, share the specific ideas you have for enhancing that benefit.

- 33. How feasible do you think it would be to enhance the **HEALTH** benefits of your tours to D.C. for participants? (please check one)

Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible

- a. What are some specific ideas you have for enhancing **HEALTH** benefits:

- 34. How feasible do you think it would be to enhance the **RECREATIONAL** benefits of your tours to D.C. for participants? (please check one)

Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible

- a. What are some specific ideas you have for enhancing **RECREATIONAL** benefits:

35. How feasible do you think it would be to enhance the **EDUCATIONAL** benefits of your tours to D.C. for participants? (please check one)

Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible

a. What are some specific ideas you have for enhancing **EDUCATIONAL** benefits:

SECTION F: Intermodal capabilities: The final section of our questionnaire wraps up with asking you to share information regarding intermodal capabilities.

36. Once your drivers drop off a group, what are the primary ways tour bus groups use to get around the National Mall?

37. What can be done to maximize a tour bus group’s pedestrian experience and, accordingly, reduce the number of drop-offs and pick-ups around the National Mall?

38. What are your primary concerns and complaints that you and your drivers have regarding transporting tour groups to D.C.?

39. What are your primary concerns and complaints that your clients express about their visits to D.C.?

40. Additional comments:

Thank you very much for taking the time to complete this questionnaire!
 You can return this questionnaire via email, fax or surface mail.
 See next page for contact information.

Contact Information

Email: Please return to Maggie Daniels (mdaniels@gmu.edu) or Laurie Harmon (lharmon@uwlax.edu)

Fax: Please fax to Maggie Daniels at 703-993-2025

Surface mail: Please mail to Maggie Daniels

Maggie Daniels, Ph.D.
Principal Investigator, National Mall Tour Bus Study
School of Recreation, Health and Tourism
George Mason University
10900 University Blvd., MS 4E5
Bull Run Hall, Room 201B
Manassas, VA 20110-2203

Questions or comments, please call:

Maggie Daniels: 703-993-4279

Laurie Harmon: 540-878-8737

APPENDIX J: CLIENT DATA COLLECTION INSTRUMENT

National Mall and Memorial Parks Tour Bus Study Client Self-Report

Thank you for responding to the following questions regarding tour bus travel to Washington D.C. (D.C.) and the National Mall and Memorial Parks (National Mall). You are being asked to complete this questionnaire because your tour group either recently or regularly visits D.C. and the National Mall with a tour bus company. Please respond to all items that relate to the group you represent. You may skip any item that you are not able to answer. The questionnaire can be returned by email, fax or surface mail. All contact information can be found on the last page.

SECTION A: Demographics. This first section of our questionnaire asks you to share basic demographics of your tour group members.

1. What group do you represent?
2. Which tour bus company do you prefer to use when bringing a group to D.C.?
3. Approximately how many tour BUSES does your group use on a typical D.C. visit?
4. Are the buses that your group uses when travelling to D.C. equipped with restrooms? ___Yes ___No

SECTION B: Recent Trip. For this next section, please refer to your **most recent** trip to D.C.

5. When was your most recent trip to D.C. (month/day/year)?
6. Approximately how many people were in your group?
7. What was the average age of the clients in your most recent tour group?
8. Please indicate (using an “x”) any of the following categories your group represented:

School Groups	Adult Groups	Senior Groups	Cultural Groups	Military Groups	Other - please describe:

9. Did anyone in your group use an assistive device (e.g. wheelchair, cane, etc.) ___Yes ___No
10. What was the primary language spoken by your group members?
11. Did anyone in your group need a language interpreter? ___Yes ___No

SECTION C: Itineraries and participant feedback. The third section of our questionnaire asks you about the itinerary and participant feedback for your group’s most recent trip to D.C.

12. What was the group’s itinerary while in D.C.? Please share a copy, if possible.
13. Who created the itinerary? This may be the tour company, you, another individual or some combination.

14. Was there anything your group wanted to do that you were unable to do? Yes No
a. IF YES, please tell us WHAT you were unable to do and WHY:
15. Were you able to follow the approximate itinerary timeline? Yes No
a. IF NO, please tell us why not:
16. Did your itinerary include sites in D.C. that require timed tickets? Yes No
17. Did you gather feedback from your participants after their tour completion? Yes No
a. IF YES, please tell us share with us what questions you asked and the results, if possible.
18. Was this your group's first visit to D.C.? Yes No
a. IF NO, please share what you have learned over the years to improve your experiences to D.C.:
b. IF NO, please tell us what suggestions or hints you have for a successful trip in D.C. that you are willing to share with others:

SECTION D: Perceived benefits for tour group members. The fourth section of our questionnaire asks you about the benefits you believe individuals may gain from participating in your group itineraries.

19. What do you believe are the primary **OVERALL** benefits of your visits to D.C. for tour group participants?
20. What do you believe are the primary **HEALTH** benefits of your visits to D.C. for tour group participants?
21. What do you believe are the primary **RECREATIONAL** benefits of your visits to D.C. for tour group participants?

22. What do you believe are the primary **EDUCATIONAL** benefits of your visits to D.C. for tour group participants?

SECTION E: Feasibility of enhancing benefits for tour participants, and specific ideas: This next section of our questionnaire asks you to think about and share possible strategies for enhancing benefits to participants.

23. What are some specific ideas you have for enhancing the **OVERALL** benefits of your visits to D.C. for tour group participants?

For the next three questions, please indicate how feasible you believe it would be to enhance each type of benefit for your tour group participants. Then, share the specific ideas you have for enhancing that benefit.

24. How feasible do you think it would be to enhance the **HEALTH** benefits of your visits to D.C. for tour group participants? (please check one)

Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible

- a. What are some specific ideas you have for enhancing **HEALTH** benefits:

25. How feasible do you think it would be to enhance the **RECREATIONAL** benefits of your visits to D.C. for tour group participants? (please check one)

Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible

- a. What are some specific ideas you have for enhancing **RECREATIONAL** benefits:

26. How feasible do you think it would be to enhance the **EDUCATIONAL** benefits of your visits to D.C. for tour group participants? (please check one)

Very Feasible	Somewhat Feasible	Neutral	Somewhat Unfeasible	Very Unfeasible

- a. What are some specific ideas you have for enhancing **EDUCATIONAL** benefits:

SECTION F: Intermodal capabilities: The final section of our questionnaire wraps up with asking you to share information regarding intermodal capabilities.

27. Once the tour bus dropped off you and your most recent group at the National Mall, what are the primary ways your group used to get around the National Mall?

28. What could have been done to maximize your most recent tour group's pedestrian experience at the National Mall and, accordingly, reduce the number of drop-offs and pick-ups?

29. Would you be willing to put tour group members on the D.C. Circulator or Metro as part of your itinerary?

_____Yes _____No

a. Why or why not?

30. What are your primary concerns and complaints regarding bringing tour groups to D.C.?

31. Additional comments:

Thank you very much for taking the time to complete this questionnaire!
You can return this questionnaire via email, fax or surface mail.
See next page for contact information.

Contact Information

Email: Please return to Maggie Daniels (mdaniels@gmu.edu) or Laurie Harmon (lharmon@uwlax.edu)

Fax: Please fax to Maggie Daniels at 703-993-2025

Surface mail: Please mail to Maggie Daniels

Maggie Daniels, Ph.D.
Principal Investigator, National Mall Tour Bus Study
School of Recreation, Health and Tourism
George Mason University
10900 University Blvd., MS 4E5
Bull Run Hall, Room 201B
Manassas, VA 20110-2203

Questions or comments, please call:

Maggie Daniels: 703-993-4279

Laurie Harmon: 540-878-8737

APPENDIX K: TOUR OPERATOR PARTICIPATION REQUEST

Dear (Tour Operator),

Researchers from George Mason University are working with the National Park Service regarding a study designed to improve tour bus operations on the National Mall and in Washington, D.C.

(Point of Contact) of (Agency) suggested that I reach out to you regarding this study.

We would like to hear from you regarding your experiences when sending buses to the National Mall and Washington, D.C. Questions are specific to organizational characteristics, itineraries, bus operations, perceived benefits and intermodal capabilities.

The questions are attached. If you agree to participate, you can respond in writing or we can schedule a phone interview that will be conducted by me or my research colleague, Laurie Harmon. If you feel there is someone else in your organization who should receive the questionnaire in addition to you or instead of you, please let me know.

Please let me know at your earliest convenience if you are willing to respond to these questions. If you agree to participate, your feedback will be summarized for use in analysis of the conditions of tour bus operations in the National Mall and Memorial Parks area.

There are no foreseeable risks for participating in this research. The data in this study will be confidential. All responses will be analyzed without connecting the data to any identifying information.

Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

I would appreciate your written response by **Monday, May 5, 2014**. If you prefer to complete the interview over the phone, just let me know and we can schedule a phone interview that will take place within the next month.

If you have any questions, do not hesitate to email or call me.

Many thanks for your role in improving tour bus operations on the National Mall.

Sincerely,
Maggie Daniels, Ph.D.
Principal Investigator, National Mall Tour Bus Study
School of Recreation, Health and Tourism
George Mason University
10900 University Blvd., MS 4E5
Bull Run Hall, Room 201B
Manassas, VA 20110-2203
Phone: 703-993-4279
Fax: 703-993-2025
mdaniels@gmu.edu

APPENDIX L: CLIENT PARTICIPATION REQUEST

Dear (Tour Bus Client),

Researchers from George Mason University are working with the National Park Service regarding a study designed to improve tour bus operations on the National Mall and in Washington, D.C.

(Point of Contact) of (Agency) suggested that I reach out to you regarding this study.

We would like to hear from you regarding your experiences when sending buses to the National Mall and Washington, D.C. Questions are specific to organizational characteristics, itineraries, bus operations, perceived benefits and intermodal capabilities.

The questions are attached. If you agree to participate, you can respond in writing or we can schedule a phone interview that will be conducted by me or my research colleague, Laurie Harmon. If you feel there is someone else in your organization who should receive the questionnaire in addition to you or instead of you, please let me know.

Please let me know at your earliest convenience if you are willing to respond to these questions. If you agree to participate, your feedback will be summarized for use in analysis of the conditions of tour bus operations in the National Mall and Memorial Parks area.

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If you have any questions, do not hesitate to email or call me.

Many thanks for your role in improving tour bus operations on the National Mall.

Sincerely,

Maggie Daniels, Ph.D.

Principal Investigator, National Mall Tour Bus Study

School of Recreation, Health and Tourism

George Mason University

10900 University Blvd., MS 4E5

Bull Run Hall, Room 201B

Manassas, VA 20110-2203

Phone: 703-993-4279

Fax: 703-993-2025

mdaniels@gmu.edu

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