

National Park Service  
U.S. Department of the Interior

National Mall and Memorial Parks  
Washington, D.C.

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

## **Phase III: Off-Bus Data Collection and Photographic Documentation at Loading and Unloading Zones**

February 2014

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

Phase III: Off-Bus Data Collection and Photographic Documentation  
at Loading and Unloading Zones

Technical Report Submitted to:

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# EXECUTIVE SUMMARY

## STUDY RATIONALE

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

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

TABLE A: PROJECT PHASES

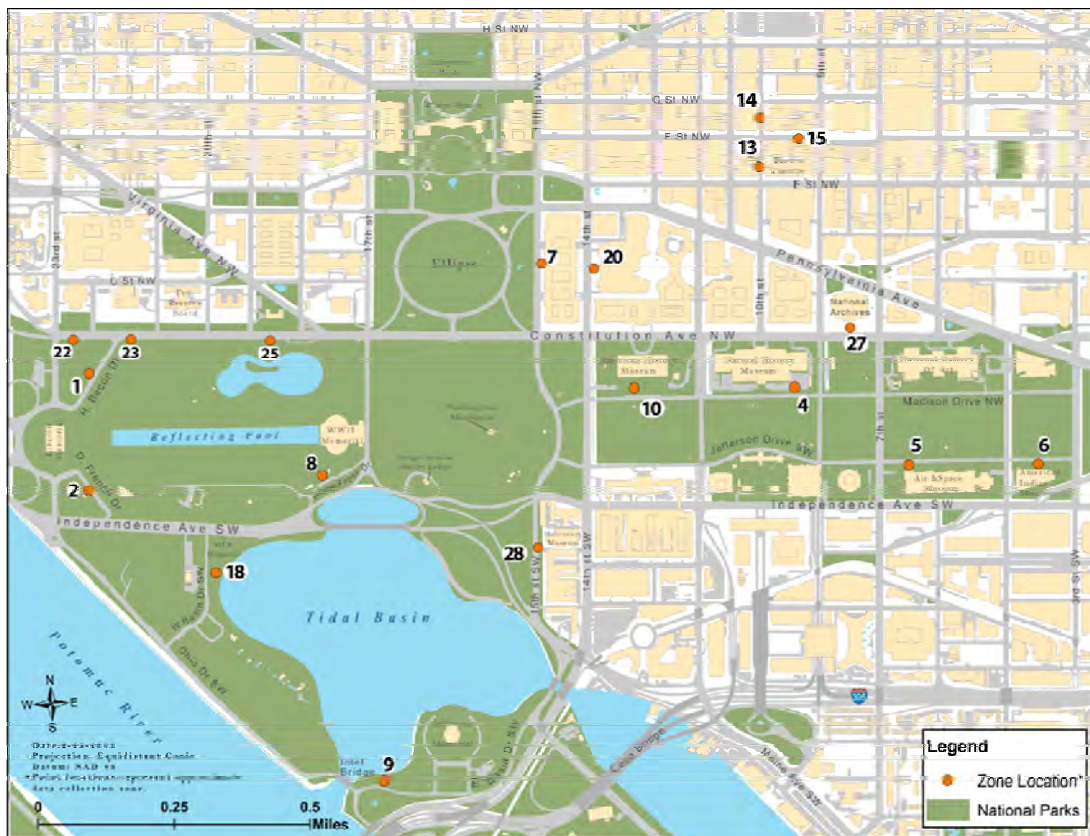
Project Phase	Study*	Details
I	Off-Bus Data Collection and Photographic Documentation at Loading and Unloading Zones, Part 1	Data collected and analyzed by GMU that is specific to congestion, operational efficiency, mobility, access, safety, and resource protection at loading and unloading zones.
II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

\*Note: Highlighted study is current report.

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 1457 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 A indicates the locations of the zones specific to this study. The findings and recommendations that follow are summarized by zone.

**FIGURE A: ZONES INCLUDED IN OFF-BUS DATA COLLECTION**



## SUMMARY OF FINDINGS AND RECOMMENDATIONS

### 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 Washington, DC 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 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 DC.

### **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 non-designated 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 non-designated 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 DC. 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.

### **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 non-designated 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 US 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.

### **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 that would be needed to load/unload, leading 31.7% of the drivers to use non-designated 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 US 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 Ave. 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 DC.

### **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 and unload for the National Air and Space Museum, thus alleviating some of the congestion in Zone 5. It is recommended that US 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 the National Mall to seek parking.

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

Zone 7 (Ellipse, 15th Street 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 non-designated 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 non-designated areas to load/unload. In order to decrease confusion, the various uses should be consolidated into distinct areas, with standardized signage utilized to set forth the boundaries.

### **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 fall 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 non-designated 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 non-designated areas to load/unload. Idling was also a problem in this zone, with 53.5% of buses left idling beyond the Washington, DC 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.

### **Zone 9 (Jefferson Memorial): 7 Spaces for Loading/Unloading**

Zone 9 (Jefferson Memorial, East Basin Dr.) evidenced significant problems with buses not pulling into the zone, with 61.7% loading and unloading in non-designated areas. Because of the zone location along a busy one-way thoroughfare, the increased likelihood of pulling into traffic in a dangerous way makes 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 Washington, DC regulation of 3 minutes.

### **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.

### **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, 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 non-designated 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.

### **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 US Park Police increase their presence in this zone and/or give DDOT the ability to enforce, particularly during peak months.



### **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.

### **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 the National Mall 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.

### **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 DC arterial. Buses consistently blocked traffic while unloading in non-designated areas, double parking and pulling out in dangerous ways. The fact that 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 Washington, DC regulation of 3 minutes. A minimum of two spaces clearly designated for tour bus loading/unloading should be added to this zone.

### **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.

### **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.

### **Zone 25 (Constitution Avenue, Eastbound between 19th and 18th and Constitution Eastbound 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.

### **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 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.

### **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 non-designated 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 non-designated areas. The non-designated 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.

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# 1. INTRODUCTION AND BACKGROUND

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

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

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

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

The current study builds upon the background knowledge provided in the 2003, 2010 and 2011 reports by beginning the process of systematically documenting existing conditions related to tour bus operations. This is the third phase of the seven-phase study that will ultimately be integrated into a comprehensive plan of action for short-term and long-term improvements in tour bus operational efficiency within the National Mall. For Phase III, data specific to congestion, operational efficiency, mobility, access, safety, and resource protection at loading and unloading zones were collected, merged with the data collected during Phase I of this study and analyzed.

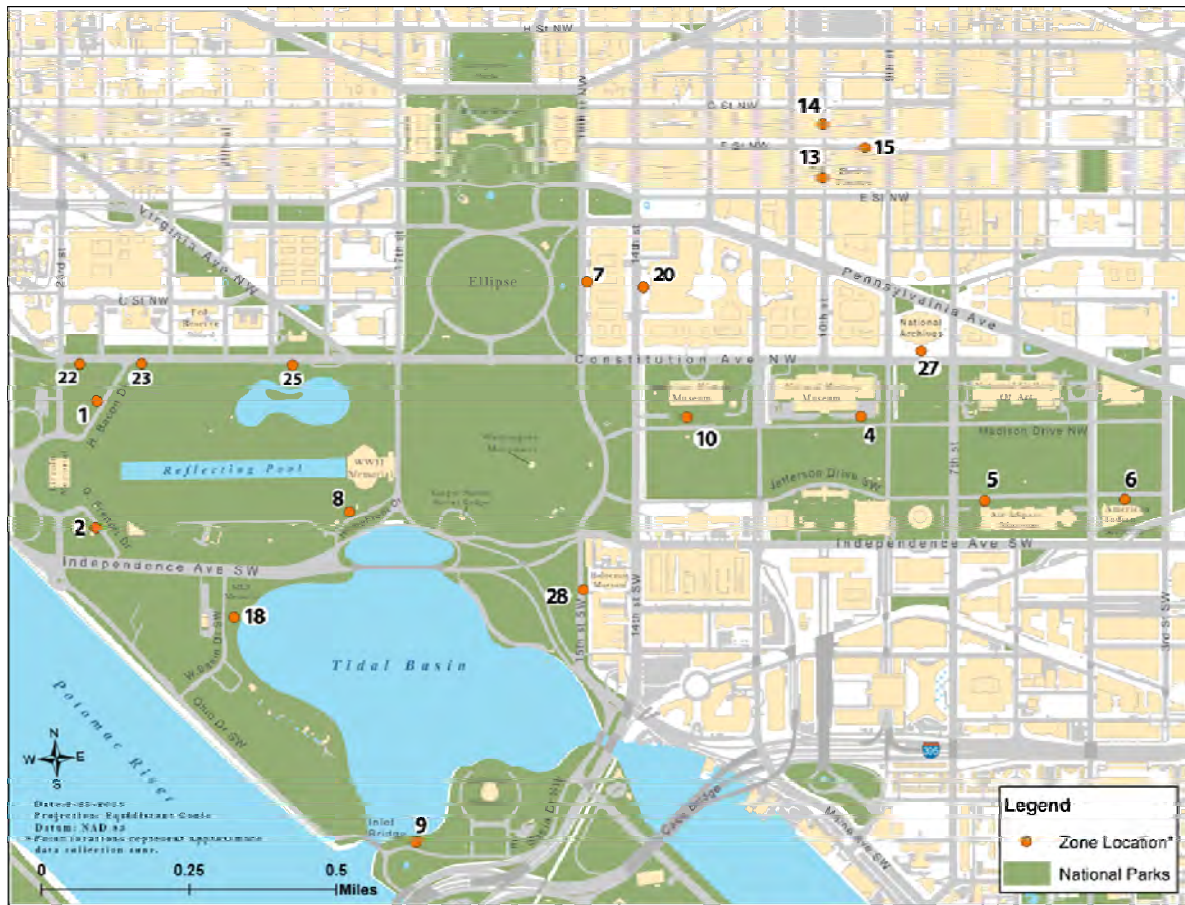
## 2. METHODS

### 2.1 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 2.1 lists the zones and the data collection dates and times for each.

**TABLE 2.1: 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 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	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.
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 21st	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.

**FIGURE 2.1: ZONES INCLUDED IN OFF-BUS DATA COLLECTION**

## 2.2 OFF-BUS INSTRUMENT

The off-bus instrument was constructed with significant input from NPS, the DC Department of Transportation (DDOT) and Destination DC. 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 1 and Appendix 2.

## 2.3 DATA COLLECTION: TRAINING AND IMPLEMENTATION

All researchers went through a 1-hour offsite training session to become familiar with the instrument and protocol. Once onsite, research teams were positioned at the zones, as indicated in Table 2.1. Researchers did not wear any NPS identifiers on their clothing and stayed at least six feet away from the buses at all times so as not to draw attention to the study in such a way that would influence driver 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 the National Mall and Memorial Parks, describing 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 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 would continue to document other buses but would indicate the pull-out time of the parked bus upon departure.

## **2.4 SAMPLE SIZE**

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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.

## **2.5 DATA ANALYSIS**

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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. QUANTITATIVE RESULTS

#### 3.1 BUS STYLE

Seven bus styles (Variable 1) were observed during the data collection period (Table 3.1). 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 National Park Service (n=14) buses. 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.

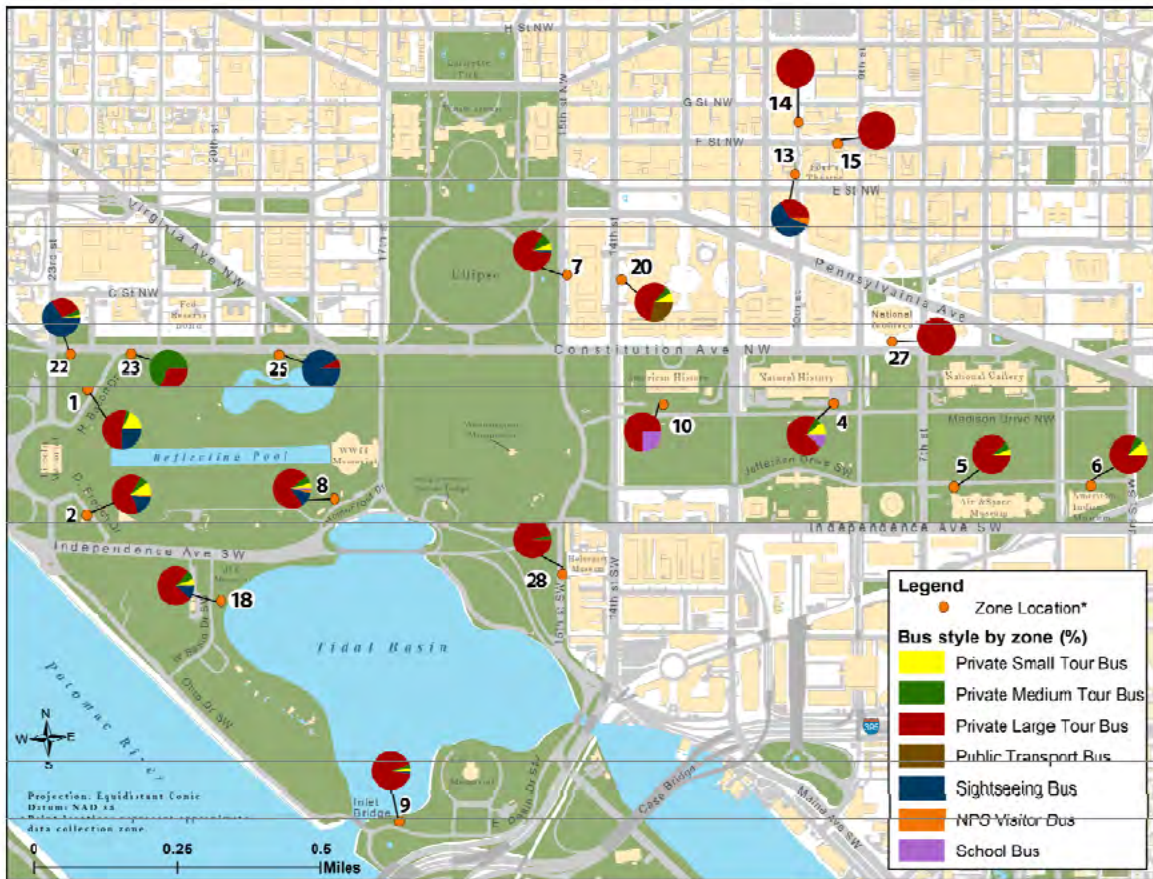
**TABLE 3.1: TOTAL NUMBER OF EACH TOUR BUS STYLE OBSERVED BY ZONE**

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 Visitor Buses	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
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
<b>Total (N)</b>	<b>86</b>	<b>82</b>	<b>1007</b>	<b>37</b>	<b>211</b>	<b>14</b>	<b>20</b>	<b>1457</b>
<b>Total (%)</b>	<b>5.9%</b>	<b>5.6%</b>	<b>69.1%</b>	<b>2.5%</b>	<b>14.5%</b>	<b>1.0%</b>	<b>1.4%</b>	<b>100%</b>

**Key for Loading / Unloading Zones**

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

**FIGURE 3.1: PERCENTAGE OF TOUR BUS STYLE OBSERVED BY ZONE**



**PHOTO 3.1. PRIVATE SMALL TOUR BUS**



**Key for Loading / Unloading Zones**

1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
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4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)
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6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum
8 World War II Memorial		



**PHOTO 3.2: PRIVATE MEDIUM TOUR BUS**



**PHOTO 3.3: PRIVATE LARGE TOUR BUS**



**PHOTO 3.4: PUBLIC TRANSPORT BUS**



**Key for Loading / Unloading Zones**

1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
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7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	

**PHOTO 3.5: TROLLEY**



**PHOTO 3.6: SIGHTSEEING BUS**



**PHOTO 3.7: NPS VISITOR BUS**



**Key for Loading / Unloading Zones**

1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
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7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	



PHOTO 3.8: SCHOOL BUS



### 3.2 PULLING IN TO 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 3.2, Figure 3.2). Instead, those buses stopped at an area close by but did not do so within the actual designated loading/unloading area.

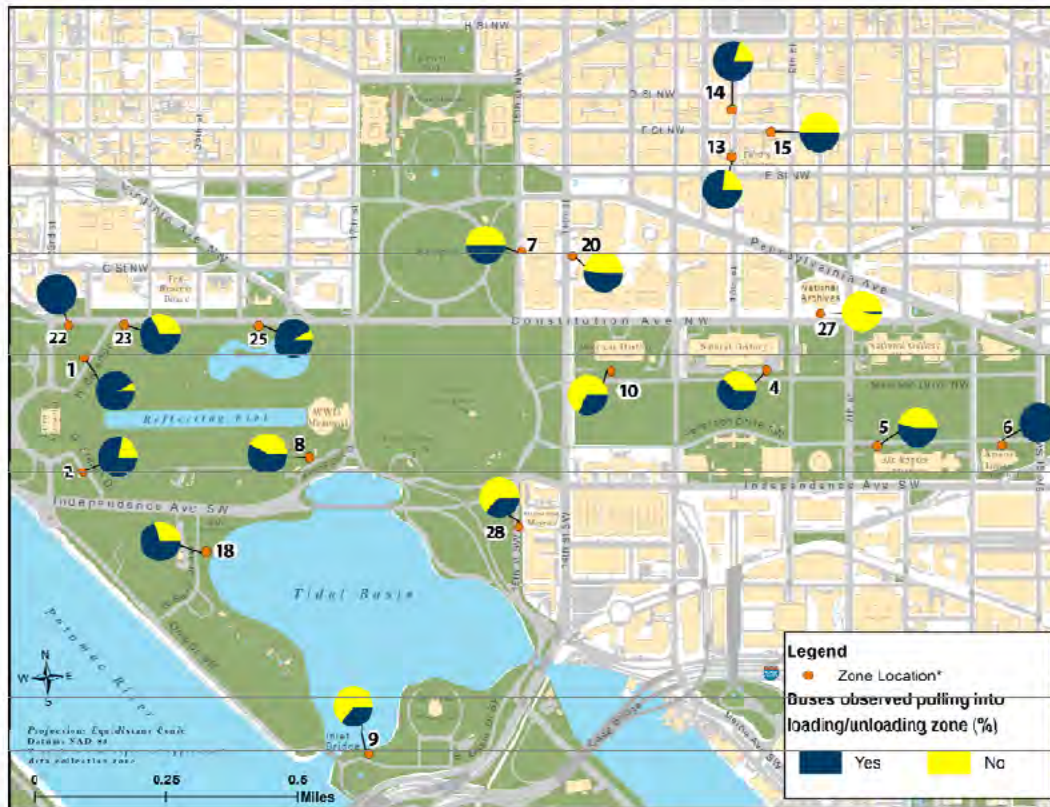
TABLE 3.2: PULLING IN TO LOADING ZONE

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
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
<b>Total</b>	<b>549</b>	<b>908</b>

#### Key for Loading / Unloading Zones

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

**FIGURE 3.2: PULLING IN TO LOADING ZONE**



### 3.3 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 3.3, Figure 3.3). The remaining 236 buses were not seen engaging in these activities at any time during the observation period.

**TABLE 3.3: 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

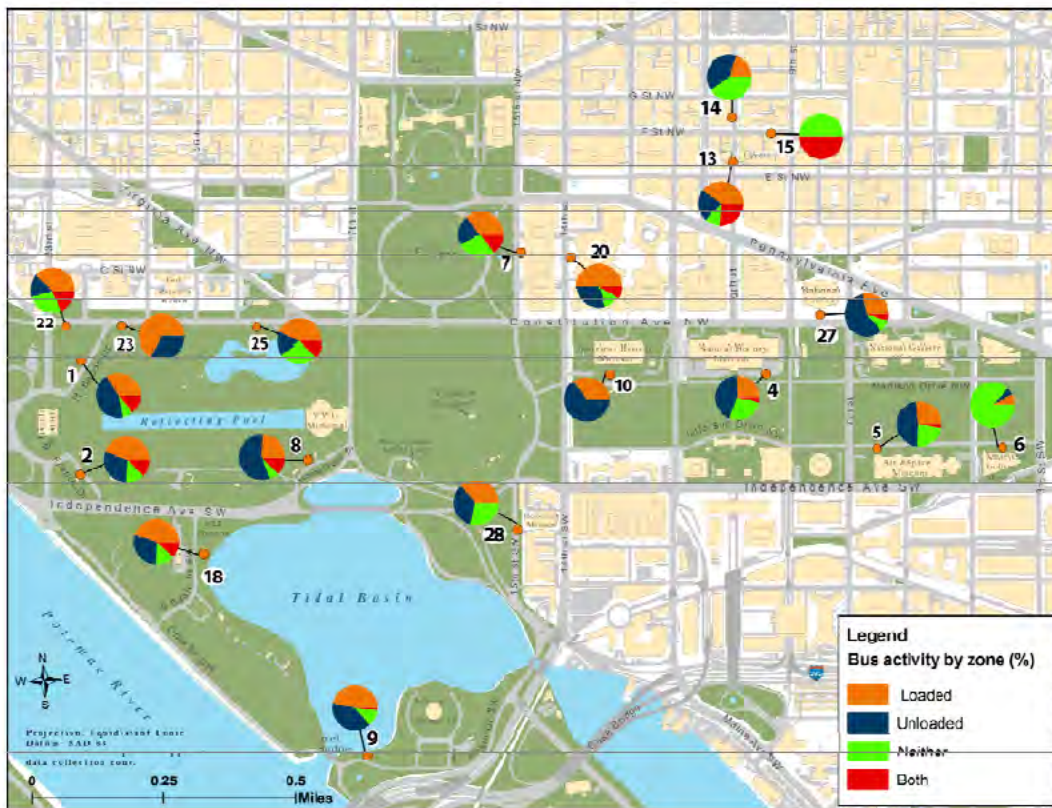
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6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum



Zone	Bus Loading			
	Loaded (n)	Unloaded (n)	Neither (n)	Both (n)
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
<b>Total</b>	<b>495</b>	<b>544</b>	<b>236</b>	<b>149</b>

**FIGURE 3.3: PASSENGER LOADING**



### 3.4 LOADING / UNLOADING AT CURB

Among the buses where passengers loaded or unloaded, the majority (79.8%) did so at the curb (n = 871), (Variable 7, Table 3.4, Figure 3.4). 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.

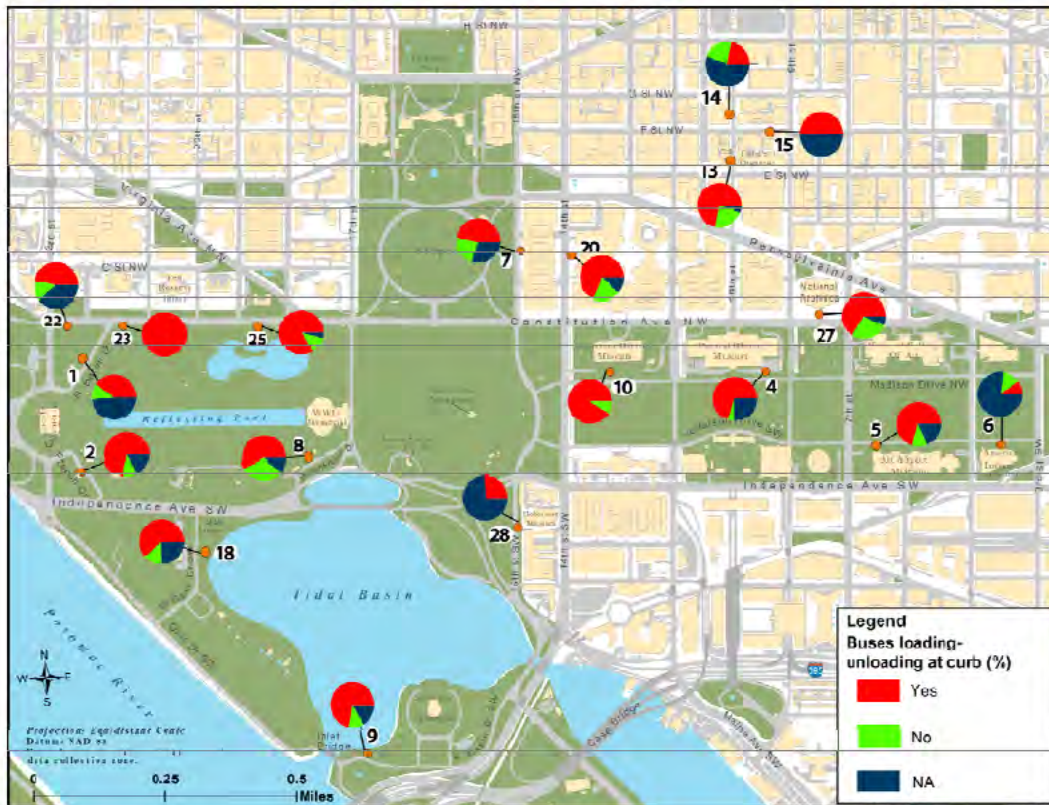
**Key for Loading / Unloading Zones**

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6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	

**TABLE 3.4: 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
<b>Total</b>	<b>220</b>	<b>871</b>	<b>273</b>

**FIGURE 3.4: LOADING / UNLOADING AT CURB**



**Key for Loading / Unloading Zones**

1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)
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6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt / Martin Luther King Jr. Memorials	28 U.S. Holocaust Museum



### 3.5 UNSAFE / ILLEGAL ACTIONS

In each zone, buses engaged in unsafe or illegal activities (Variable 23, Table 3.5, Figure 3.5). 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 non-designated 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 a bicycle lane (n = 14). Table 3.5 presents the actions in the order they were presented in the data collection instrument (see Appendix 2). Figure 3.5 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.

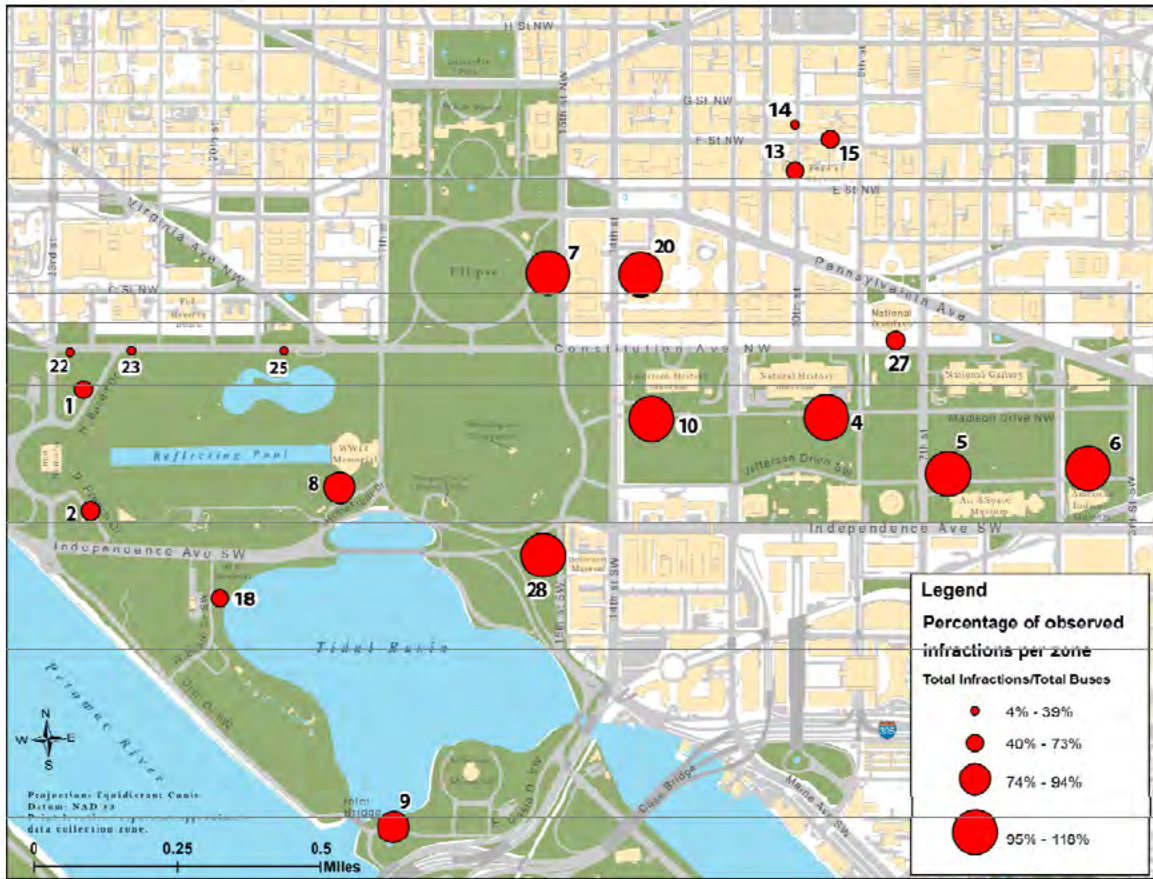
**TABLE 3.5: BUSES OBSERVED ENGAGING IN UNSAFE / ILLEGAL ACTIONS**

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 Lane	No. of Buses Blocking Facility Entrance	No. of Buses Double Parking	No. of Buses Unloading/ Loading in Non-designated 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
<b>Total</b>	<b>500</b>	<b>30</b>	<b>51</b>	<b>14</b>	<b>21</b>	<b>54</b>	<b>438</b>	<b>108</b>	<b>1213</b>

**Key for Loading / Unloading Zones**

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

**FIGURE 3.5: PERCENTAGE OF OBSERVED INFRACTIONS BY ZONE**



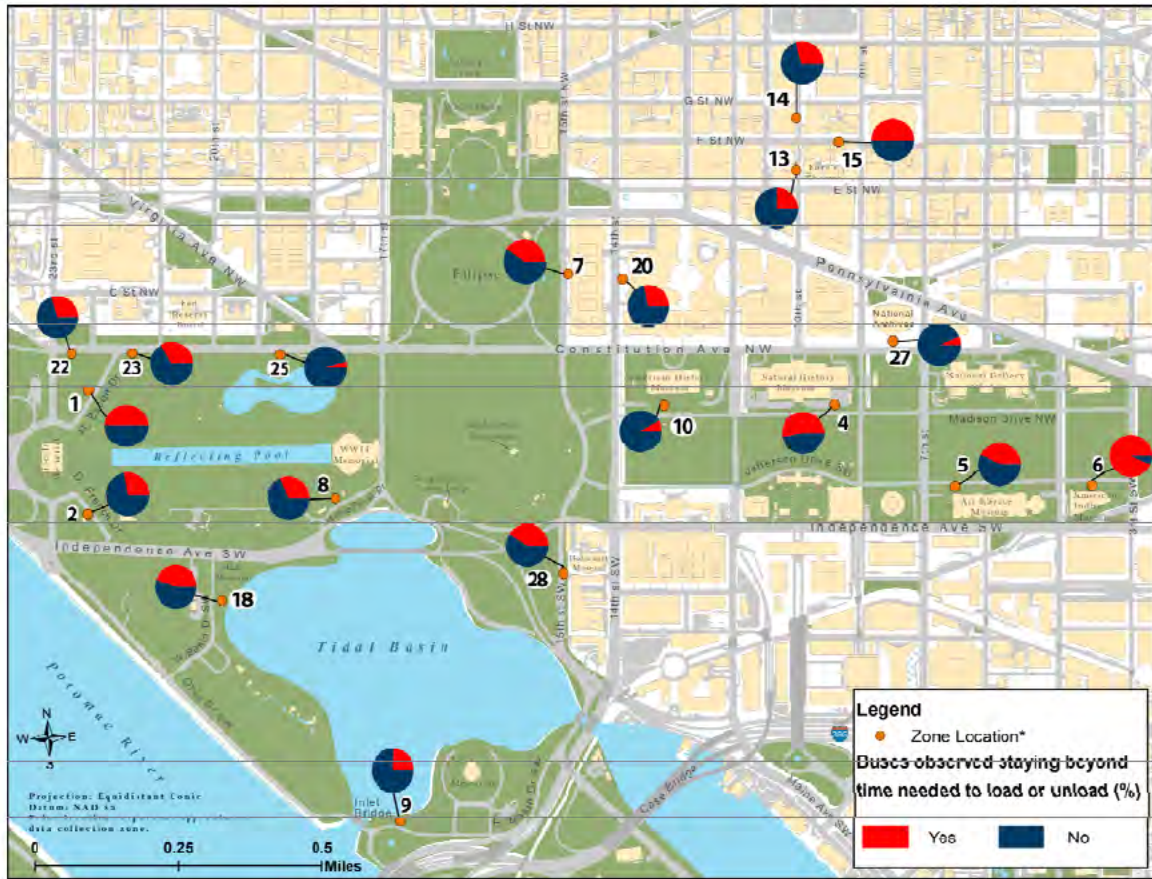
**Key for Loading / Unloading Zones**

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

### 3.5.1 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 the National Mall. 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 3.6).

**FIGURE 3.6: PERCENTAGE OF BUSES STAYING IN ZONE BEYOND TIME NEEDED TO LOAD / UNLOAD**



**Key for Loading / Unloading Zones**

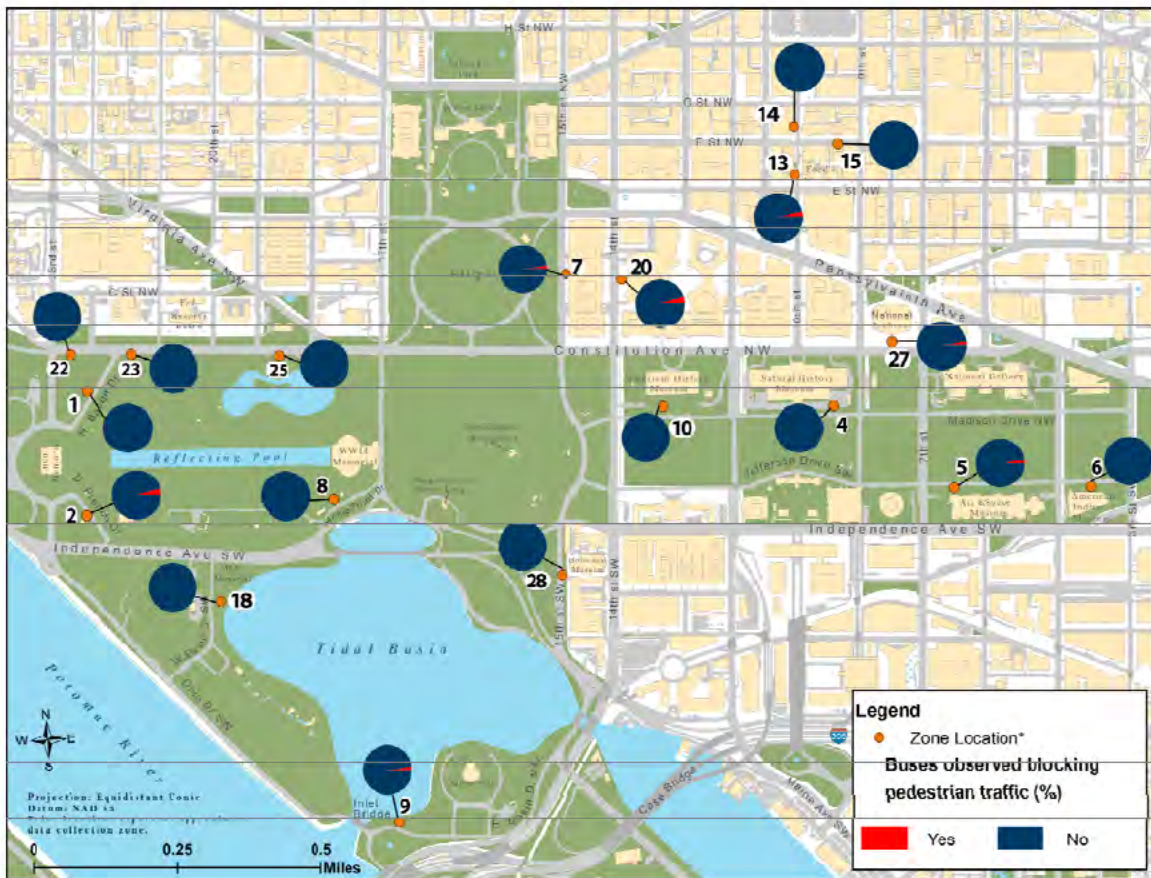
1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)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



### 3.5.2 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 3.7).

**FIGURE 3.7: PERCENTAGE OF BUSES PULLING INTO TRAFFIC IN A DANGEROUS WAY**



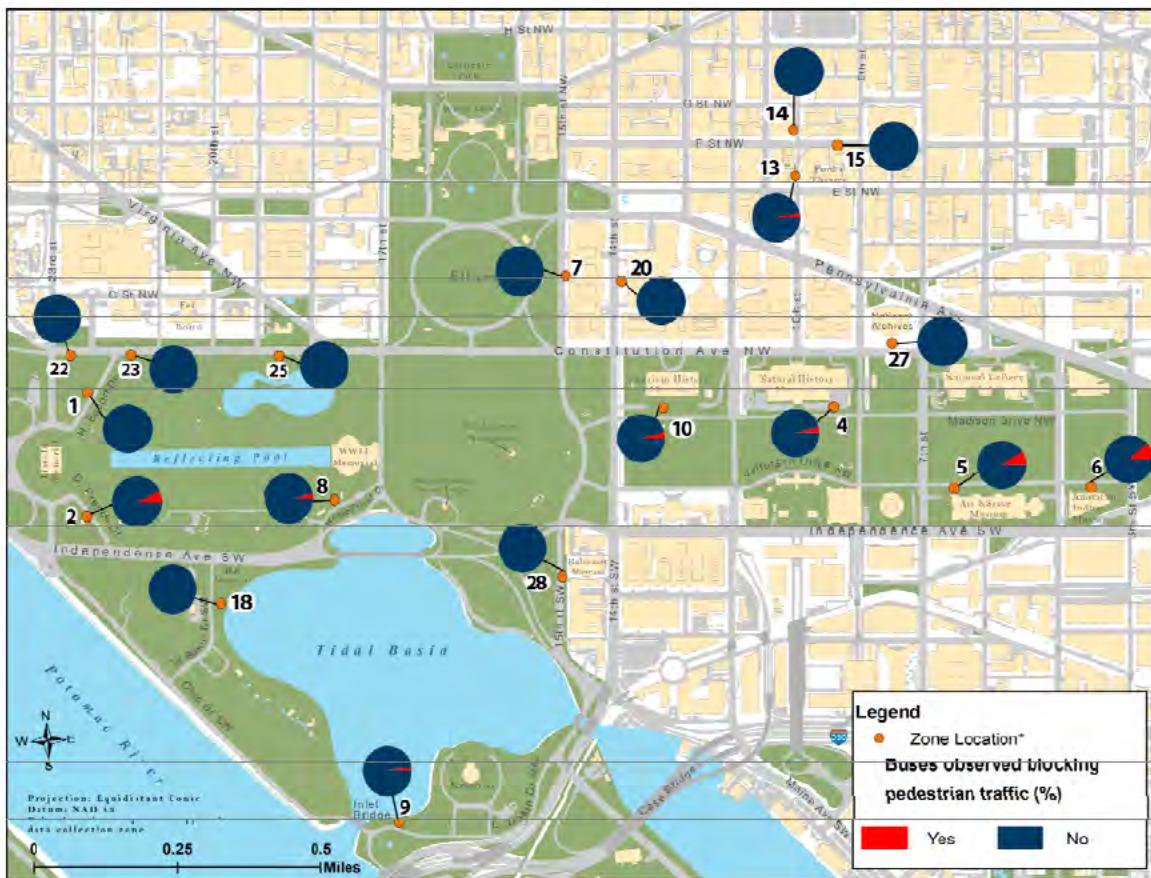
**Key for Loading / Unloading Zones**

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

### 3.5.3 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 3.8). Buses would block pedestrian walkways when they could not locate a space to pull in (Photo 3.9 and Photo 3.10).

**FIGURE 3.8: PERCENTAGE OF BUSES BLOCKING PEDESTRIAN TRAFFIC**



**Key for Loading / Unloading Zones**

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



**PHOTO 3.9: BUS BLOCKING PEDESTRIAN TRAFFIC (ZONE 4)**



**PHOTO 3.10: BUS BLOCKING PEDESTRIAN TRAFFIC (ZONE 9)**



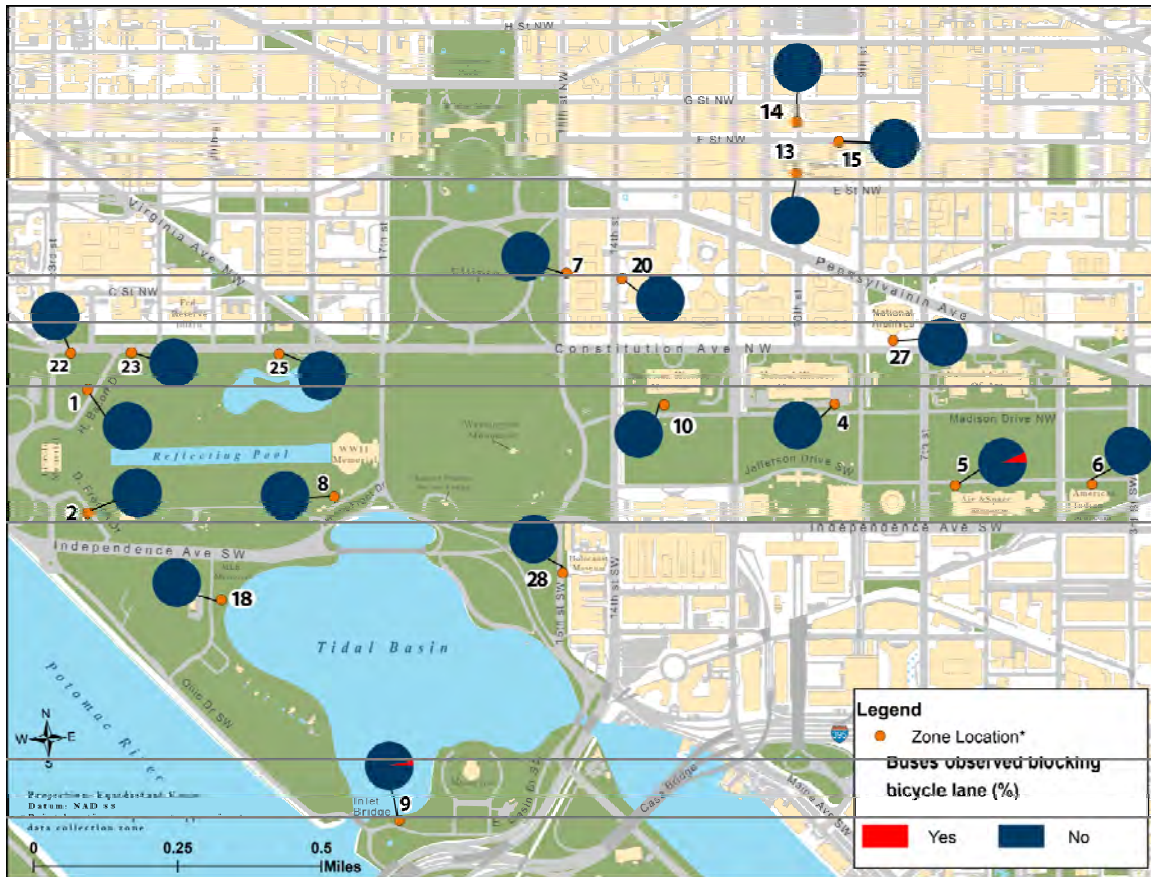
**Key for Loading / Unloading Zones**

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

### 3.5.4 Buses Blocking a Bicycle Lane

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 3.9).

**FIGURE 3.9: PERCENTAGE OF BUSES THAT BLOCKED A BICYCLE LANE**



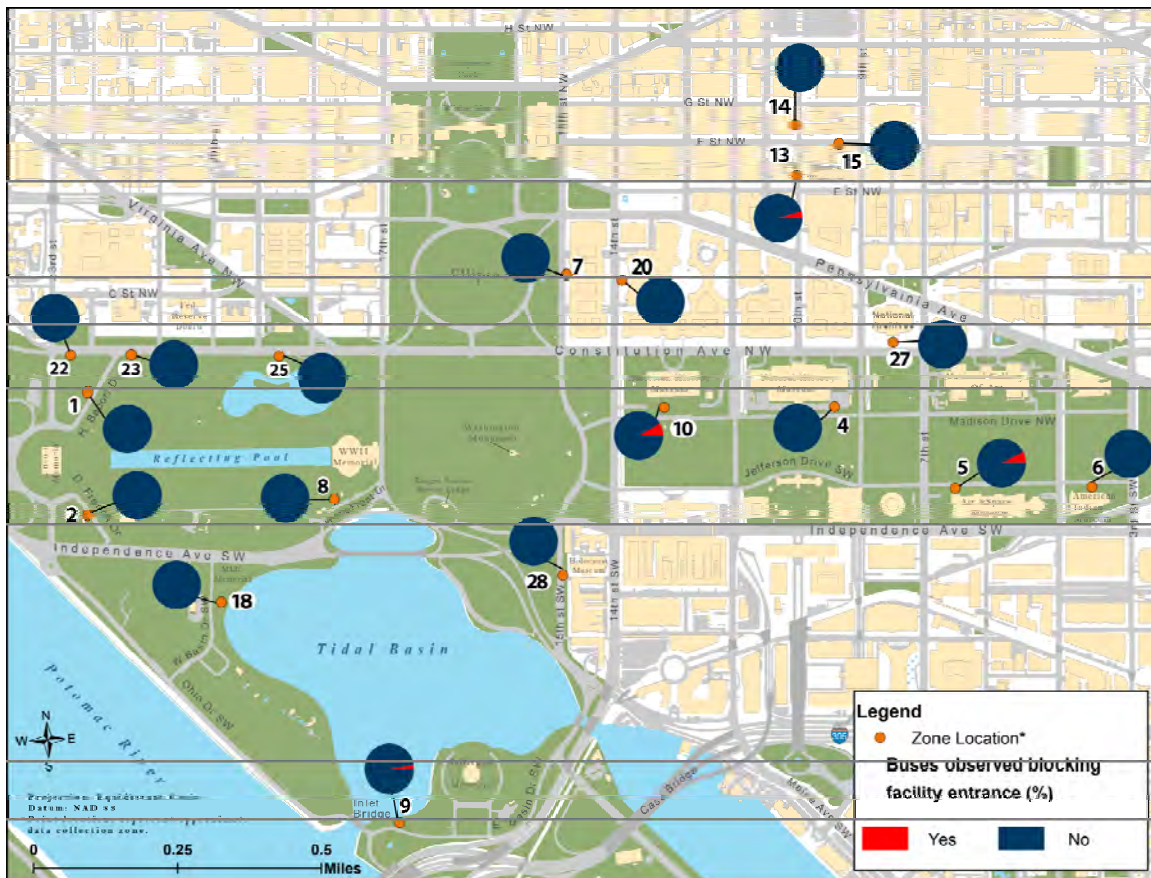
**Key for Loading / Unloading Zones**

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

### 3.5.5 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 3.10). 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 3.10: PERCENTAGE OF BUSES THAT BLOCKED A FACILITY ENTRANCE**



**Key for Loading / Unloading Zones**

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

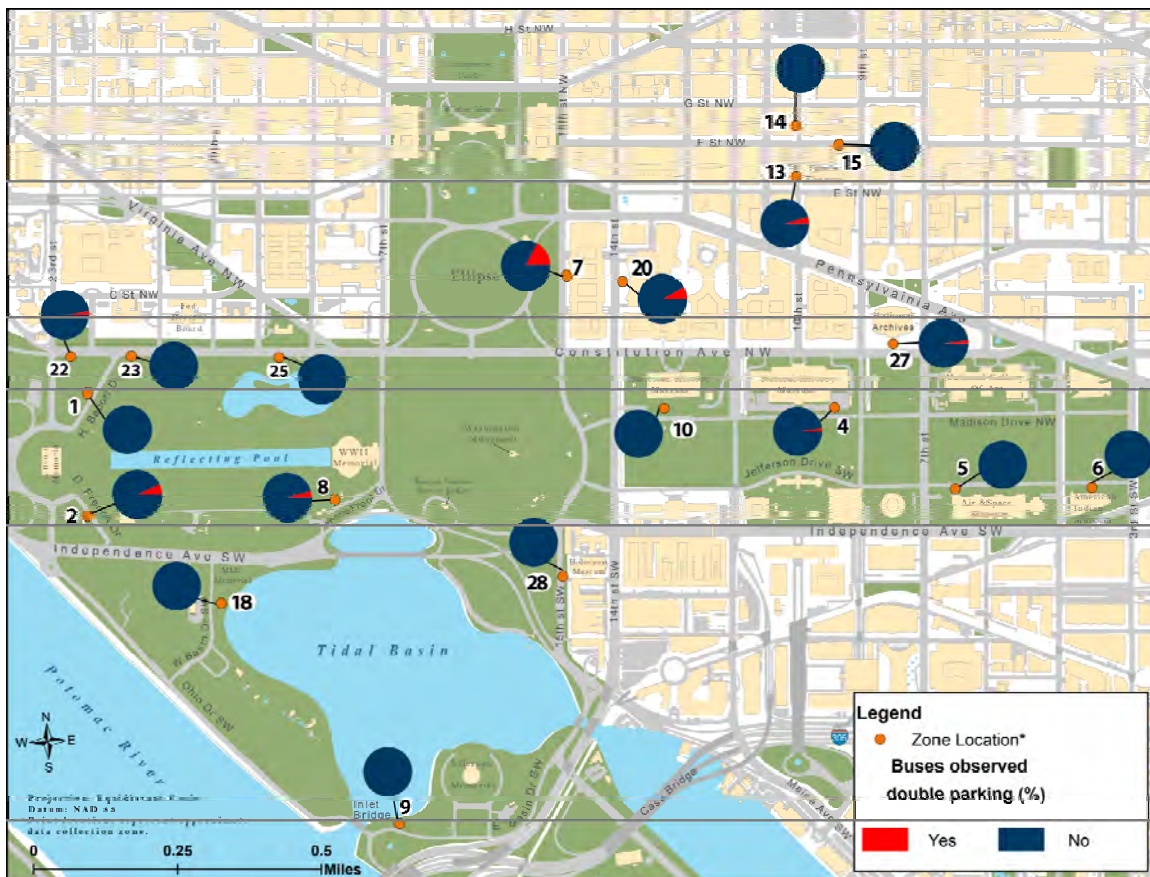


### 3.5.6 Double Parking

Double parking (Variable 23f) 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 3.11: PERCENTAGE OF BUSES THAT DOUBLE PARKED**



**Key for Loading / Unloading Zones**

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

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



**PHOTO 3.14: DOUBLE PARKING (ZONE 13)**



**PHOTO 3.15: DOUBLE PARKING (ZONE 9)**



**Key for Loading / Unloading Zones**

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

### 3.5.7 Loading and Unloading in a Nondesignated Zone

Loading and unloading in non-designated loading zone (Variable 23g; Figure 3.12) was a prevalent problem with violations reported across the National Mall, 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 non-designated 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 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 non-designated 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.

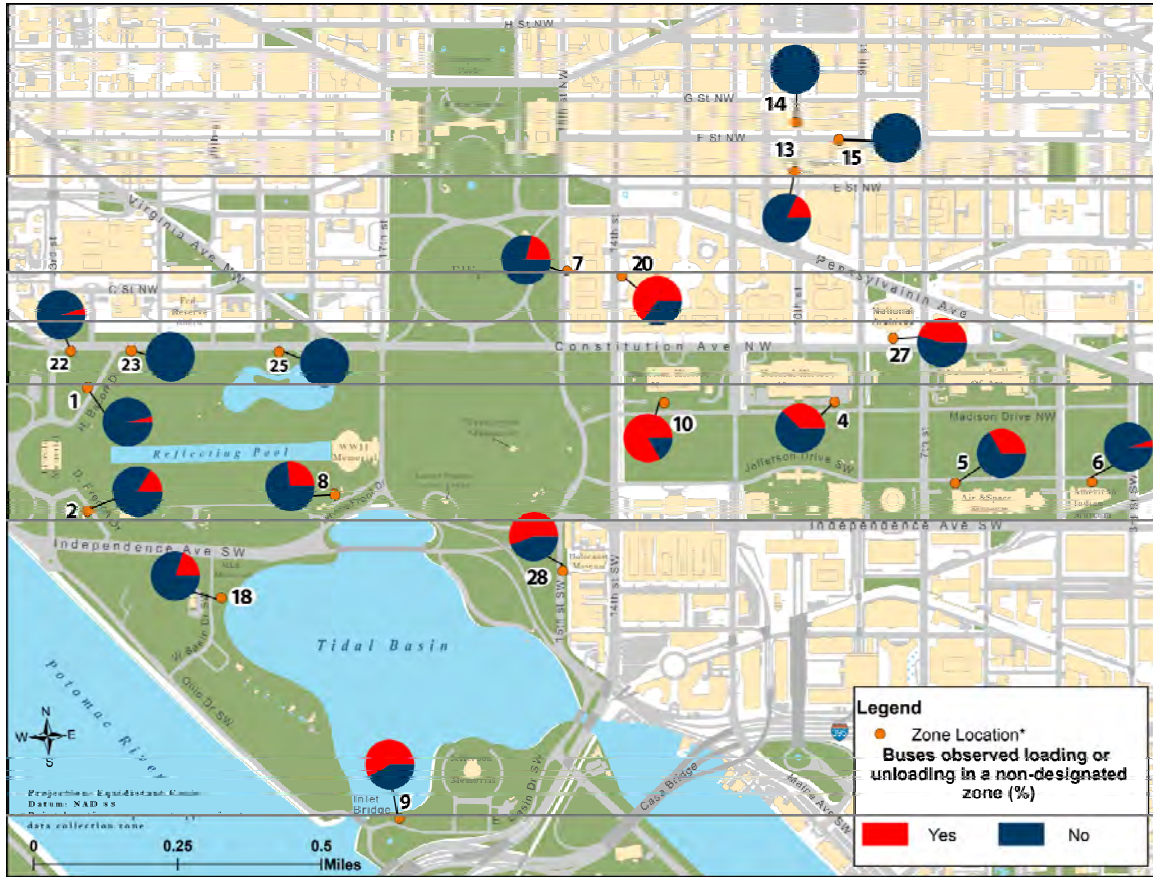
Notable violations took place at Zone 18, the Franklin Delano Roosevelt Memorial and the Martin Luther King, Jr. Memorial areas. The loading/unloading area was temporarily closed during the first phase of data collection, coinciding with the National Cherry Blossom Festival. Tour bus drivers were either 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 non-designated 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	9	Jefferson Memorial	20	14th St. (west side Reagan Building)
2	Lincoln Memorial South	10	American History Museum	22	Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4	Natural History Museum	13	Ford's Theatre (500 Block 10th)	23	Constitution Ave. (EB – Henry Bacon Dr. to 21st)
5	Air and Space Museum	14	Ford's Theatre (N, 600 Block 10th)	25	Constitution Ave. (EB – 19th to 17th)
6	American Indian Museum	15	Ford's Theatre (W, 1000 Block F St)	27	Constitution Ave. (WB in front of National Archives)
7	Ellipse	18	Franklin Delano Roosevelt /	28	U.S. Holocaust Museum
8	World War II Memorial		Martin Luther King Jr. Memorials		

**FIGURE 3.12: 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	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford’s Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)
5 Air and Space Museum	14 Ford’s Theatre (N, 600 Block 10th)	25 Constitution Ave. (EB – 19th to 17th)
6 American Indian Museum	15 Ford’s Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	



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



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



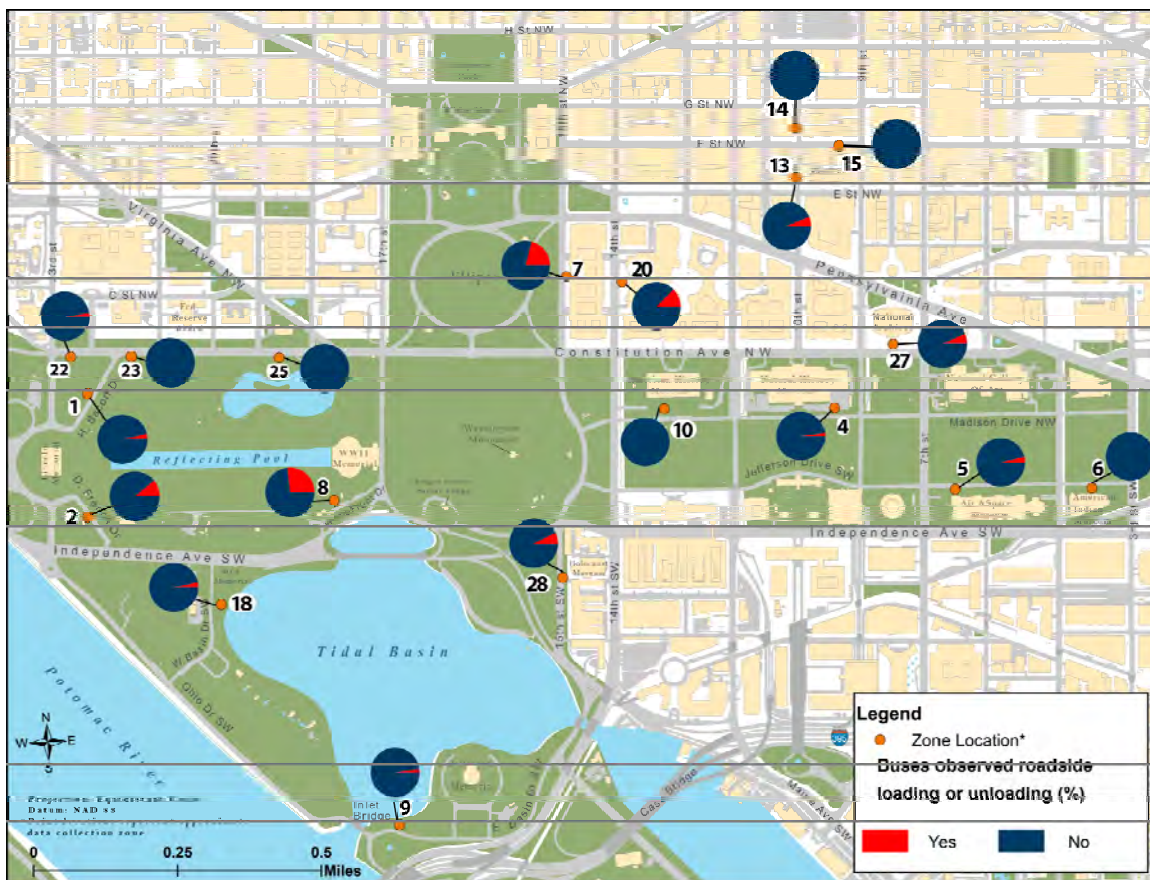
**Key for Loading / Unloading Zones**

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

### 3.5.8 Loading/Unloading on Roadside Rather than Curbside

Loading and unloading of buses on the roadside rather than the curbside (Variable 23h; Figure 3.13) 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 3.13: PERCENTAGE OF BUSES LOADING / UNLOADING ON ROADSIDE RATHER THAN CURBSIDE**



**Key for Loading / Unloading Zones**

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



**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**

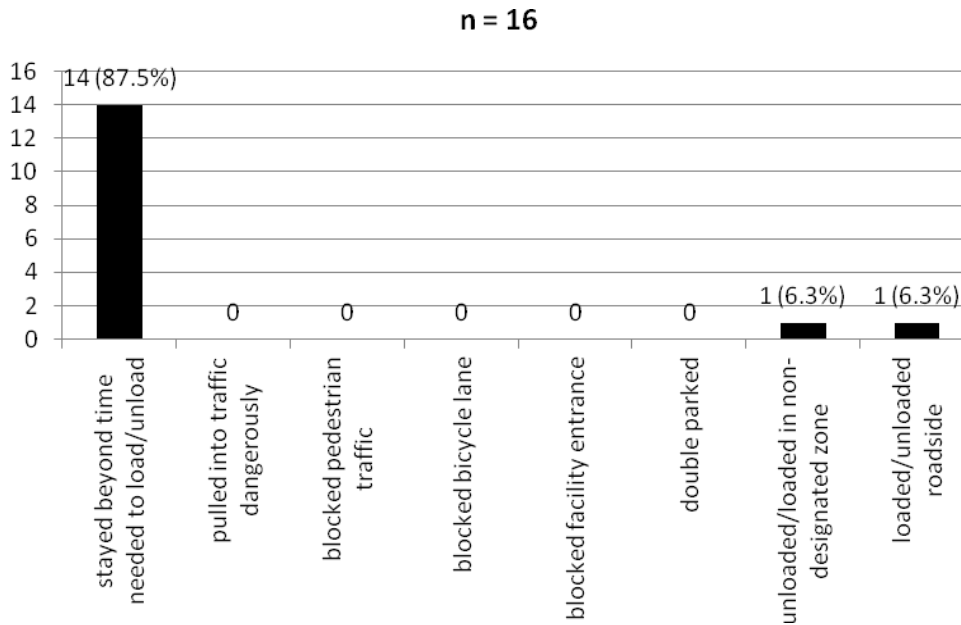
1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)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



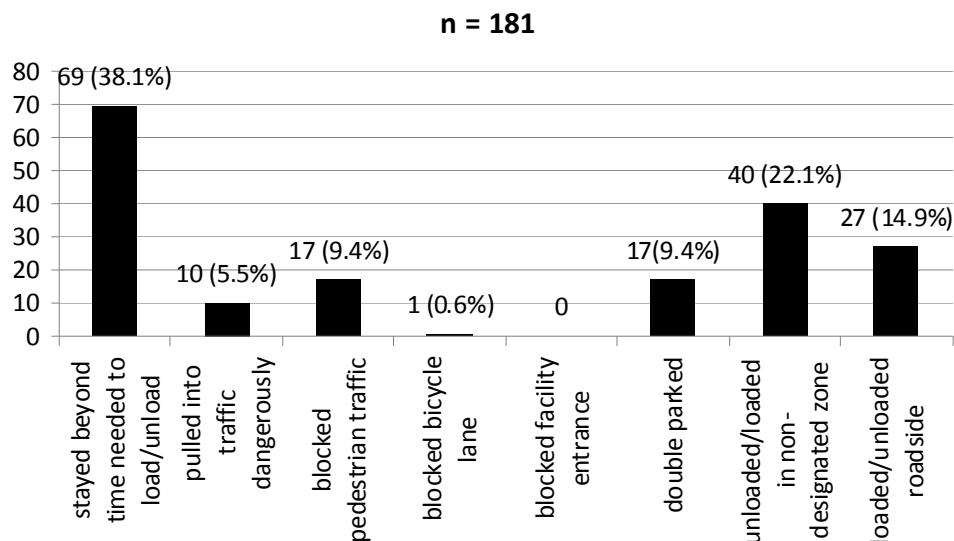
### 3.5.9 Unsafe / Illegal Actions, Summarized by Zone

Figure 3.14 through Figure 3.33 offer a summary of the eight unsafe / illegal actions by zone. This information mimics the data in Table 3.5 yet presents the findings in a way that is more visually accessible.

**FIGURE 3.14: INFRACTIONS BY ZONE, ZONE 1, LINCOLN MEMORIAL, NORTH**



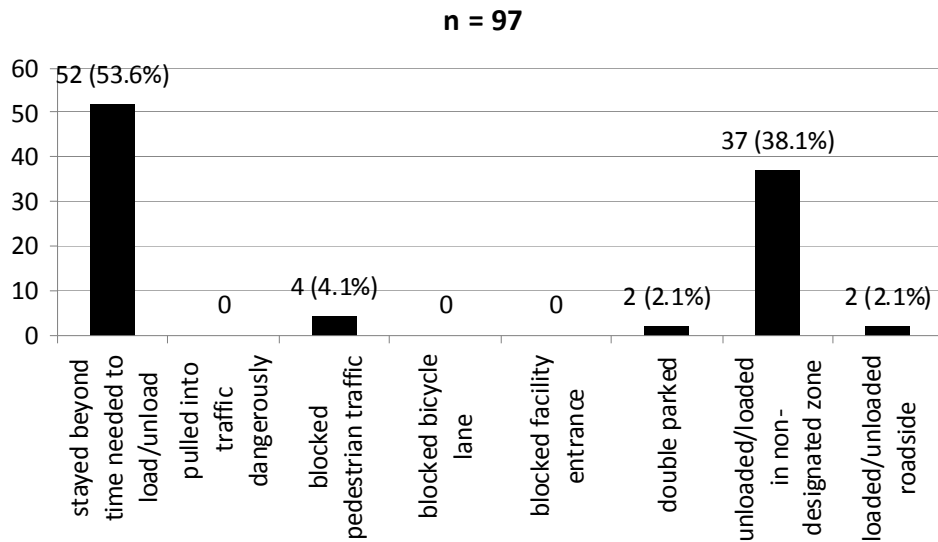
**FIGURE 3.15: INFRACTIONS BY ZONE, ZONE 2, LINCOLN MEMORIAL, SOUTH**



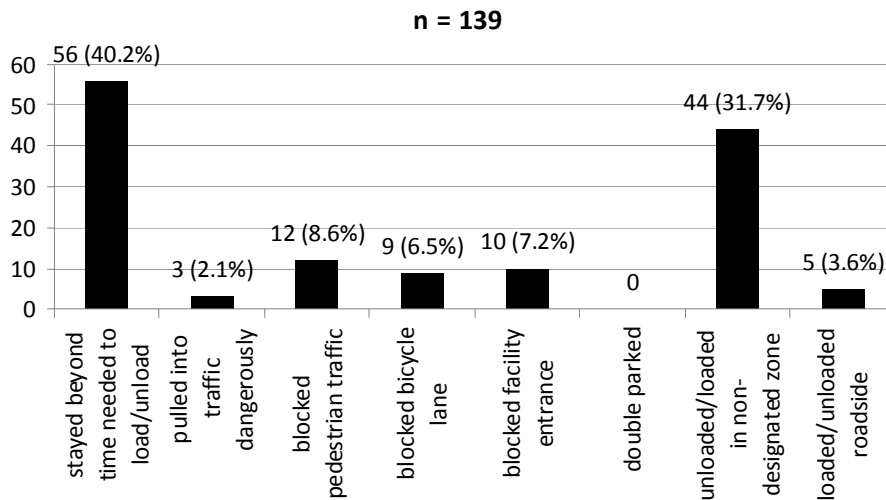
**Key for Loading / Unloading Zones**

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

**FIGURE 3.16: INFRACTIONS BY ZONE, ZONE 4, NATIONAL MUSEUM OF NATURAL HISTORY**



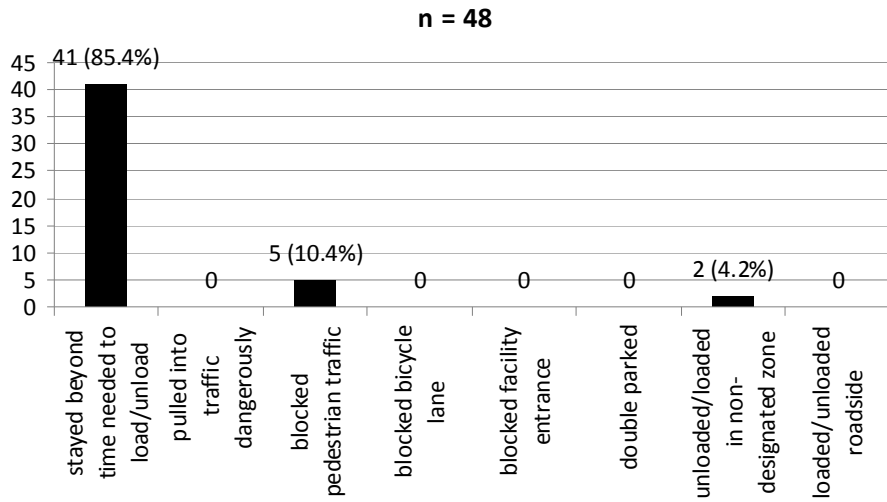
**FIGURE 3.17: INFRACTIONS BY ZONE, ZONE 5, NATIONAL AIR AND SPACE MUSEUM**



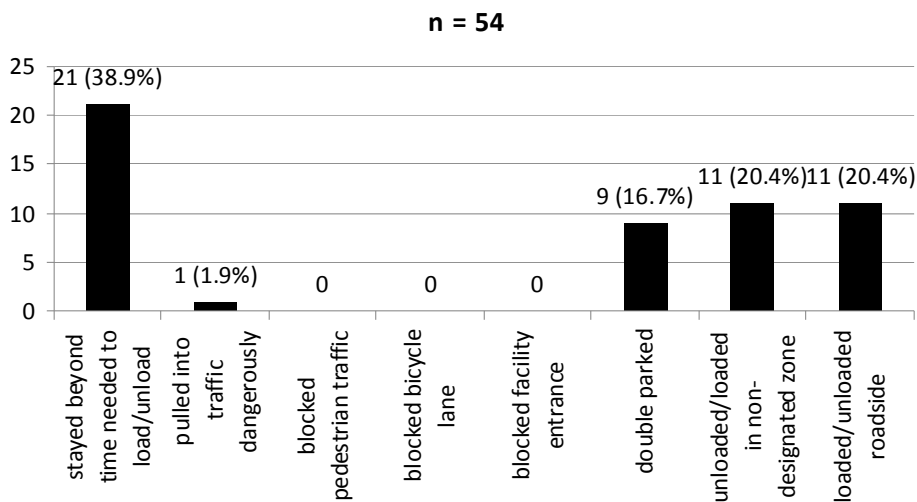
**Key for Loading / Unloading Zones**

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

**FIGURE 3.18: INFRACTIONS BY ZONE, ZONE 6, NATIONAL MUSEUM OF THE AMERICAN INDIAN**



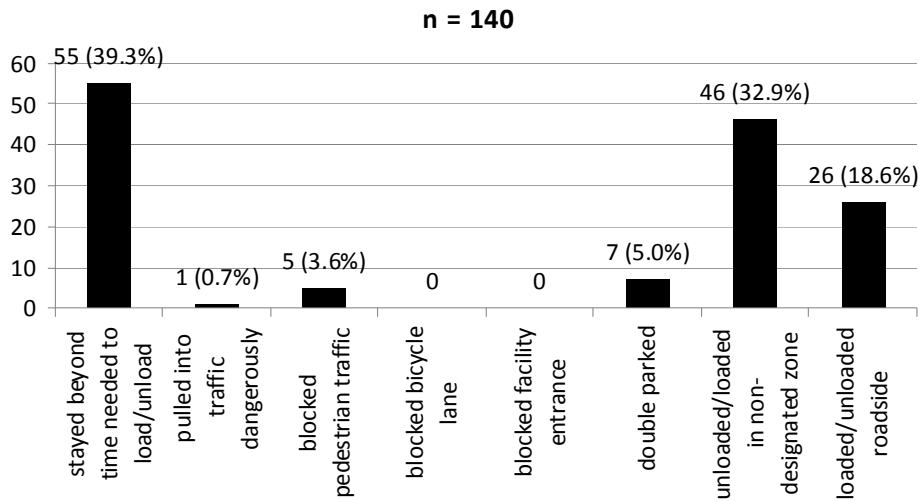
**FIGURE 3.19: INFRACTIONS BY ZONE, ZONE 7, ELLIPSE**



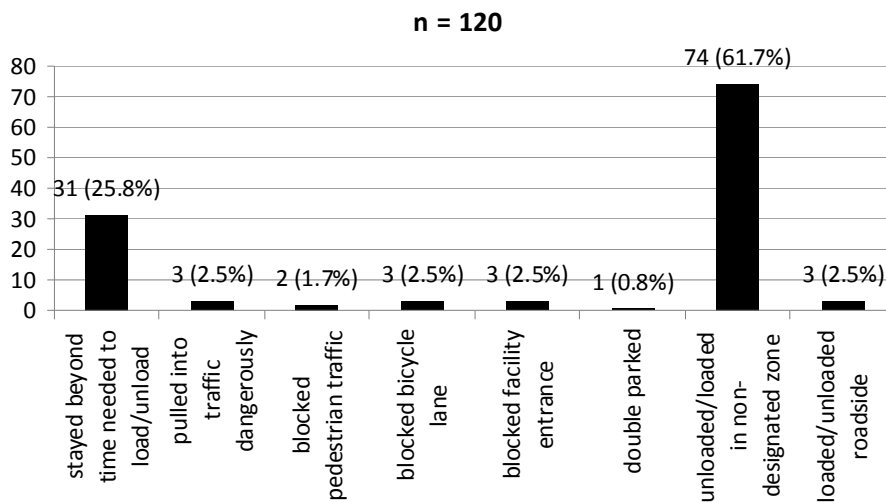
**Key for Loading / Unloading Zones**

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

**FIGURE 3.20: INFRACTIONS BY ZONE, ZONE 8, WORLD WAR II MEMORIAL**



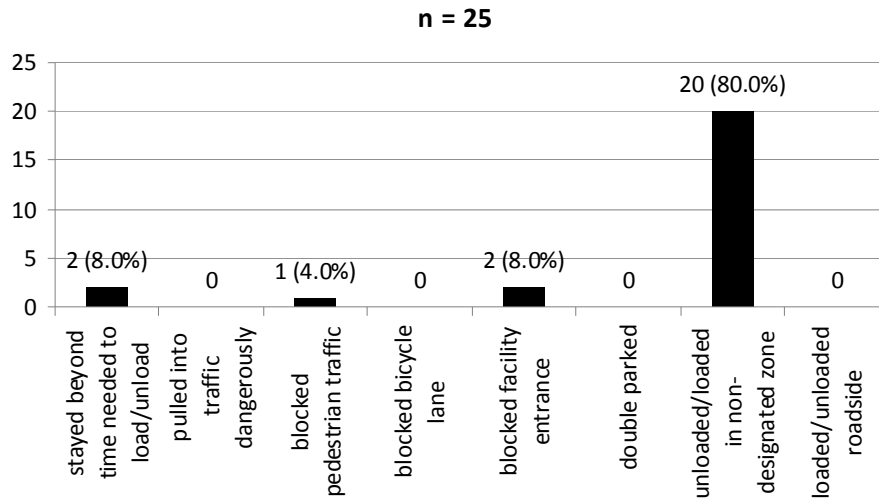
**FIGURE 3.21: INFRACTIONS BY ZONE, ZONE 9, JEFFERSON MEMORIAL**



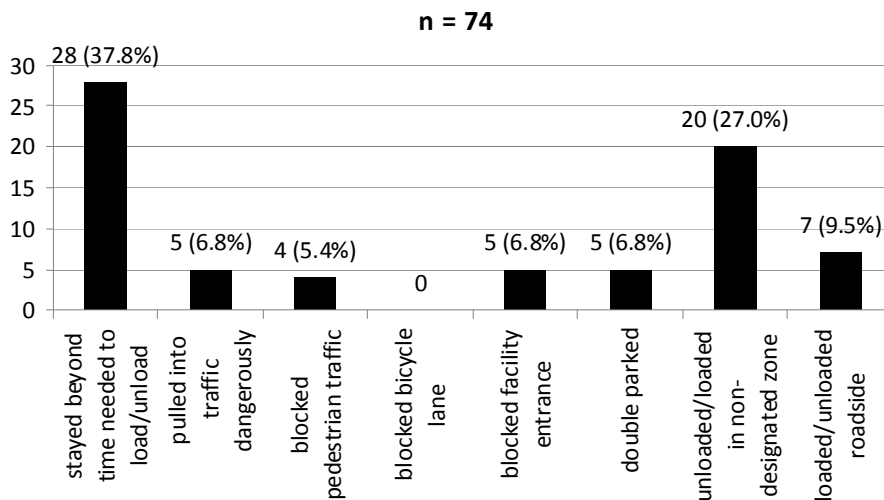
**Key for Loading / Unloading Zones**

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

**FIGURE 3.22: INFRACTIONS BY ZONE, ZONE 10, NATIONAL MUSEUM OF AMERICAN HISTORY**



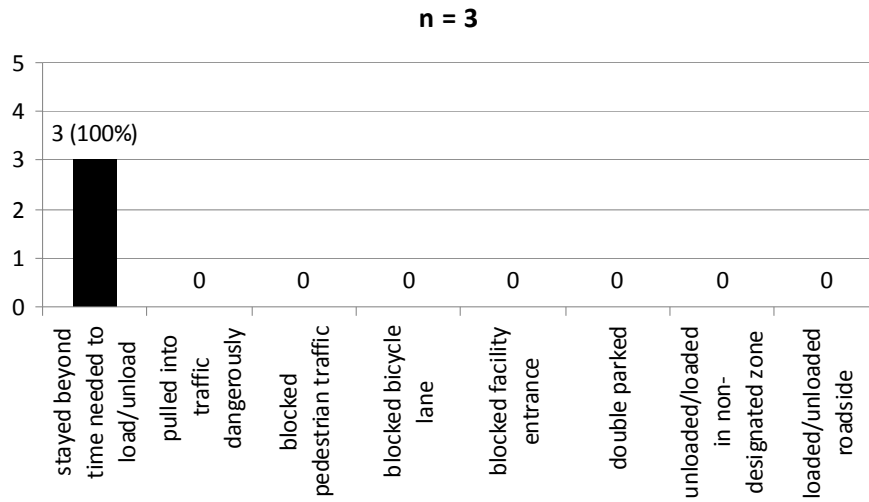
**FIGURE 3.23: INFRACTIONS BY ZONE, ZONE 13, FORD'S THEATRE, 500 BLOCK 10TH STREET**



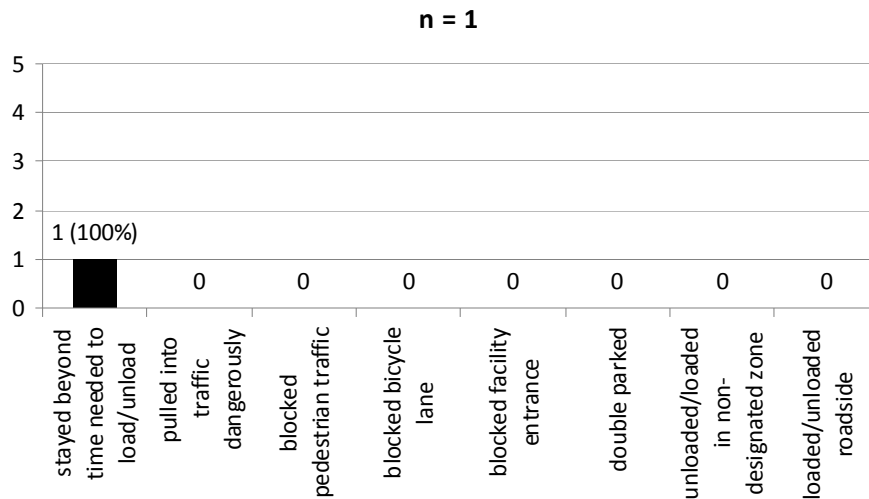
**Key for Loading / Unloading Zones**

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

**FIGURE 3.24: INFRACTIONS BY ZONE, ZONE 14, FORD’S THEATRE, NORTH, 600 BLOCK 10TH STREET**



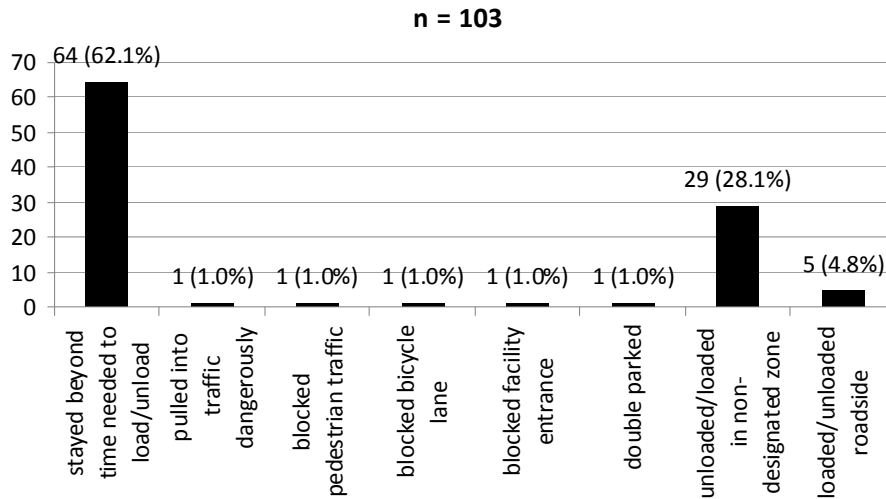
**FIGURE 3.25: INFRACTIONS BY ZONE, ZONE 15, FORD’S THEATRE, WEST, 1000 BLOCK F STREET**



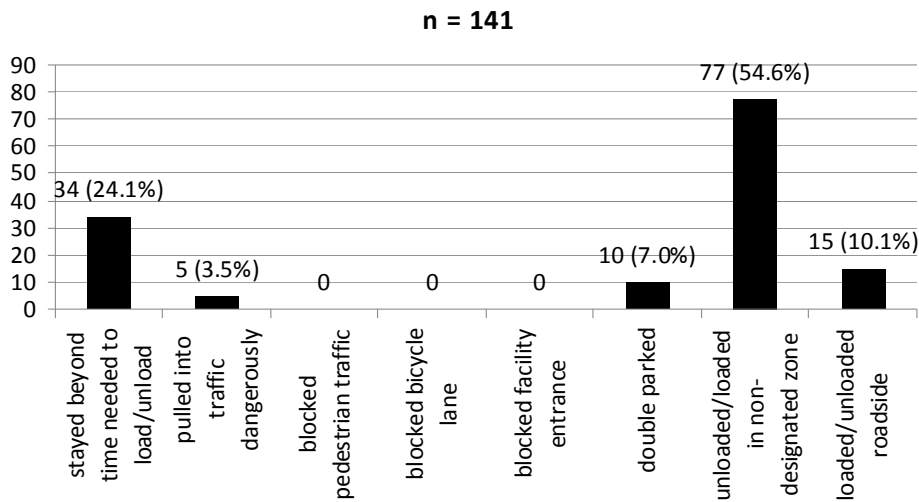
**Key for Loading / Unloading Zones**

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

**FIGURE 3.26: INFRACTIONS BY ZONE, ZONE 18, FRANKLIN DELANO ROOSEVELT MEMORIAL / MARTIN LUTHER KING JR. MEMORIAL**



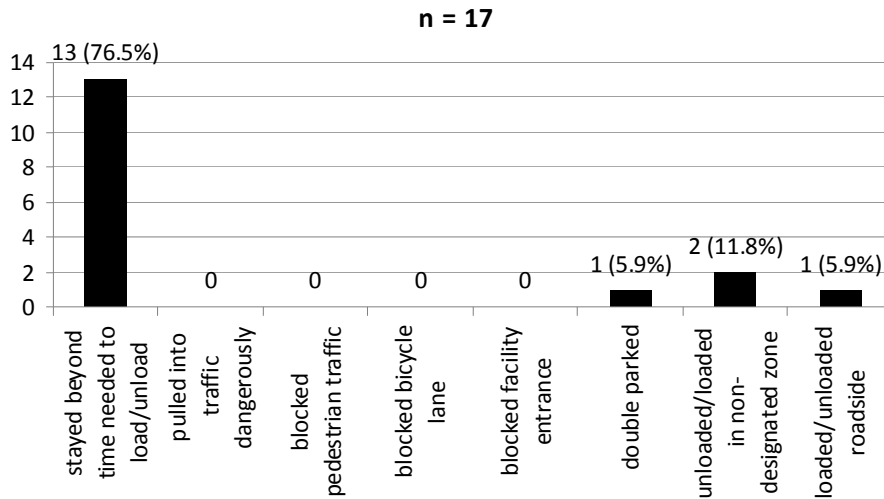
**FIGURE 3.27: INFRACTIONS BY ZONE, ZONE 20, RONALD REAGAN BUILDING**



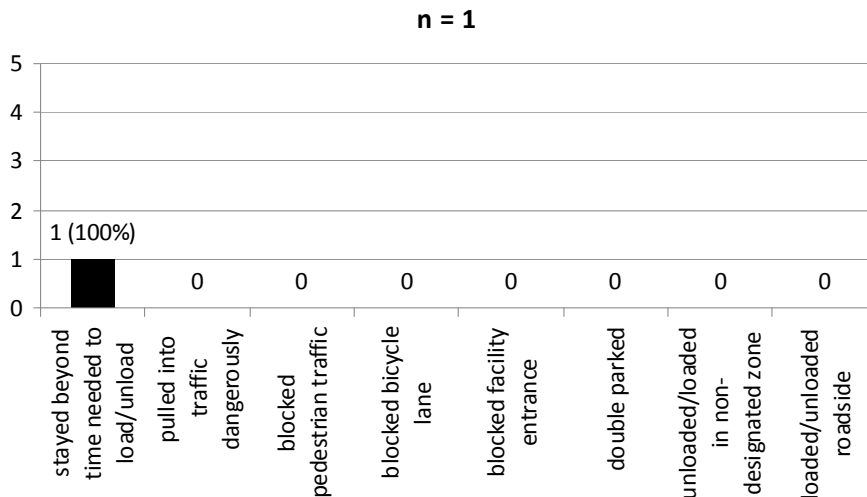
**Key for Loading / Unloading Zones**

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

**FIGURE 3.28: INFRACTIONS BY ZONE, ZONE 22, CONSTITUTION AVENUE, EASTBOUND BETWEEN 23RD & HENRY BACON DRIVE**



**FIGURE 3.29: INFRACTIONS BY ZONE, ZONE 23, CONSTITUTION AVENUE, EASTBOUND BETWEEN HENRY BACON DRIVE & 21ST**

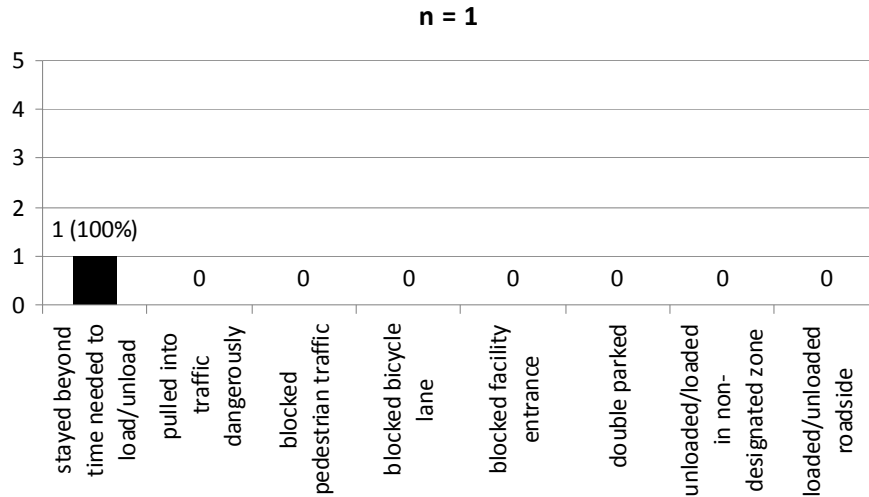


**Key for Loading / Unloading Zones**

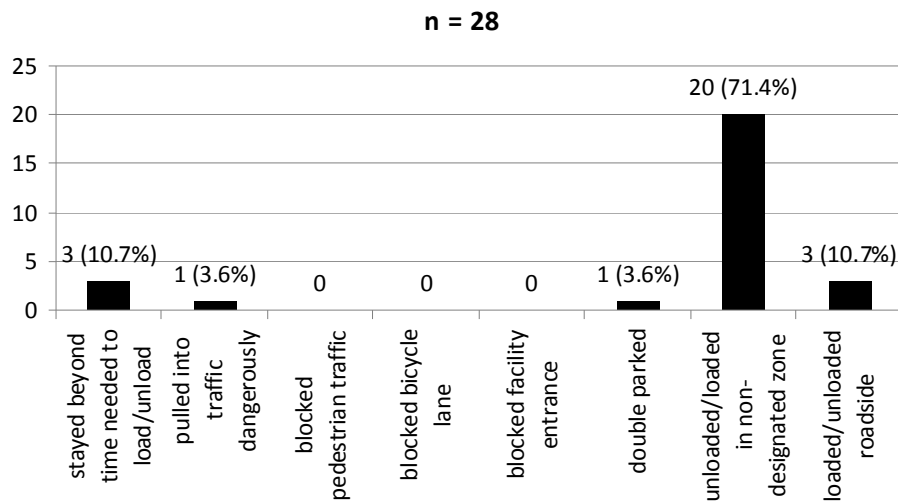
1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford’s Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)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



**FIGURE 3.30: INFRACTIONS BY ZONE, ZONE 25, CONSTITUTION AVENUE, EASTBOUND BETWEEN 19TH & 18TH AND BETWEEN 18TH & 17TH**



**FIGURE 3.31: INFRACTIONS BY ZONE, ZONE 27, CONSTITUTION AVENUE, WESTBOUND IN FRONT OF NATIONAL ARCHIVES**

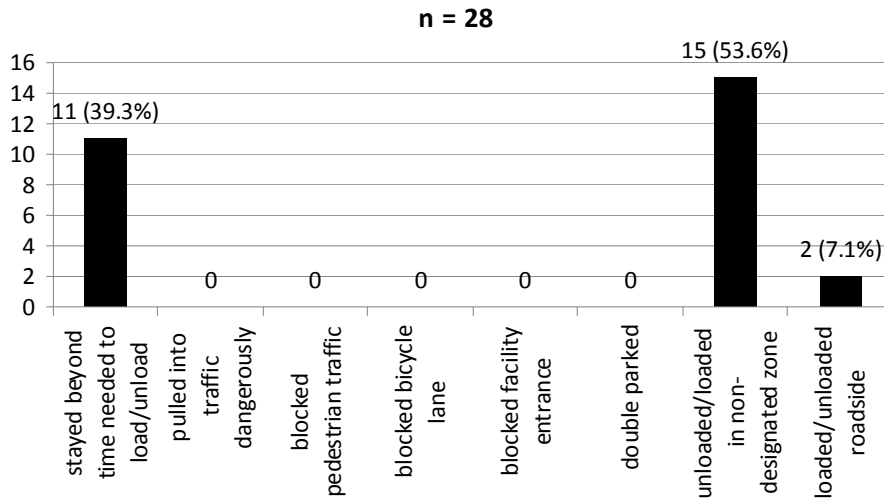


**FIGURE**

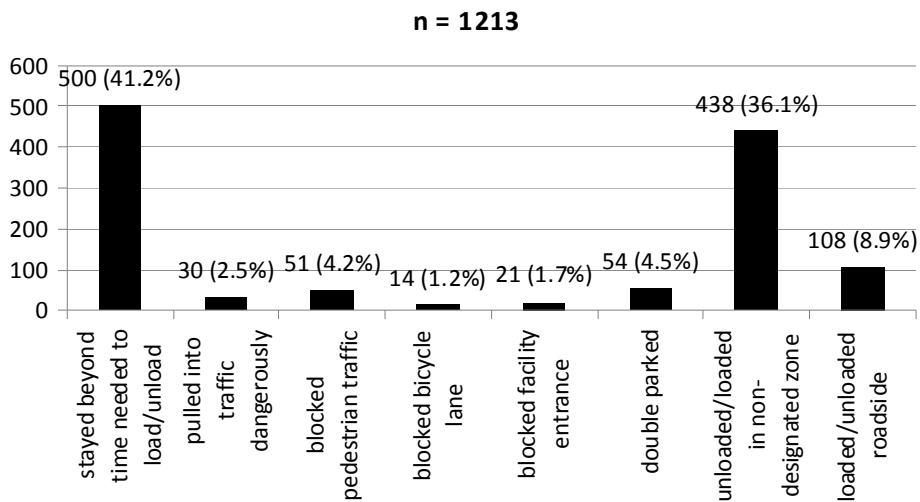
**Key for Loading / Unloading Zones**

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

**3.32 INFRACTIONS BY ZONE, ZONE 28, U.S. HOLOCAUST MEMORIAL MUSEUM**



**FIGURE 3.33: INFRACTIONS BY ZONE, ALL ZONES**



**Key for Loading / Unloading Zones**

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

### 3.6 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). 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 3.6). 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.

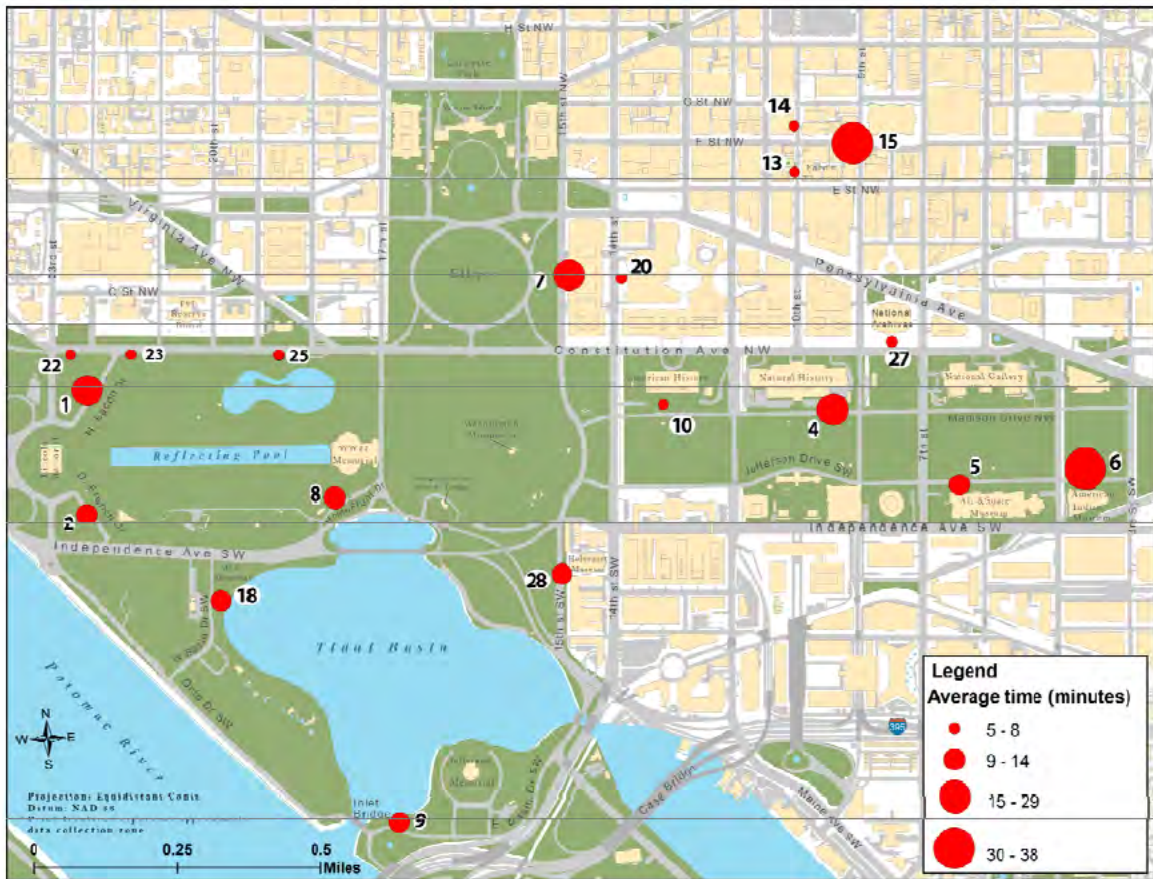
**TABLE 3.6: AVERAGE TIME SPENT IN ZONE**

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
<b>Total</b>	<b>12.1 minutes</b>	<b>19.0</b>	<b>0–157 minutes</b>

#### Key for Loading / Unloading Zones

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

**FIGURE 3.34: AVERAGE TIME SPENT IN ZONE**



**Key for Loading / Unloading Zones**

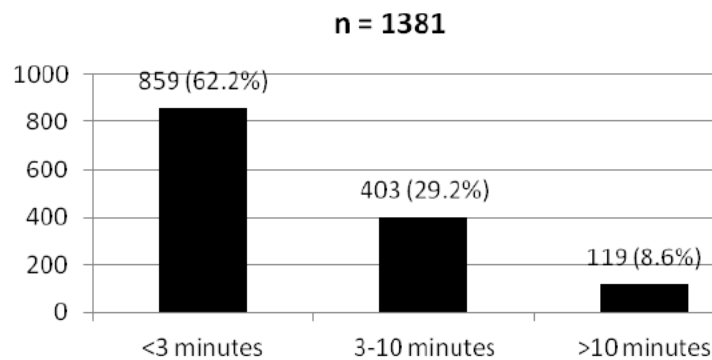
1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)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

### 3.7 ENGINE IDLING TIME

The majority (62.2%) of buses adhered to Washington, DC 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 3.35). 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 3.7, Figure 3.36). 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 3.35: ENGINE IDLING TIME, ALL ZONES**



**TABLE 3.7: ENGINE IDLING TIME BY ZONE**

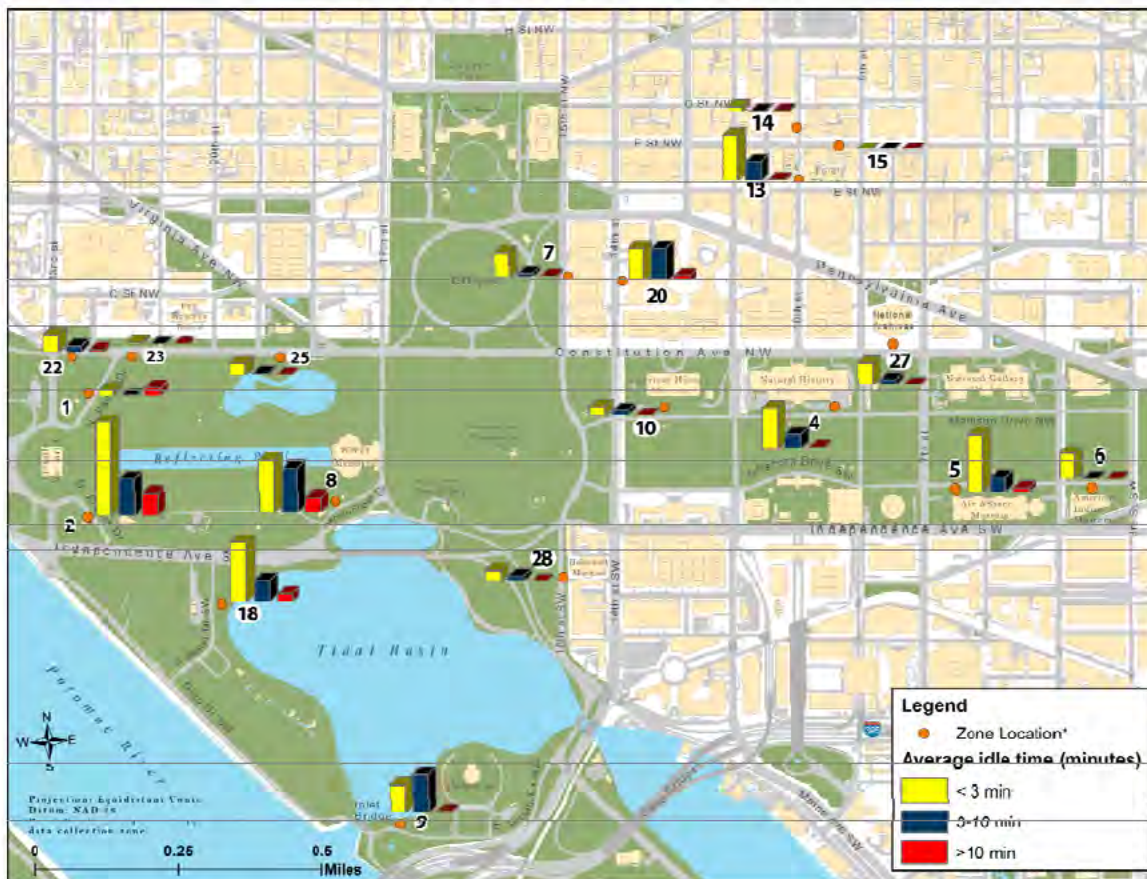
Zone	Engine Idling Time		
	<3 minutes (n)	3-10 minutes (n)	>10 minutes (n)
1	11	2	15
2	148	58	35
4	68	24	3
5	90	25	7
6	38	0	0
7	38	7	3
8	80	69	23
9	42	58	2
10	15	9	0
13	73	31	2
14	8	1	1
15	0	1	1
18	95	35	13
20	53	53	11
22	25	9	4
23	3	0	0
25	19	3	1
27	35	9	1
28	18	9	0
<b>Total</b>	<b>859</b>	<b>403</b>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

**Key for Loading / Unloading Zones**

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



**FIGURE 3.36: ENGINE IDLING TIME BY ZONE**



### 3.8 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 3.8).

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.

**Key for Loading / Unloading Zones**

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

**TABLE 3.8: 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%
<b>Total</b>		<b>1021</b>	<b>100%</b>

### 3.9 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 3.9, Figure 3.37, and Figure 3.38).

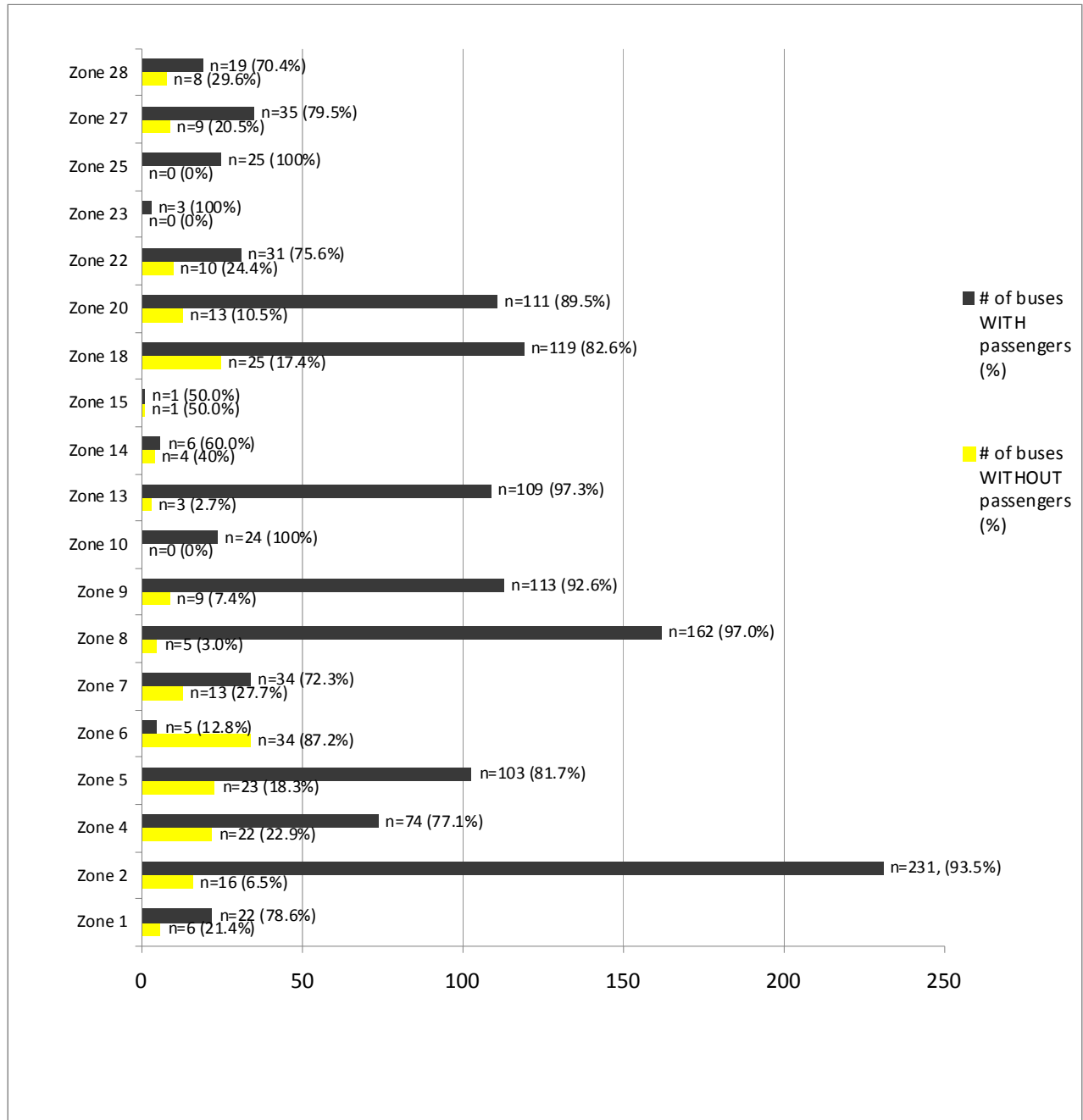
**TABLE 3.9: BUSES WITH AND WITHOUT PASSENGERS, BY ZONE**

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%
<b>Total</b>	<b>1428</b>	<b>1227</b>	<b>85.9%</b>	<b>201</b>	<b>14.1%</b>

#### Key for Loading / Unloading Zones

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

**FIGURE 3.37: BUSES WITH AND WITHOUT PASSENGERS, BY ZONE**

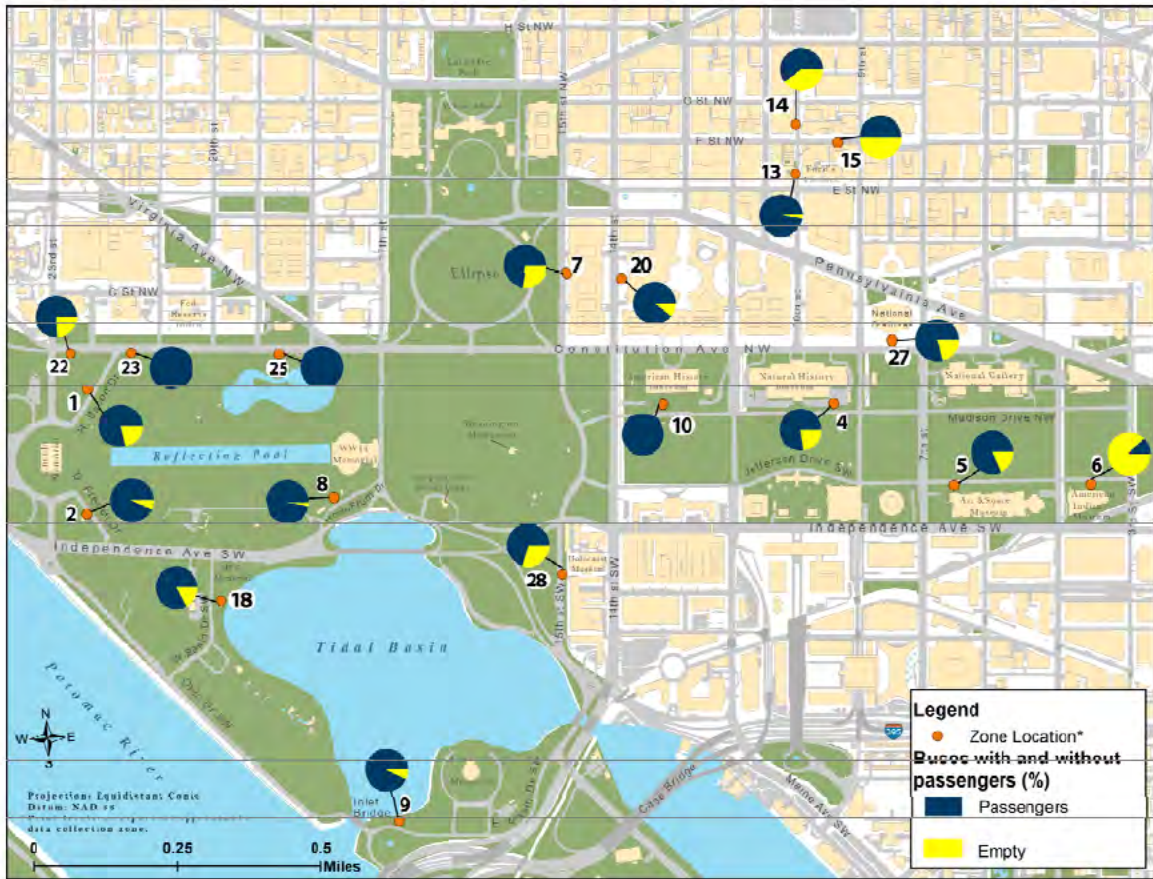


**Key for Loading / Unloading Zones**

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



**FIGURE 3.38: BUSES WITH AND WITHOUT PASSENGERS, BY ZONE**



**Key for Loading / Unloading Zones**

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

### 3.10 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 Jefferson Memorial (n = 10); and, on 14th Street in front of the Ronald Reagan Building (n = 17), (Table 3.10, Figure 3.39, and Figure 3.40). Lincoln Memorial South is a consistently busy zone leading to occasional chaotic loading / unloading behavior. The Jefferson Memorial area was subject to frequent loading / unloading in non-designated 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 3.10: 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%
<b>Total</b>	<b>1115</b>	<b>94.3%</b>	<b>67</b>	<b>5.7%</b>

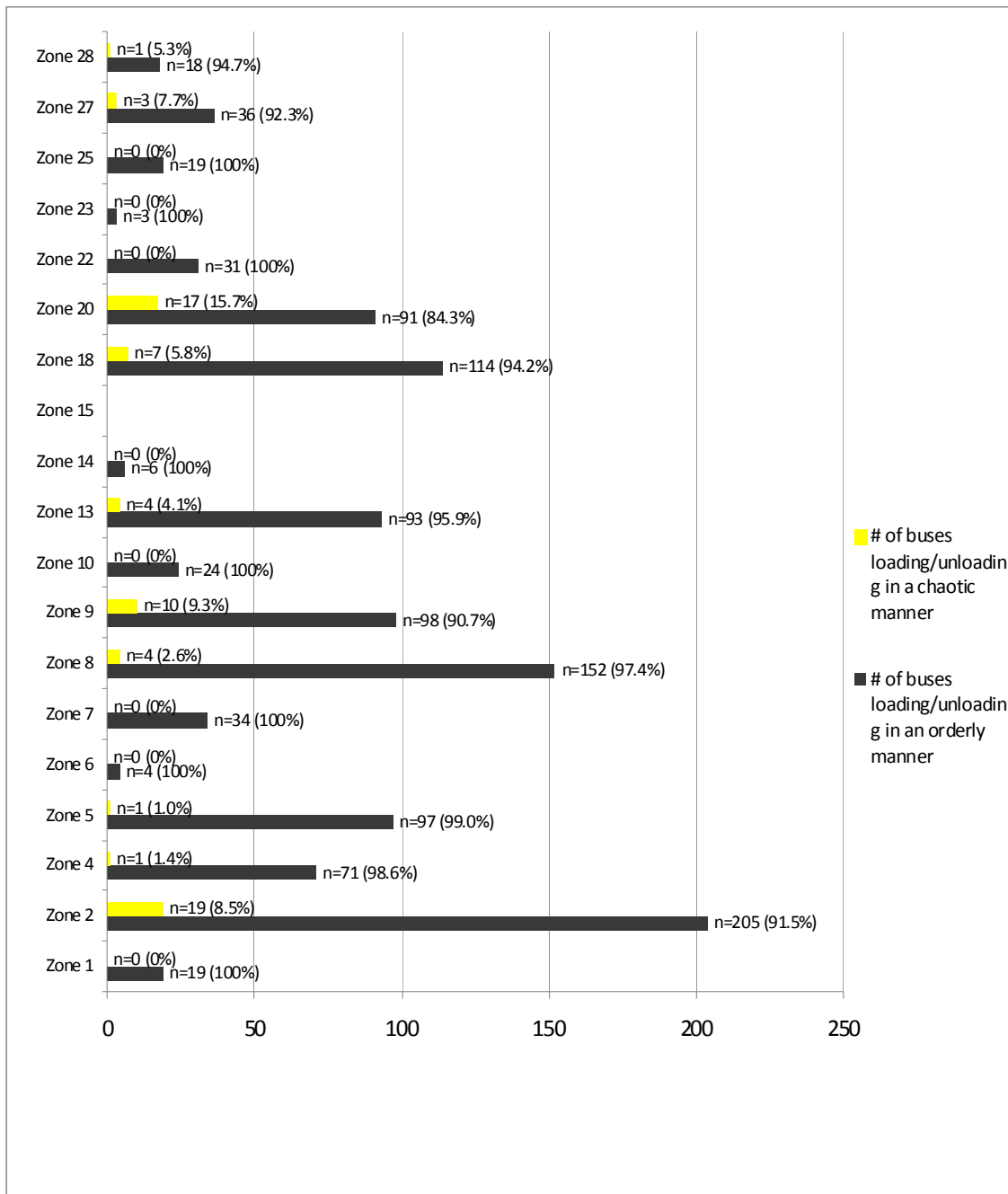
\*No data were gathered regarding orderly or chaotic loading/unloading for Zone 15.

**Key for Loading / Unloading Zones**

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



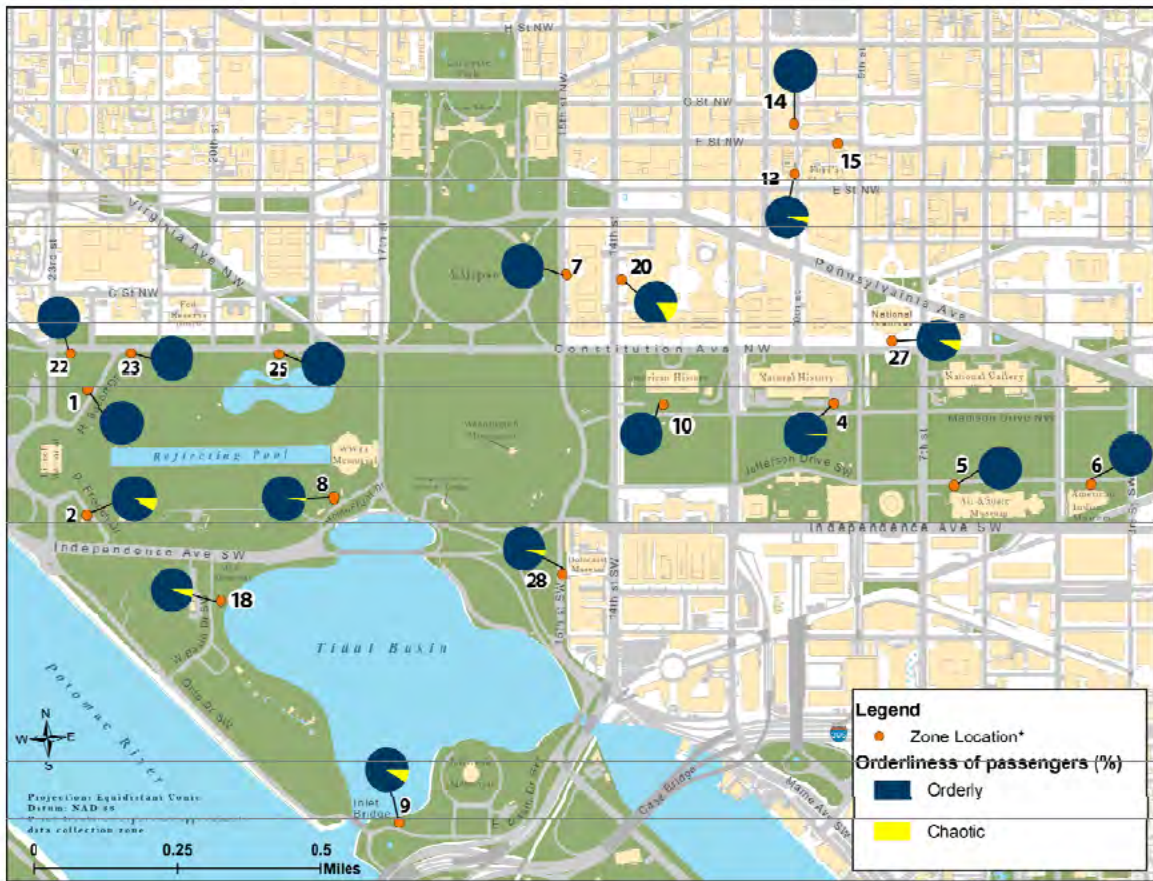
**FIGURE 3.39: ORDERLINESS OF PASSENGER LOADING AND UNLOADING, BY ZONE**



**Key for Loading / Unloading Zones**

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

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



**Key for Loading / Unloading Zones**

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

### 3.11 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 3.11, Figure 3.41, and Figure 3.42). 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.

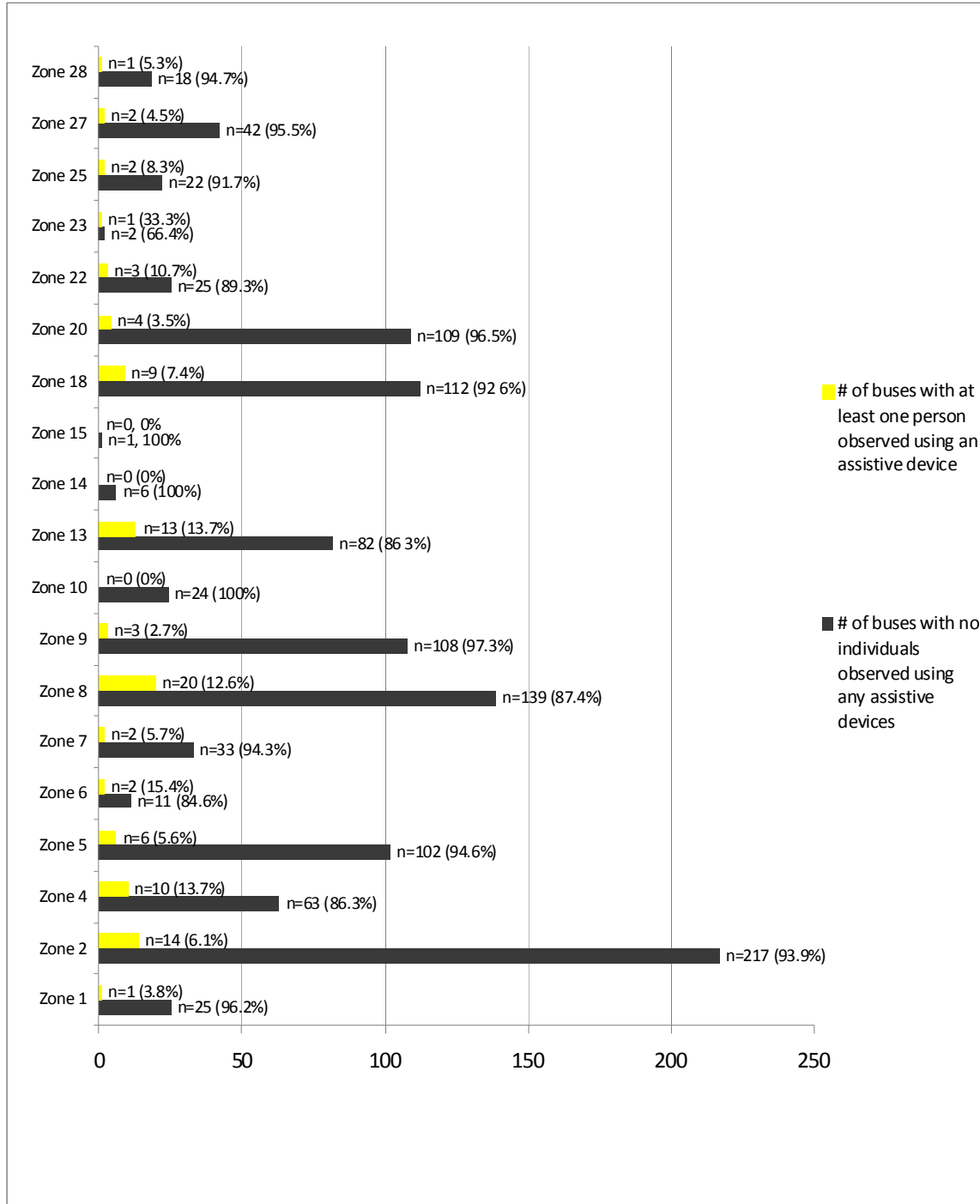
**TABLE 3.11: PASSENGER USE OF ASSISTIVE DEVICES, BY ZONE**

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%
<b>Total</b>	<b>1234</b>	<b>93</b>	<b>7.5%</b>

**Key for Loading / Unloading Zones**

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

**FIGURE 3.41: BUSES OBSERVED WITH AT LEAST ONE PASSENGER USING AN ASSISTIVE DEVICE, BY ZONE**

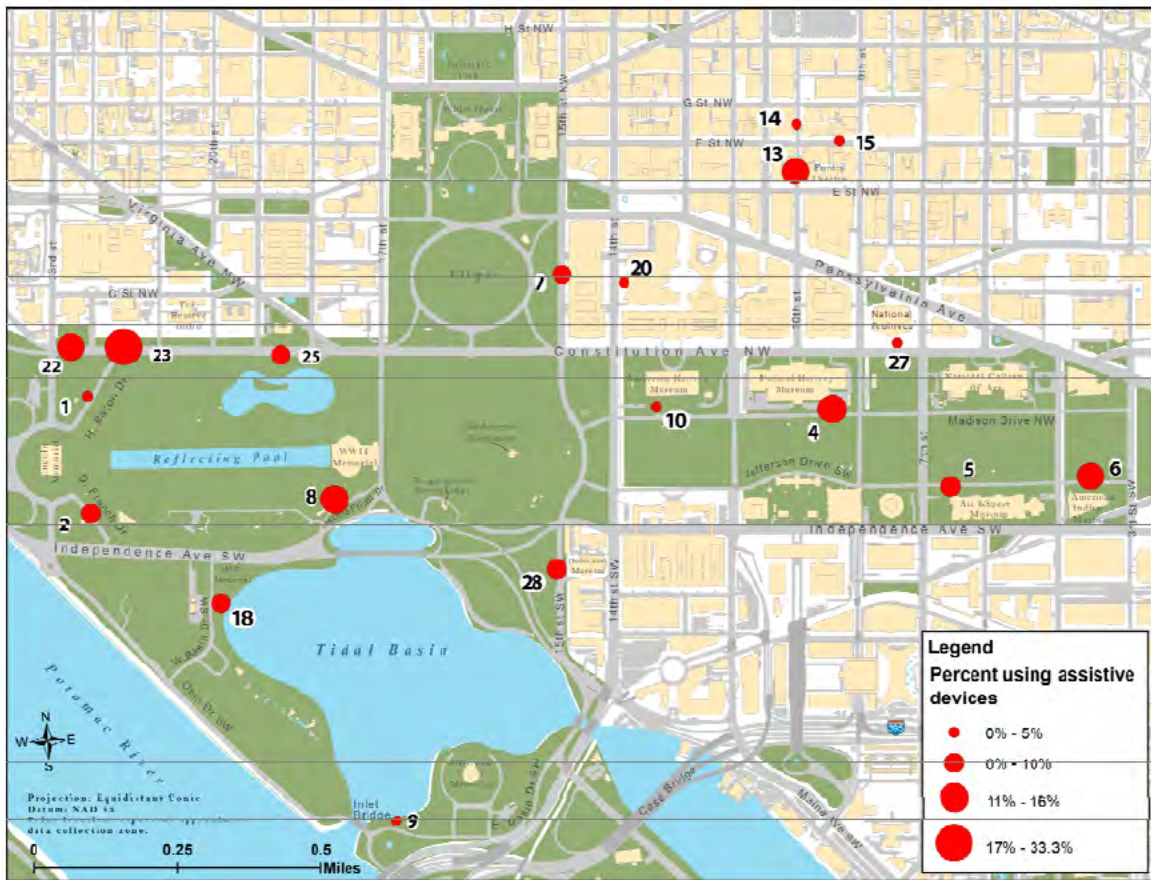


**Key for Loading / Unloading Zones**

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



**FIGURE 3.42: 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	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)
5 Air and Space Museum	14 Ford's Theatre (N, 600 Block 10th)	25 Constitution Ave. (EB – 19th to 17th)
6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	



### 3.12 PASSENGERS OVERHEARD SPEAKING A LANGUAGE OTHER THAN ENGLISH

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

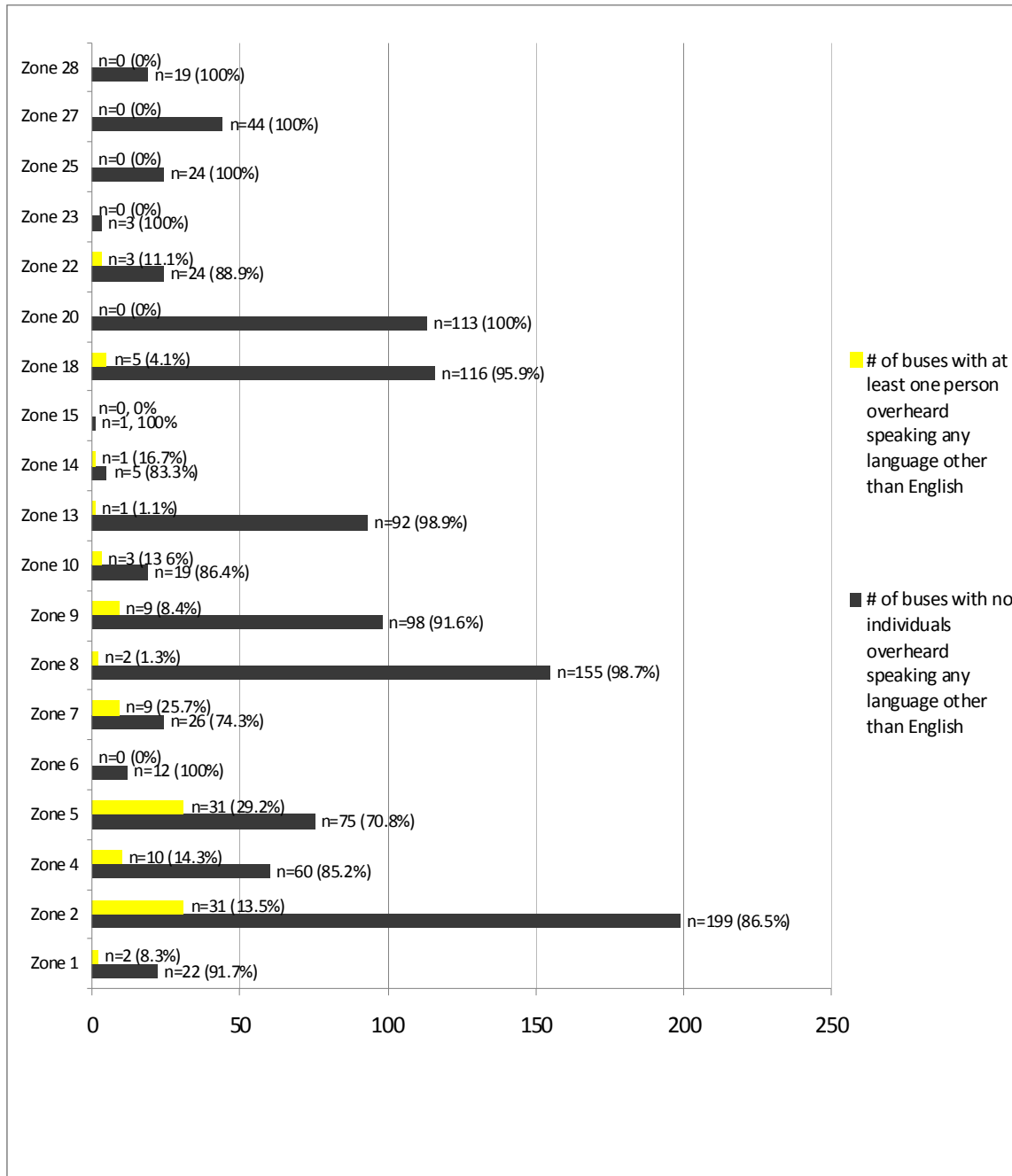
**TABLE 3.12: PASSENGERS OVERHEARD SPEAKING A LANGUAGE OTHER THAN ENGLISH, BY ZONE**

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%
<b>Total</b>	<b>1214</b>	<b>107</b>	<b>8.8%</b>

**Key for Loading / Unloading Zones**

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

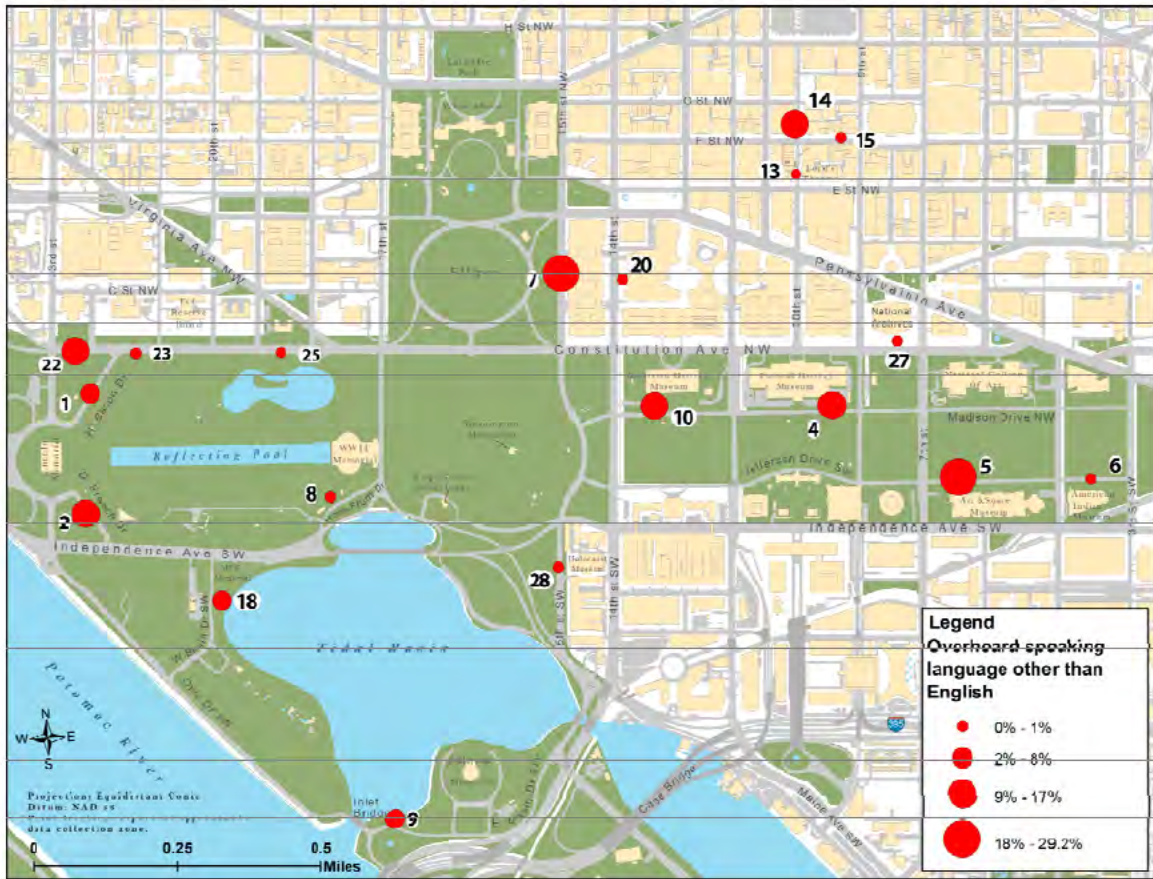
**FIGURE 3.43: PASSENGERS OVERHEARD SPEAKING A LANGUAGE OTHER THAN ENGLISH, BY ZONE**



**Key for Loading / Unloading Zones**

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

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



**Key for Loading / Unloading Zones**

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

### 3.13 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 3.13, Table 3.14, Figure 3.45, Figure 3.46).

**TABLE 3.13: 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	1043 buses
Seniors	10.09/group	10.60	1 – 50 people	6	210 buses
<b>Overall</b>	<b>32.63/group</b>	<b>17.99</b>	<b>1 - 60 people</b>	<b>35</b>	<b>*1142 buses</b>

\*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.

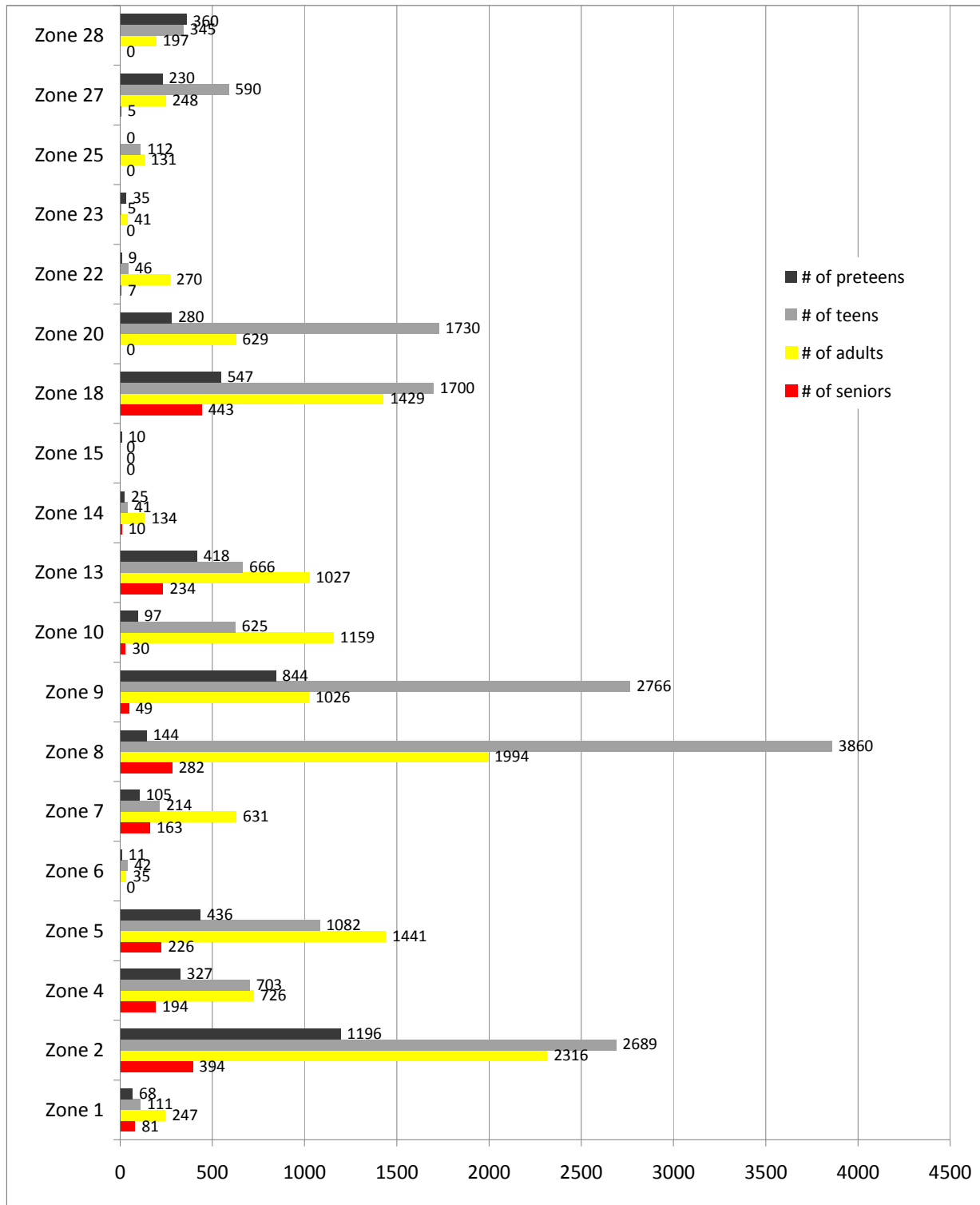
**TABLE 3.14: ESTIMATED NUMBER OF BUS PASSENGERS IN EACH AGE GROUP, BY ZONE**

Zone	No. of Preteens	No. of Teens	No. of Adults	No. of Seniors	Total No. of Passengers
1	68	111	247	81	507
2	1196	2689	2316	394	6595
4	327	703	726	194	1950
5	436	1082	1441	226	3181
6	11	42	35	0	89
7	105	214	631	163	1113
8	144	3860	1994	282	6280
9	844	2766	1026	49	4685
10	97	625	1159	30	911
13	418	666	1027	234	2345
14	25	41	134	10	210
15	10	0	0	0	10
18	547	1700	1429	443	4119
20	280	1730	629	0	2639
22	9	46	270	7	332
23	35	5	41	0	81
25	0	112	131	0	243
27	230	590	248	5	1073
28	360	345	197	0	902
<b>Total</b>	<b>5142</b>	<b>17327</b>	<b>12681</b>	<b>2119</b>	<b>37265</b>

#### Key for Loading / Unloading Zones

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

**FIGURE 3.45: ESTIMATED NUMBER OF BUS PASSENGERS IN EACH AGE GROUP, BY ZONE**

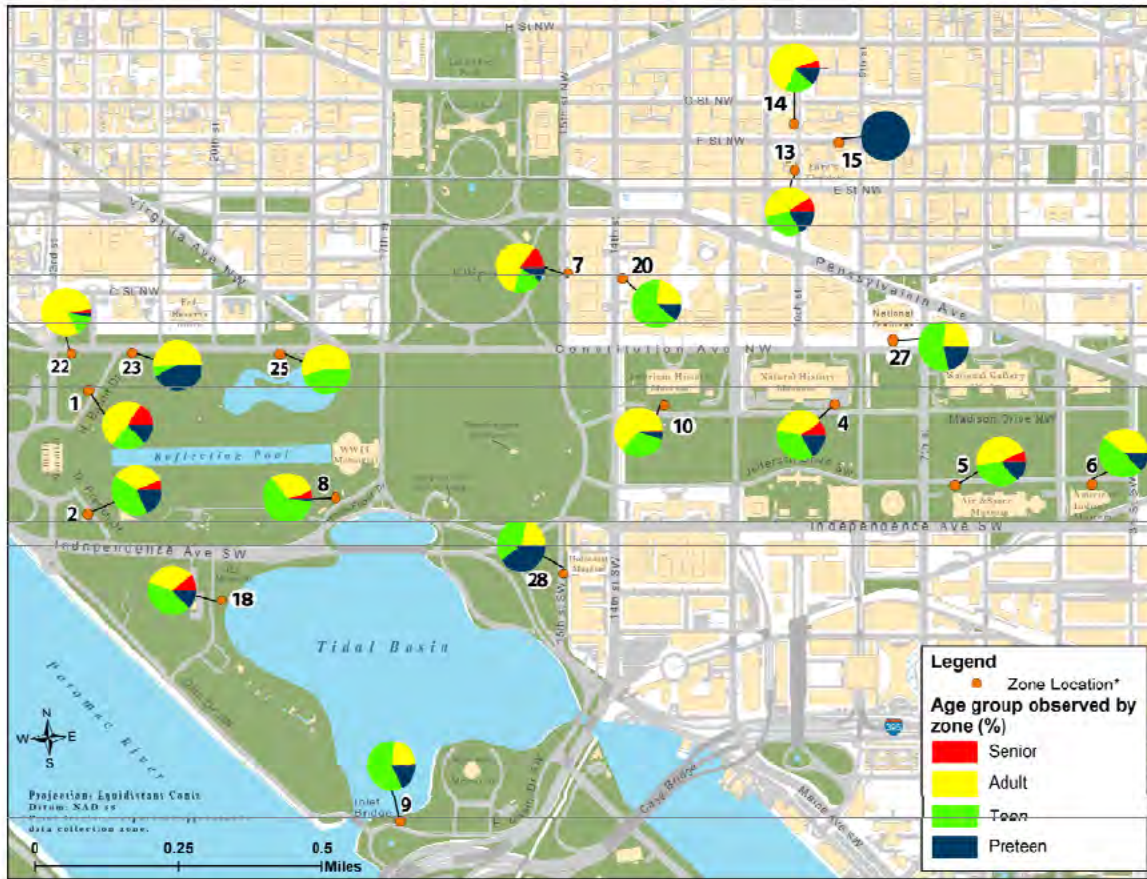


**Key for Loading / Unloading Zones**

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



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



### 3.14 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	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford's Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)
5 Air and Space Museum	14 Ford's Theatre (N, 600 Block 10th)	25 Constitution Ave. (EB – 19th to 17th)
6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	

## 4. QUALITATIVE RESULTS: RESEARCHER OBSERVATIONS AND OVERHEARD COMMENTARY

### 4.1 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 4.1 indicates the frequency of the written observations by each zone. Table 4.2 presents the number of written observations by data collection date. Table 4.3 includes the number of written observations by zone and date.

**TABLE 4.1: 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: 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
<b>Total</b>	<b>926</b>

**TABLE 4.2: 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
<b>Total</b>	<b>926</b>

**Key for Loading / Unloading Zones**

1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
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6 American Indian Museum	15 Ford's Theatre (W, 1000 Block F St)	27 Constitution Ave. (WB in front of National Archives)
7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	

**TABLE 4.3: 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
<b>Total</b>	<b>98</b>	<b>194</b>	<b>103</b>	<b>118</b>	<b>88</b>	<b>176</b>	<b>65</b>	<b>84</b>

## 4.2 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 4.4 presents the frequency of comments by theme.

**TABLE 4.4: 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%
<b>Total</b>	<b>926</b>	<b>100%</b>

As Table 4.4 demonstrates (excluding “Other”), illegal parking and standing in loading/unloading zone or non-designated 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	9	Jefferson Memorial	20	14th St. (west side Reagan Building)
2	Lincoln Memorial South	10	American History Museum	22	Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4	Natural History Museum	13	Ford’s Theatre (500 Block 10th)	23	Constitution Ave. (EB – Henry Bacon Dr. to 21st)
5	Air and Space Museum	14	Ford’s Theatre (N, 600 Block 10th)	25	Constitution Ave. (EB – 19th to 17th)
6	American Indian Museum	15	Ford’s Theatre (W, 1000 Block F St)	27	Constitution Ave. (WB in front of National Archives)
7	Ellipse	18	Franklin Delano Roosevelt /	28	U.S. Holocaust Museum
8	World War II Memorial		Martin Luther King Jr. Memorials		

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 4.5 while Table 4.6 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 4.5: SAMPLE COMMENTS FOR PRIMARY QUALITATIVE THEMES**

Theme 1. Parking/standing in loading/unloading zone/non-designated 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).	
At 12:16 tried to leave but was blocked in.	
Tried to leave blocked by two buses ahead of them in regular traffic.	

**Key for Loading / Unloading Zones**

1 Lincoln Memorial North	9 Jefferson Memorial	20 14th St. (west side Reagan Building)
2 Lincoln Memorial South	10 American History Museum	22 Constitution Ave. (EB – 23rd to Henry Bacon Dr.)
4 Natural History Museum	13 Ford’s Theatre (500 Block 10th)	23 Constitution Ave. (EB – Henry Bacon Dr. to 21st)
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7 Ellipse	18 Franklin Delano Roosevelt /	28 U.S. Holocaust Museum
8 World War II Memorial	Martin Luther King Jr. Memorials	

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.
<b>Theme 5. Passenger information (e.g., nationality, ethnicity, senior/student group, # of passengers, etc.)</b>
All of Asian descent.
Preteen group.
School age.
Student group.
Cane mostly elderly group.
6 hop off, 4 hop in.
Military group – Honor Flight Northland.
<b>Theme 6. Driver/tour operator behaviors (e.g., leaving bus, talking, smoking, eating)</b>
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.
<b>Theme 7. Impact of police/researcher/park ranger existence</b>
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.
<b>Theme 8. Loading/unloading in undesignated areas</b>
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.
<b>Theme 9. Special assistance needed (e.g., stroller, wheelchair)</b>
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.
<b>Theme 10. Loading/unloading in road</b>
Stopped in street.
Unloaded in middle of road.
In the middle of the road, the bus unloaded passengers.
Half out in road.
<b>Theme 11. Coming through (no loading/unloading) / Circulating</b>
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.
<b>Theme 12. Private cars/taxi</b>
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.

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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 & unloading in the correct way.	
International development.	
Zone 24 should be used as 3 hour parking zone, not pick up/drop off zone.	

**TABLE 4.6: ALL WRITTEN COMMENTS, BY ZONE AND BY DATE**

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	Driver left vehicle for few minutes unattended.
	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.

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	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.

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	Idling all time, reloaded at 7:39 p.m.
	Idling all time loading, began at 8:22 p.m.
	Engine off, parking.
	Doubled parking.
	Idling out of loading zone.
	Stayed entire time after unloading and wait to people come back to load.
	Loading began at 9:10 p.m.
	Loading at 9:01 p.m., jaywalking.
	Walker.
	Blocking traffic.
	Blocking traffic.
	Loading at 9:01 p.m.
	Police enforced to leave.
	Chinese.
	Not related to this bus but saw law enforcement officer talked to two buses that stayed forever. Then they left.
	Wheelchair.
	Jaywalk to WWII.
	Korean.
	Chinese.
	Loading began at 7:51 p.m.
	Chinese, Indians.
	Indian.
	Loading began at 8:37 p.m.
	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.
<b>Zone 4: Natural History Museum</b>	
31 March 2012	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 non-designated 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 non-designated 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.

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	Korean.
	People begin to load at 1:59 p.m. and left at 2:04 p.m.
	We accidentally 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) & 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.
6 April 2012	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.
	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.

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	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.
<b>Zone 5: National Air and Space Museum</b>	
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.

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	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 non-designated.
	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.

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	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Parked.
	Stopped in street.
	Parked in 2 hour bus parking.
	Parked in 2 hour bus parking.
	Parked in 2 hour bus parking.
	Parked in 2 hour bus parking.
	Pulled out then went down further & pulled out at 10:00 a.m./ idling 3-10 minutes then turned off engine.
	Bus double parked for approximately 3mins, then pulled into parking spot.
	Unloaded in road, then parked open parking space available when unloaded.
	Cars parked in bus lane, street vendors too.
	Signs state 2hr tour bus parking 7:00 a.m. – 6:30 p.m.
	Offer approached driver and notified to be careful while unloading.
	Turned engine on at 12:32 p.m. and left at 12:44 p.m.
	Could not tell if they were passengers.
	Asian. Not sure what language.
	Asian. Not sure what language.
	Other buses parked in lane/ zones full, nowhere to unload.
	Driver threw cigarette butts on ground.
	Bus parked.
	Bus tried to park but moved. Blocked road. Pulled out into traffic.
	Cut out in front of vehicle.
	Stopped in street. Blocking traffic.
	Moved vehicle up blocking space for bus to park.
9 October 2012	Parked in 2 hours zone.
	Parked. Driver left vehicle in 2 hour parking zone.
	Arrived and bus was parked.
	Bus moved from no parking (see #26) to 2 hour parking.
	Moved forward to get closer to get closer to actual parking zone.
	Pulled into parking zone for Official sightseeing vehicles only.
	Driver locked bus and walked off.
	Parked in parking zone.
	Bus parked in sightseeing vehicles only.
	Had parked.
	Loaded in bus parking.
	Slow loading.
	Signs say bus parking but another sign also says no parking Tuesday 10:00 a.m. – 5:00 p.m.
	Bus Parked. Driver returned and backs bus out of 2 hour parking into other zone.
	Quick unloading. Slow reloading.
	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.
<b>Zone 8: WWII Memorial</b>	
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.

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	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 non-designated area & 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.

**Key for Loading / Unloading Zones**

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	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.
	Parked.
	Parked.
	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.
<b>Zone 9: Jefferson Memorial</b>	
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.

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	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 & 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.
<b>Zone 10: National Museum of American History</b>	
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.
<b>Zone 13: Ford's Theatre 500 Block 10th St.</b>	
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 & 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.

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	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 & 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 & bus driver turned on engine.
	Bus was blocked in, engine off.
	Unsure of where unloading and loading blocks.
	Pulled hallway 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.

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	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.
<b>Zone 14: Ford's Theatre 600 Block 10th St.</b>	
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 non-designated 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.
<b>Zone 15: Ford's Theatre 1000 Block F St.</b>	
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.
<b>Zone 18: FDR/MLK West Basin Drive</b>	
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.
	Park ranger asked him to move twice. Moved after being asked 2nd time.
	Traffic when pulling out.
	Park employee greeted driver while idling. No attempt to control, even though very congested.
	4 ft. from curb.

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22 May 2013	Police told him to move.
	Moved into handicap zone. Reversed back to loading area.
	Driver left bus unattended.
	Pulled into loading zone then moved forward to meet group.
	While driver pulled in he drove on the curb a bit.
	Still parked when I left at 9:30 p.m.
	Was still parked when we left.
	Was still parked when we left.
	Moved bus up to new spot in loading zone.
	People slowly arrived and got on the trolley.
	Half in loading zone and half not in loading zone.
	Loaded in middle of street then pulled into loading zone.
	Parked on opposite side of loading zone and had people run across the street.
	Ionosphere bus parked on opposite side of street and had people run across the street.
	2 of 3 buses pulled within loading zone and last one sat in handicapped zone to load.
	Buses sat and parked.
	Came and sat, some stayed on and other left.
	Pulled in a little but not up to the curb.
	German.
	Bus double parked behind trolley.
	Many buses are parking/ loading/unloading in the designated handicapped parking area.
	After 10 min he moved into loading zone when it became clear.
	Half in loading zone, half out.
	Great drop off.
	Many buses are sitting behind Grand Tours in Taxi stand and continue all the way in front of the FDR entrance.
I think he saw me walking toward him and he got spooked.	
One kid seemed to have been lost which caused a delay.	
2nd bus parked across the street in parking and had people run across the street. After 14 minutes, 2nd bus moved to loading zone.	
<b>Zone 20: 14th Street in front of Ronald Reagan Building</b>	
30 May 2013	White Van.
	Half out in road.
	Blocked fire hydrant.
	Security told buses to move.
	Security told buses to move.
	Agency for International Development.
	Security told buses to move.
	Blocked fire hydrant.
	Made a U turn.
	Illegal U turn.
	Half in road.
	Security officers asked buses to move.
	Government Vehicle.
International Development.	
4 June 2013	No parking zone.
	Parked in unloading only zone with engine off.
	Blocked traffic to unload.
<b>Zone 22: Constitution Eastbound between 23rd and Henry Bacon Drive</b>	
30 May 2013	Bus was there longer than 10 min but not idling.
	Kneeling bus with ramp for wheelchair.
	Bus idling in no standing zone for 10+ minutes.
	Bus idling & stopped in a no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.
	Bus stopped in no standing zone.

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	Bus stopped in no standing zone.
<b>Zone 23: Constitution Eastbound between Henry Bacon Drive and 21st</b>	
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.
<b>Zone 24: Constitution Westbound between 20th and 21st</b>	
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.
<b>Zone 25: Constitution Eastbound between 19th and 18th and Constitution Eastbound between 18th and 17th</b>	
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.
<b>Zone 27: Constitution Westbound in Front of National Archives</b>	
30 May 2013	Note from cover sheet: Zone 27- no official unloading/loading zone, it is a "tow away zone" with no standing/parking & 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.
<b>Zone 28: U.S. Holocaust Memorial Museum — 100 Raoul Wallenberg Place</b>	
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.

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# APPENDIX 1: COVER SHEET FOR OFF-BUS 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 between Pennsylvania Avenue and Constitution Avenue
- 8 = World War II Memorial, Homefront Dr.
- 9 = 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 2: DATA COLLECTION INSTRUMENT**

See facing page.

**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**):



**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 & indicate the photograph # here

**Other type of bus:** \_\_\_\_\_

**BUS INFORMATION**

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

**PASSENGER INFORMATION**

13	14	15	16	17	18
<b>Are there passengers on the bus? (circle one)</b>	<b>Orderliness of passenger entrance/exit to bus (circle one)</b>	<b>Approx # of passengers in each age group</b>	<b>Did any group members use an assistive device? (e.g. wheelchair, walker)</b>	<b>Did you overhear any language besides English spoken?</b>	<b>Notes: Additional observations not collected in other columns</b>
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
<b>Was trash dumped at the site? (circle one)</b>	<b>If yes to #19, where was trash dumped?</b>	<b>Was any other waste dumped at the site? (circle one)</b>	<b>If yes to #21, what was dumped &amp; where was material dumped?</b>	<b>ALL operational issues observed (circle all that apply)</b>	<b>General direction where the group headed after leaving the bus (briefly describe target monument, memorial, or museum)</b>	<b>IF multiple buses in the group from the same company, indicate how many...</b>	<b>Notes: Additional observations not collected in other columns</b>
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			