

OLD TOWN AREA *Parking Study*



Prepared for:



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and Associates, Inc.

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FINAL REPORT

OLD TOWN AREA PARKING STUDY

Prepared for:



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EXECUTIVE SUMMARY

This report summarizes the parking study conducted in Old Town Alexandria. The study was performed to document existing public parking conditions and to develop parking-system recommendations to resolve existing issues and accommodate the continued evolution of Old Town. The study was focused on publicly-available¹ on- and off-street parking and does not include an evaluation of, or recommendations for private² lots and garages.

The study area consisted of approximately 85 city blocks and is bordered by Princess Street to the north, the King Street Metrorail station and railroad tracks to the west, Duke Street and Wolfe Street to the south, and the Potomac River waterfront to the east. The study also included the three blocks between N. Henry Street and N. West Street located one block north of Princess Street. The study considered the number, occupancy, and utilization of public parking spaces available on-street, in publicly-available surface parking lots, and in publicly-available parking garages within the study area.

Data Collection

Field reviews revealed that there are 8,332 publicly accessible parking spaces in the study area. On-street parking accounts for the majority of available parking and comprises 53 percent (4,399 spaces) of the system. Publicly accessible parking garages account for 42 percent (3,527 spaces) of the inventory and surface lots contain 5 percent (406 spaces) of the parking system. Although private parking facilities were not included in this study, information provided by the City of Alexandria indicates that there are approximately 1,700 private parking spaces within the study area. The combination of publicly accessible parking and private parking totals nearly 10,000 spaces in Old Town. The addition of some or all private use parking facilities for some level of public use would dramatically increase Old Town's parking supply.

*The combination of
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spaces in Old Town.*

Following field data collection to inventory public parking spaces, accumulation counts were performed to determine utilization of public on-street, surface lot, and garage parking spaces. The parking counts were conducted during the following six time periods:

¹ For the purposes of this study, publicly-available parking includes garages and lots that are open to the public at all hours and privately owned garages and lots that are open to the public during some hours of operation.

² For the purposes of this study, private garages and lots are not open to the public at any time.

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1. Weekday, 12:00 PM to 2:00 PM
2. Weekday, 6:00 PM to 8:00 PM
3. Friday, 12:00 PM to 2:00 PM
4. Friday, 6:00 PM to 8:00 PM
5. Saturday, 11:00 AM to 1:00 PM
6. Saturday, 7:00 PM to 9:00 PM

The periods listed above represent times when peak parking demand for different types of activities in Old Town occurs. During each two-hour period, counts were conducted hourly.

Parking Utilization Calculations

Parking utilization was determined by comparing the number of occupied spaces with the total number of spaces in each facility or along an individual block face. Calculations for the system indicated the following occupancies for publicly accessible parking in the study area:

- Weekday afternoon (12:00 PM to 2:00 PM) - 75%, or 1 in 4 parking spaces is available
- Weekday evening (6:00 PM to 8:00 PM) – 50%, or 1 in 2 parking spaces is available
- Friday afternoon (12:00 PM to 2:00 PM) – 75%, or 1 in 4 parking spaces is available
- Friday evening (6:00 PM to 8:00 PM) – 58%, or nearly 2 in 5 parking spaces are available
- Saturday afternoon (11:00 AM to 1:00 PM) – 55%, or nearly 2 in 5 parking spaces are available
- Saturday evening (7:00 PM to 9:00 PM) – 62%, or nearly 2 in 5 parking spaces are available

The evaluation of parking data revealed that the Old Town area does not have an overall supply problem; it has proximity, rate, and facility availability problems. Parking is available during all periods studied; however, the evaluation of parking data for individual areas revealed that parking demand east of Alfred Street is higher than west of Alfred Street. During peak periods, on-street parking and some publicly accessible off-street facilities were effectively full. During all periods, parking was available in areas east and west of Alfred Street. The following is a summary of individual areas that are effectively full during the periods indicated:

The Old Town area does not have a parking supply problem; it has proximity, rate, and availability problems.



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On-Street Parking

- King Street on Friday and Saturday evenings
- St. Asaph Street on typical weekday afternoons, Friday afternoons, and Saturday evenings
- Pitt Street on Friday afternoons
- Royal Street on typical weekday and Friday afternoons
- Fairfax Street on typical weekday afternoons, Friday evenings, and Saturday evenings
- Lee Street on typical weekday evenings, Friday afternoons, Friday evenings, Saturday afternoons, and Saturday evenings
- Union Street on typical weekday afternoons, Friday evenings, Saturday afternoons, and Saturday evenings
- Strand Street during all six time periods studied
- Vicinity of King Street Metrorail station on typical weekday afternoons, Friday afternoons, Saturday afternoons, and Saturday evenings
- Vicinity of the Potomac River waterfront during all six time periods

Publicly Accessible Parking Lots

- King Street Metro Lot during Saturday afternoon and evenings
- King Street Metered Lot during typical weekday afternoons and evenings, Friday evening, and Saturday afternoons
- South Henry Street Lot on Friday afternoons
- North Patrick Street Lot on Saturday afternoons
- Military Officers Association Lot on Saturday afternoons
- The Strand Lot during typical weekday afternoons, on Friday afternoons and evenings, and on Saturday evenings

Publicly Accessible Parking Garages

- Solo Garage during typical weekday afternoons and evenings, Friday afternoons, and Saturday evenings
- 115 S. Union Street Garage during typical weekday afternoons
- Torpedo Plant Garage on Friday afternoons and Saturday evenings
- Thompson's Alley Garage during typical weekday evenings
- Market Square Garage during typical weekday afternoons and Saturday afternoons and evenings
- Courthouse Square Garage during typical weekday afternoons
- PNC Bank Garage on Friday evenings



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Parking Issues and Observations

Based on the field inventory, information provided by the City, field observations, and utilization calculations the following parking issues were identified:

Primary Issues

- Limited on-street metered parking availability
- Limited on-street parking availability east of Alfred Street in the neighborhood permit district
- Publicly accessible garages and lots are underutilized throughout the parking system
- Parking utilization is uneven throughout the system

Secondary Issues

- Difficulty in locating available off-street parking
- Inconsistent parking rates
- Fee collection method
- Inconsistent hours of operation for parking facilities
- High auto use
- Loading, valet, taxi, and other standing spaces reducing the available on-street parking supply
- Illegal parking

Recommendations

Recommendations were developed to address parking issues and improve parking conditions in Old Town Alexandria. Additional detail is provided in the recommendations section of the report document.

General Recommendations

- Develop a task force that includes the major stakeholders in the area including representatives of retail establishments, business associations, employers, civic associations, residents, etc. to help develop consensus on parking management strategies.
- Install multi space meters that accept cash, coins, and credit/debit to replace existing coin-operated single-space meters on King Street and in side street locations with high demand. Multi space meters have been shown to accommodate more parked vehicles along a curb face than single-space meters since individual spaces are not

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- designated. These meters also provide the City with flexibility to modify parking rates.³
- Review on-street and off-street parking rates. Increasing parking rates for on-street parking will increase turn-over of the spaces, making the same parking available to more people throughout the day. It also will discourage long-term parking by employees and business owners. Vary rates for off-street parking according to facility location and use—short-term, long-term, visitor, daily, and similar. Generally, longer-term parking should be less convenient and less expensive. Typically, long-term parking rate structures have a high first hour rate and then very low subsequent hour rates. Shorter-term parking should be closer to desired destinations and should employ a rate structure that encourages shorter-term parking and high turn-over. Create a public education process to communicate that all must pay for parking.
 - Decrease on-street meter parking duration in locations where the adjacent land use may benefit from higher turnover. Decreasing allowable duration at meters in tandem with increased enforcement increases the likelihood of parking turnover at a higher rate, thereby making the same number of spaces available more often.
 - Decrease the allowable parking duration in residential permit districts. Decreasing the duration will encourage long-term parkers to travel to Old Town by another mode or park in an appropriate facility.
 - Extend on-street parking meter hours of operation into the evening. In the evenings, the free on-street parking is more attractive than paying for off-street parking. Extending the meter hours will improve off-street parking utilization. This modification also has the potential to reduce the attractiveness of curb parking in high demand areas for employees and business owners.
 - Work with parking garage owners and operators with regard to the installation of pay-on-foot or pay-and-display machines in off-street facilities. This measure may eliminate the need for parking attendants and would allow facilities to remain open for longer periods of time without being constrained by attendants' work schedules. These machines are generally attractive to parkers since they offer a secure payment form and accept coins, bills, and credit/debit. The extended time also reduces

³ The City budget included \$250,000 in CIP funding in the FY2002-04 budgets for necessary replacement parts and upgrades to the traditional, single-space meters that were, at the time, more than 20 years old. Over several years, the City upgraded approximately 1,000 meters in Old Town to LED, digital display meters. The meters installed at that time predated the commercially available, solar-powered multi-space meters that now accept various forms of payment such as credit/debit cards, Smart Phone payments and more.



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people's uncertainty about retrieving their vehicle. Pay-on-foot and pay-and-display machines also can simplify cash handling.

- Implement an area-wide parking wayfinding program to include the branding of publicly-accessible parking facilities in a consistent manner. This will improve the off-street parking utilization by making the facilities more visible and easier to find.
- Evaluate the value and feasibility of providing real-time-parking information to parkers.
- Reduce parking demand by improving attractiveness of transit and non-vehicular modes of travel. Reduce the headway for the King Street trolley to encourage people to travel to Old Town on Metrorail or to use the parking facilities in western portions of Old Town. Work with employers to encourage them to offer employees transit subsidies if they do not drive and park in Old Town.
- Identify key private parking facilities that have the potential to relieve pressure on existing public facilities and work with owners to determine whether it is feasible to offer parking to the public.



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1. INTRODUCTION

Old Town is the historic core of Alexandria. The street system is largely a symmetric grid. Most streets have sidewalks and on-street parking on both sides of the street. Old Town's buildings house a wide range of uses including retail shops, entertainment venues, offices, government functions, and residences. In addition, there are a number of popular destinations for tourists in Old Town. Nearly all buildings are oriented according to the street pattern and have doors that open to sidewalks and the street. Old Town's urban form encourages a multimodal trip-making pattern; however, a significant number of people travel to the area by car, putting pressure on the area's parking system. As a result of the number of people driving and parking in Old Town, there is a perception that the parking supply is inadequate to accommodate demand.

Old Town is vibrant as a result of the diversity of destinations and the activity level that occurs during days and evenings on weekdays and weekends. To continue to support the area's vibrancy, the City has undertaken an evaluation of the parking system to understand current conditions and ultimately develop strategies and implement measures to better manage parking in Old Town. The evaluation of the system and development of recommendations is advised by policies contained in the City's current Comprehensive Transportation Master Plan.

This study report presents existing parking conditions and identifies recommendations that would improve parking conditions in Old Town.

1.1 STUDY PURPOSE

The study was performed to document existing public parking conditions in Old Town and develop parking system recommendations to resolve existing issues and accommodate the continued evolution of Old Town. This study is focused on publicly-available parking and does not include an evaluation or recommendations for private lots and garages. This study contains the following:

- Detailed parking data that can be used in ongoing and future planning efforts and for coordination with stakeholders as opportunities to implement new parking management policies are considered
- Identification of existing parking issues in Old Town identified through data analysis and information provided by the City
- Recommendations to resolve existing issues, better manage the parking system, and provide for continued growth of parking demand in Old Town
- Parking toolbox as a reference when considering possible measures to resolve parking system issues



1.2 STUDY AREA

The study area consists of approximately 85 city blocks and is bordered by Princess Street to the north, the King Street Metrorail station and railroad tracks to the west, Duke Street and Wolfe Street to the south, and the Potomac River waterfront to the east. The study also includes the three blocks between N. Henry Street and N. West Street located one block north of Princess Street. The Old Town project study area is shown in **Figure 1-1, Old Town Parking Study Area.**



2. EXISTING OLD TOWN PARKING CONDITIONS

The majority of public parking in Old Town is on-street. Most streets in the study area accommodate parallel on-street parking on both sides of the street. The existing on-street parking supply is a mixture of restricted and unrestricted parking. Unrestricted spaces are generally metered and primarily located along King Street and the first block of each intersecting street. Restricted spaces are typically free; however, only allow residential parking permit holders to park all day. In addition to publicly accessible parking lots and garages, there are a number of private facilities that serve local businesses and residents. This chapter summarizes conditions for public on- and off-street parking, quantifies the number of spaces, and summarizes the type and cost.

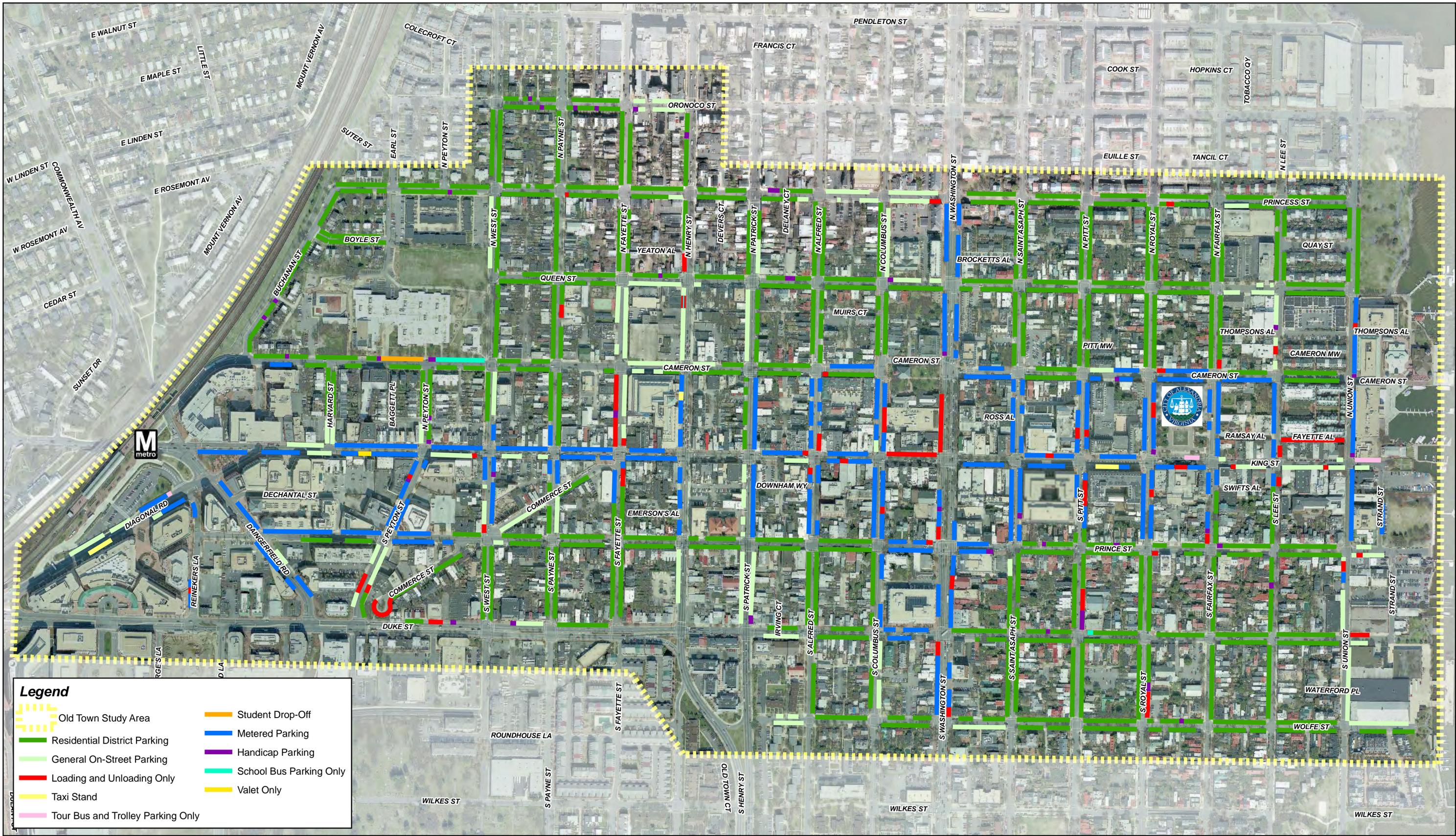
2.1 ON-STREET PARKING

The following sections describe the types and number of on-street parking spaces as well as the cost and time restrictions for on-street parking in the study area.

2.1.1 TYPES OF ON-STREET PARKING

As part of this study, an inventory of publicly available on-street parking was performed. The inventory included counting the number of available parking spaces and noting each space's type. Types of on-street parking included metered, residential permit, unrestricted, handicap, tour bus, trolley, and special parking. During the inventory, areas not available for parking due to fire hydrants, driveways, bus stops, etc. were noted as "no parking" areas. On-street parking locations by type are shown in **Figure 2-1, On-Street Parking Locations**. The following describes each parking type:

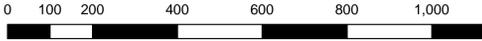
- **Metered Parking.** Metered parking includes spaces for which patrons use cash in a meter to pay for parking. Metered parking spaces are generally located along King Street, on intersecting streets one block north and south of King Street, near the King Street Metrorail station, along Washington Street, and in the waterfront area. The limits of metered parking within the study area are shown in **Figure 2-1**.
- **Residential Permit.** This type of parking includes spaces where a City-issued residential parking permit is required to park a vehicle without time restriction. Twelve residential permit districts exist in the City of Alexandria and five exist in the study area. These are shown in **Figure 2-2, Residential District Parking**. City residents must register their vehicle(s) and pay an annual fee to obtain a residential parking permit. Residential permits are valid within a specific district and not elsewhere in the city. For vehicles parking in a permit district without a permit, parking is restricted to two hours on weekdays during specific hours of the day. With or without a residential permit in permit districts, City ordinances prohibit parking a vehicle in the same location for more than 72 consecutive hours.



**Figure 2-1:
On-Street Parking Locations**



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**FIGURE
2-1**



- **Handicap.** Handicap parking consists of those spaces designated for vehicles displaying a handicap decal, license plate, or hanging tag. Within the study area, few (less than 1 percent) on-street parking spaces are designated for handicap use specifically. Illegally parking within a handicap zone is enforced through fines and towing.
- **Tour Bus.** Old Town attracts a significant number of visitors every year, many of whom arrive by bus. Tour bus parking in Old Town is limited to short-term lay by space for buses and not long-term storage or standing. The space allocated for tour buses is intended to be used for passenger loading and unloading only. Other vehicles are prohibited from parking in these locations.
- **Trolley.** Space is allocated for King Street Trolley loading and unloading. The King Street Trolley operates on King Street between the Potomac River waterfront and the King Street Metro Station on weekdays and weekends from 11:30 AM to 10:00 PM. The service stops at 20 locations along its route. The Trolley departs from the waterfront and the King Street Metrorail station at 10, 30, and 50 minutes past each hour. The stops between the waterfront and the Metro station are typically marked by a Trolley sign.
- **Special Parking.** There are a variety of special on-street parking spaces throughout the study area including school drop off, school bus, taxi stand, valet, police vehicle, and loading and unloading only. These areas represent a small percentage (3-4 percent) of all on-street space and they are not available to the general public.

2.1.2 NUMBER OF ON-STREET PARKING SPACES

On-street parking spaces were counted during the field inventory. This inventory was performed for each block face by counting the number of parking spaces and noting any sign restrictions and parking prohibitions. Where parking spaces were not delineated by pavement markings, the number of parking spaces was estimated by one of the following methods:

- If all of the available on-street parking spaces were occupied, the number of spaces was assumed to be the number of legally parked vehicles.
- If the available on-street parking was unoccupied, it was assumed that on-street parking spaces are 20-22 feet in length.

The field inventory revealed that there are approximately 4,400 on-street parking spaces in this study area. **Table 2-1** shows numbers of on-street parking spaces on each street including both sides of the street. A detailed summary of the existing on-street parking spaces is provided in the Appendix.



Table 2-1: Number of On-Street Parking Spaces per Street

Street	Number of On-Street Parking Spaces
Oronoco Street (From West Street to Henry Street)	66
Princess Street (From West Street to Union Street)	307
Queen Street (From West Street to Union Street)	289
Cameron Street (From Buchanan Street to the river)	318
King Street (From the King Street Metro Station to the river)	312
Prince Street (From Reinekers Lane to the river)	375
Duke Street (From Diagonal Street to The Strand)	204
Wolfe Street (From west of Alfred Street to the river)	166
Buchanan Street (from Princess Street to Cameron Street)	35
Boyle Street (from Princess Street to Buchanan Street)	37
Diagonal Street (From King Street to Duke Street)	34
Reinekers Lane (From Duke Street to Diagonal Street)	10
Daingerfield Road (From King Street to Duke Street)	27
Harvard Street (From Cameron Street to King Street)	28
Peyton Street (From Cameron Street to Duke Street)	71
Commerce Street (From King Street to Duke Street)	40
West Street (From Oronoco Street to Duke Street)	152
Payne Street (From Oronoco Street to Duke Street)	149
Fayette Street (From Oronoco Street to Duke Street)	170
Henry Street (From Oronoco Street to Duke Street)	76
Patrick Street (From Princess Street to Duke Street)	140
Alfred Street (From Princess Street to Wolfe Street)	150
Columbus Street (From Princess Street to Wolfe Street)	175
Washington Street (From Princess Street to Wolfe Street)	121
St. Asaph Street (From Princess Street to Wolfe Street)	174
Pitt Street (From Princess Street to Wolfe Street)	171
Royal Street (From Princess Street to Wolfe Street)	180
Fairfax Street (From Princess Street to Wolfe Street)	137
Lee Street (From Princess Street to Wolfe Street)	106
Union Street (From Princess Street to Wolfe Street)	114
The Strand (From King Street to Duke Street)	16
Thompsons Alley (From Lee Street to the river)	30
Ramsey Alley/Fayette Alley (From Fairfax Street to the river)	19
Study Area Total	4,399



2.1.3 PARKING RATES

On-street parking revenue is created by those who park at a meter, by residents who purchase a residential parking permit, and by those that receive parking tickets at meters and other locations. Generally, metered parking spaces in Old Town have a two-hour limit and a rate of \$1.00 per hour. **Figure 2-3, On-Street Parking Rates** shows the locations of metered parking in the study area. Parking is free at meters along King Street and Washington Street in the study area except during the following periods:

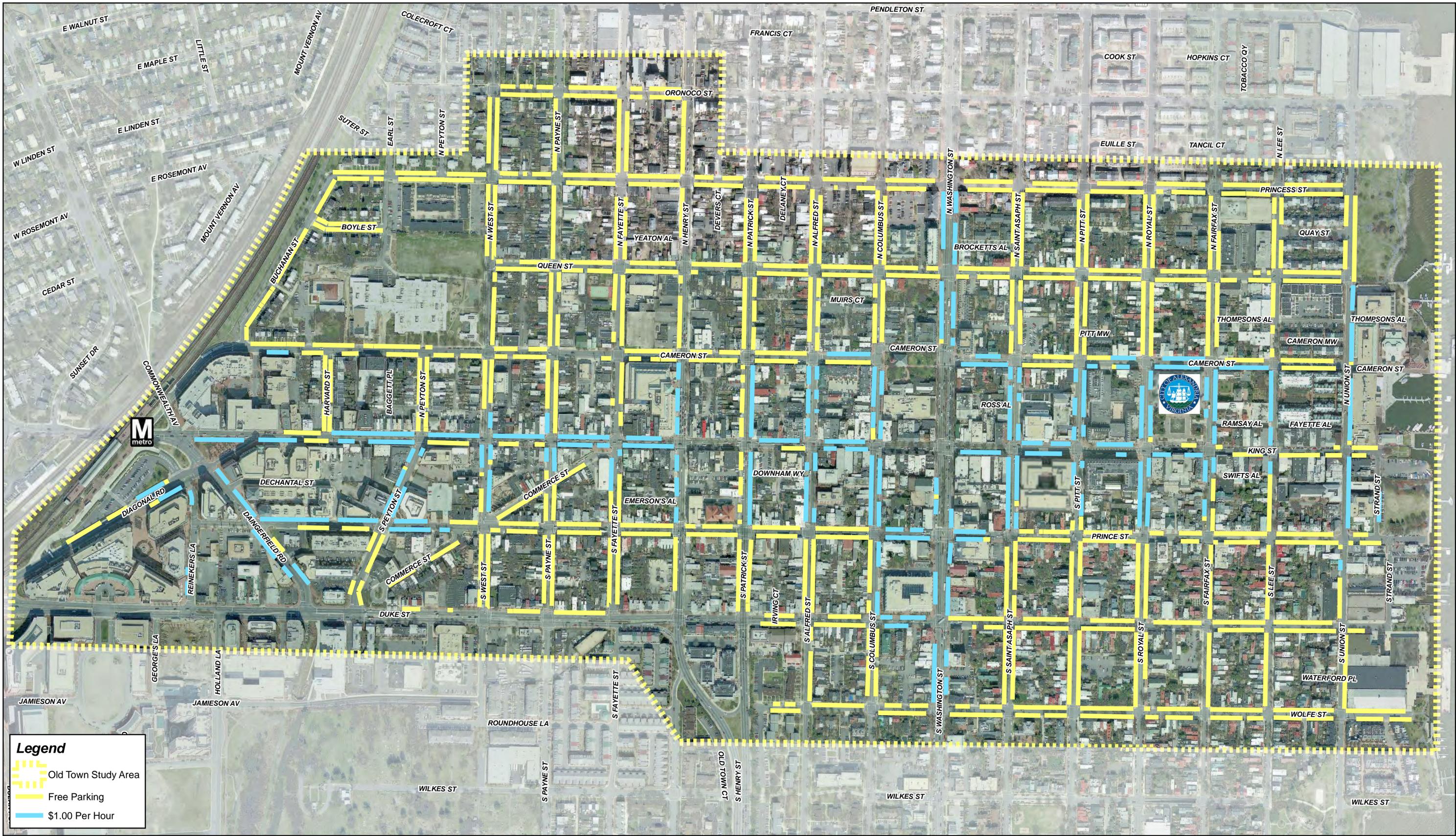
- King Street to the east of Washington Street. 8:00 AM to 7:00 PM on weekdays and Saturdays
- King Street between Washington Street and Patrick Street. 8:00 AM to 6:00 PM on weekdays and Saturdays
- King Street west of Patrick Street. 8:00 AM to 5:00 PM on weekdays and Saturdays
- Washington Street. 8:00 AM to 5:00 PM on weekdays and Saturdays

In general, most of the metered on-street parking is located along King Street and Washington Street. Other metered on-street parking is located on the first block of north/south streets intersecting King Street between Henry Street and Union Street, at the waterfront, and near the King Street Metrorail Station.

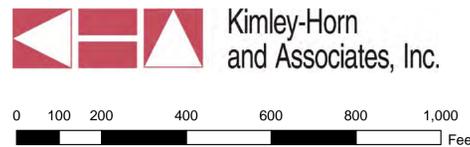
Residential permit fees are assessed annually. Currently, residential permit holders must pay \$15 per year for the first vehicle, \$20 per year for the second vehicle, and \$50 per year for each additional vehicle.

2.1.4 TIME RESTRICTIONS

Most on-street parking within the study area is limited to a two- or three-hour duration. Metered parking spaces have a two-hour limit. In residential permit districts, permit-holders are allowed to park within the district for which their permit was issued without a time restriction. The lone caveat to this restriction is that City ordinance prohibits any vehicle from being parked—permit or not—in the same location for more than 72 consecutive hours. Non-permit parking is allowed in residential districts. The general duration restriction for non-permit parkers in residential permit districts is two to three hours; however, a limited number of locations have 20- to 30-minute or 1-hour parking duration restrictions. Parking duration restrictions within the study area are shown on **Figure 2-4, On-Street Parking Time Restrictions.**



**Figure 2-3:
On-Street Parking Rates**



**FIGURE
2-3**



2.2 OFF-STREET PARKING

The following sections describe the types of off-street public parking and the number of off-street parking spaces, cost, and time restrictions for the study area.

2.2.1 TYPES OF OFF-STREET PARKING

Off-street parking studied included publicly accessible surface parking lots and parking garages. Privately owned and private-only-use parking facilities were not studied. Privately owned facilities that offer public use during specific times and days were studied. Data for these facilities was collected only during periods when the facility was available to the public.

The following describes surface parking lots and parking garages located within the study area:

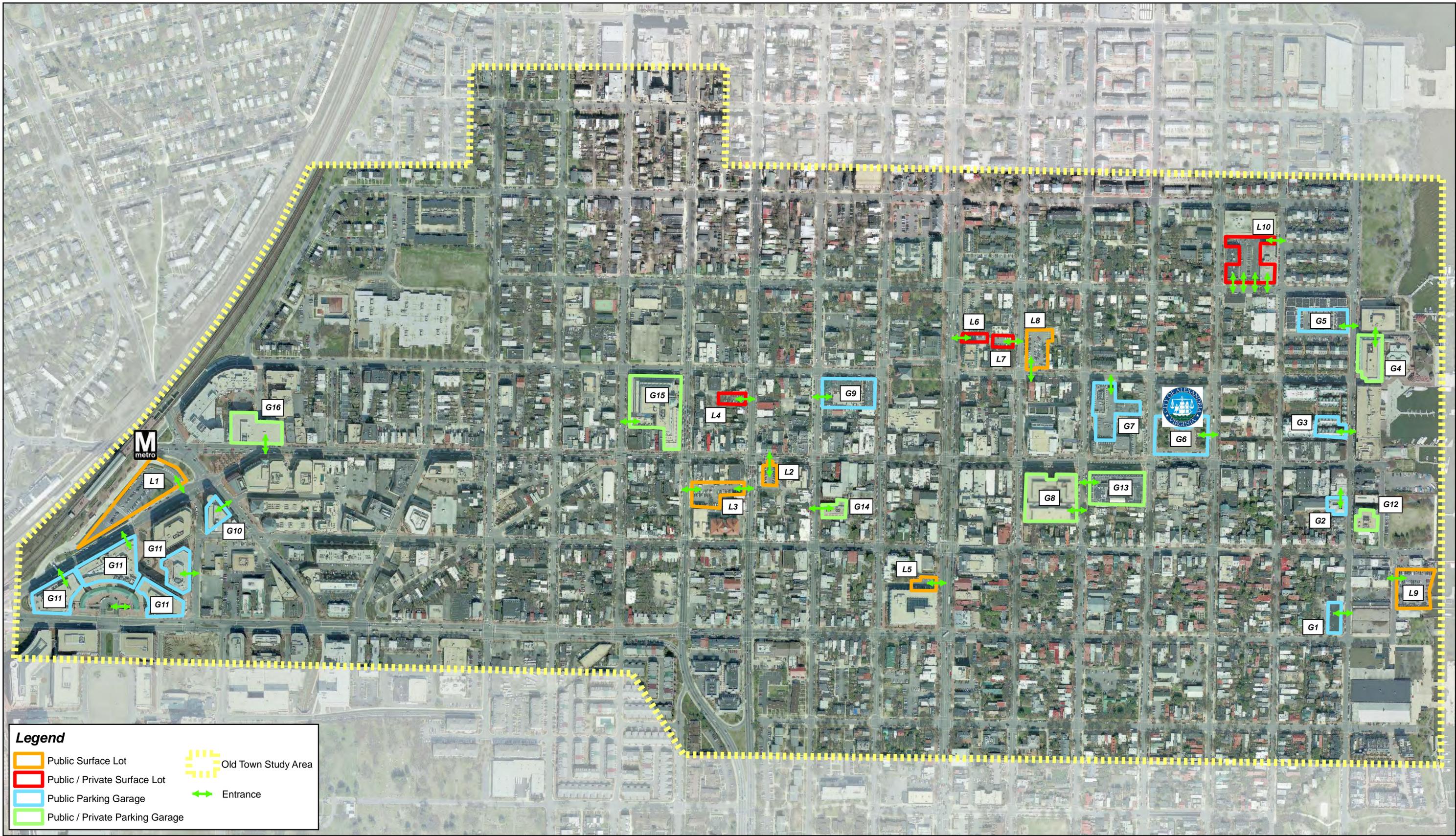
- Surface Parking Lots. Many of the surface parking lots in the study area used parking meters to collect parking fees. Other surface lots have a parking attendant to issue a ticket when vehicles arrive and collect payment when vehicles depart. Within the study area, there are ten surface parking lots open for public use. These lots are located along Diagonal Road near the Metro Station; on King Street between Patrick Street and Alfred Street; on Henry Street just south of King Street; on Patrick Street just north of King Street; on Washington Street between Prince Street and Duke Street, and between Cameron Street and Queen Street; on the east and west side of St. Asaph Street, just north of Cameron Street; on The Strand Street just south of Prince Street near the Potomac River; and on Queen Street between Fairfax Street and Lee Street. Most of the aforementioned lots are open to the public for parking during typical weekdays. A limited number have weekday restrictions. The King Street Metro parking lot along Diagonal Road offers short-term metered parking to the public. The surface lot located along South Washington Street serves visitors of the Lyceum Museum. The surface lots located along North Washington Street and on the west side of North St. Asaph Street serve the Military Officers Association and are reserved on weekdays between 6:00 AM and 6:00 PM. The Strand surface lot is located along the Potomac River just south of Prince Street. The lot is operated by the Port of Alexandria, and serves the activity centers and restaurants near the waterfront, as well as the river boat tours that operate from the dock attached to the parking lot.
- Parking Garages (structure parking). Information pertaining to capacity, cost, and hours of operation of parking garages in the study area was collected during the field inventory. Within the study area there are 16 public parking structures, most of which are located east of Washington Street near the waterfront. Most of the public parking garages are operated by independent parking companies and offer public parking during normal business hours or only during weekends and evenings.



Figure 2-5, Publicly-Available Off-Street Parking Locations, shows the locations of off-street public parking facilities in the study area.

2.2.2 NUMBER OF OFF-STREET PARKING SPACES

City staff provided an inventory of the number of available public parking spaces in each off-street parking facility. Based on the field inventory and information provided by the City, there are 3,933 off-street parking spaces in the Old Town study area. **Table 2-2** presents a summary of the off-street parking supply by facility.



Legend

- Public Surface Lot
- Public / Private Surface Lot
- Public Parking Garage
- Public / Private Parking Garage
- Old Town Study Area
- ↔ Entrance



**Figure 2-5:
Publicly-Available Off-Street
Parking Locations**

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0 100 200 400 600 800 1,000
 Feet



FIGURE
2-5



Table 2-2: Number of Off-Street Parking Spaces by Facility

Facility	Number of Public Parking Spaces
Surface Parking Lots	
L1. King Street Metro Lot	45
L2. King Street Metered Lot	15
L3. South Henry Street Lot	49
L4. North Patrick Street Lot*	19
L5. Lyceum Museum Lot*	21
L6. Military Officers Association Lot 1*	13
L7. Military Officers Association Lot 2*	18
L8. Cameron Street/St. Asaph Street Lot	54
L9. The Strand Parking Lot	85
L10. Altman's Lot*	87
Total Surface Parking Lots	406
Parking Garages	
G1. Solo Garage	25
G2. 115 S. Union Garage	68
G3. Torpedo Plant Condo Garage	361
G4. Thompson's Alley Garage	43
G5. N. Union Street Garage	174
G6. Market Square Garage	196
G7. Tavern Square Garage	164
G8. Courthouse Square Garage	293
G9. N. Alfred Street Garage	220
G10. PNC Bank Garage	102
G11. King Street Station/Embassy Suites Garage (1-4)	831
G12. Altman's Garage*	62
G13. Hotel Monaco Garage*	174
G14. Morrison House Hotel Garage*	54
G15. 1100 Cameron Street Garage*	472
G16. Hilton Hotel Garage*	288
Total Parking Garages	3,527
Total Off-Street Parking Spaces	3,933

*Location available to facility users only or open to the public on evenings/weekends only



2.2.3 PARKING RATES AND TIME RESTRICTIONS

Parking garage hours of operation vary from facility to facility and by day of week. Some of the parking garages are open each day during normal business hours and into the evening (11:00 PM or later). During weekdays, some of the garages are open by 8:00 AM. On weekends and holidays, all of the parking garages are open by 10:00 AM. In general, the parking garages east of Washington Street are open past midnight. The parking garages near the King Street Metrorail station generally close around midnight. Exceptions to operating hours of facilities are noted below:

- Solo Garage opens at 9:00 AM on weekdays and weekends.
- 115 S. Union Garage opens at 9:30 AM on weekdays and weekdays.
- Tavern Square Garage closes at 9:30 PM Monday through Thursday and 11:00 PM on Fridays and weekends.
- N. Alfred Street Garage closes at 11:00 PM Monday through Thursday.
- PNC Bank Garage closes at 6:30 PM on weekdays and is closed on weekends.

Although parking rates vary from garage to garage, trends among rates do exist. In general, during the daytime hours patrons pay a flat rate for the first hour, followed by a flat rate for additional hours up to a daily maximum. For the first hour, patrons of parking garages within the study area pay between \$2.00 and \$10.00 and the daily maximum is \$7.00 to \$15.00. Evening rates are typically less than daytime rates. During the evening, rates are between \$0.50 and \$10.00 for the first hour with an evening maximum of \$2.00 to \$15.00. Several parking garages offer a flat rate during evening hours and on weekends. On weekends, garages that do not offer a flat rate charge between \$0.50 and \$6.00 for the first hour with a maximum of \$2.00 to \$15.00. The Appendix contains a summary of the location, hours of operation, rate, and number of spaces for the public and public/private parking lots and garages in the Old Town study area.

Figures 2-6 through 2-11 show the parking rate for the parking system during each study time period.

2.2.4 PRIVATE OFF-STREET PARKING

There are also numerous private surface lots and parking garages in the study area. These facilities were not considered in this study because they are not open to the public. Information provided by City staff indicated that there are approximately 1,700 spaces within the 43 private lots and garages. **Figure 2-12** shows the location of the private lots and garages.

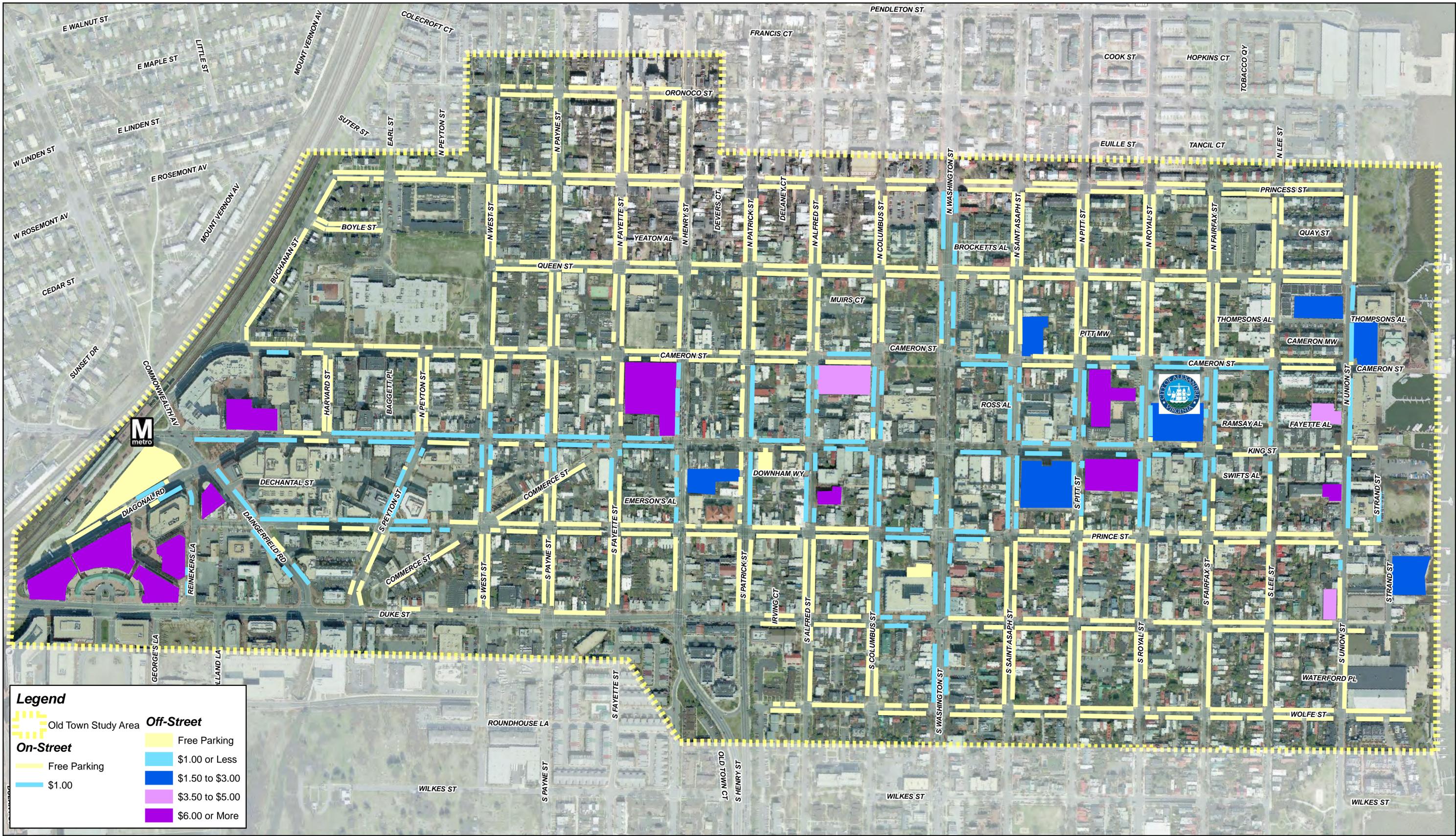


Figure 2-6:
Old Town First Hour Parking Rates
During Weekday Afternoon

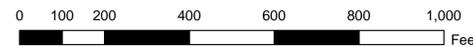
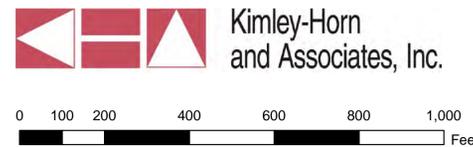


FIGURE
2-6

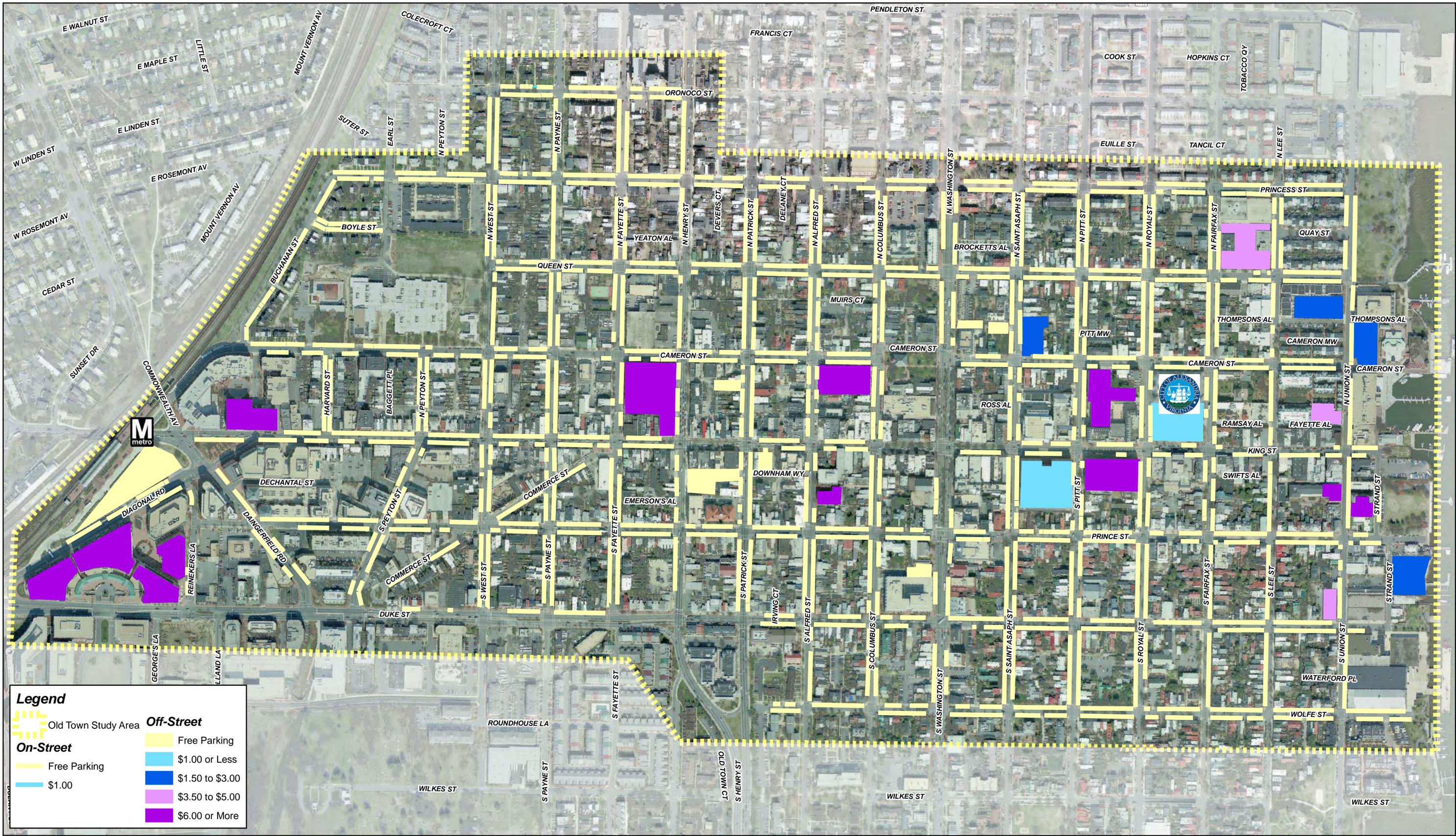


Figure 2-7:
Old Town First Hour Parking Rates
During Weekday Evening

Kimley-Horn and Associates, Inc.

0 100 200 400 600 800 1,000 Feet

FIGURE 2-7

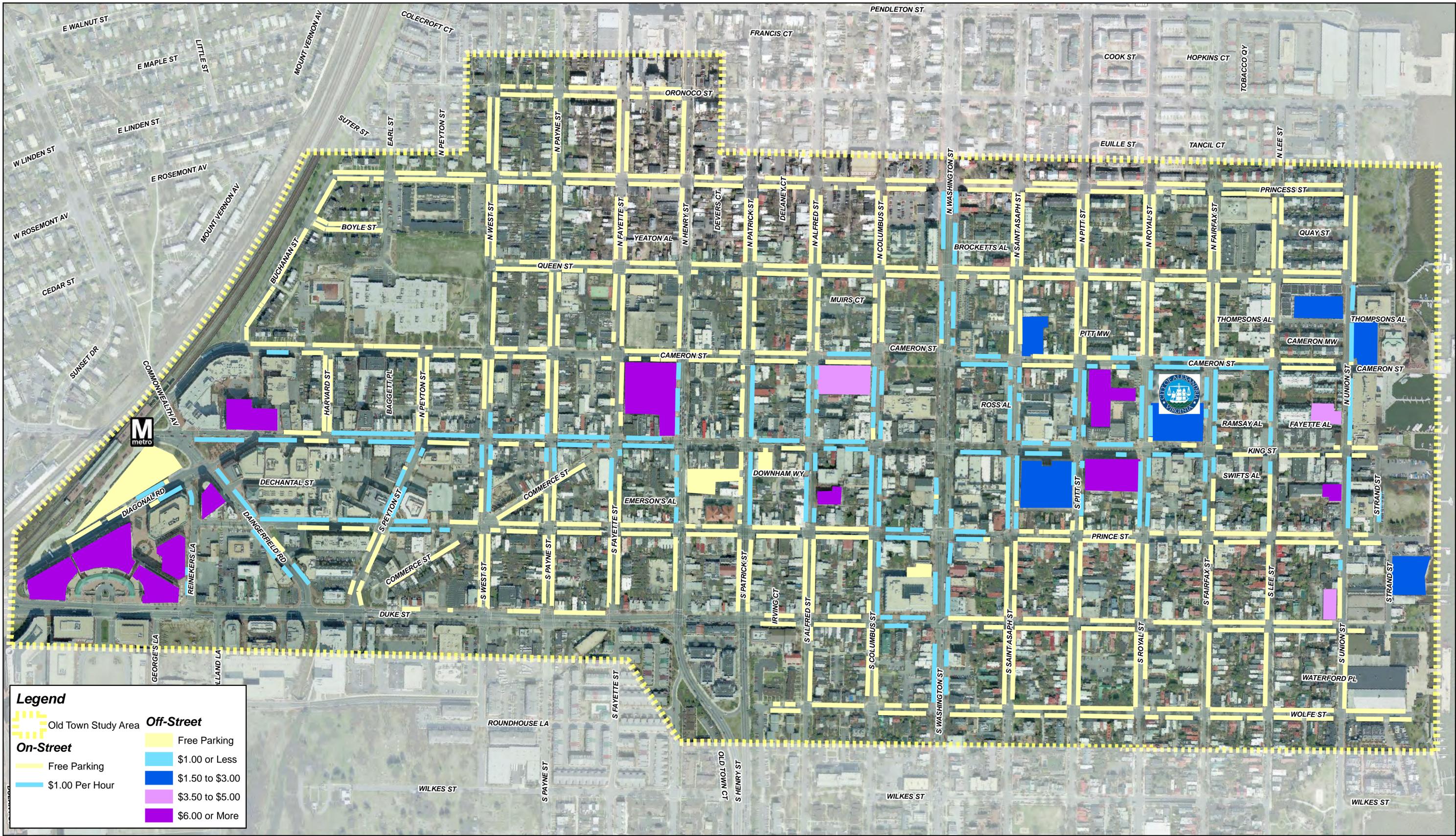


Figure 2-8:
Old Town First Hour Parking Rates
During Friday Afternoon

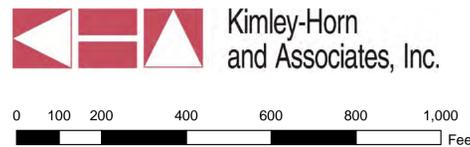


FIGURE
2-8

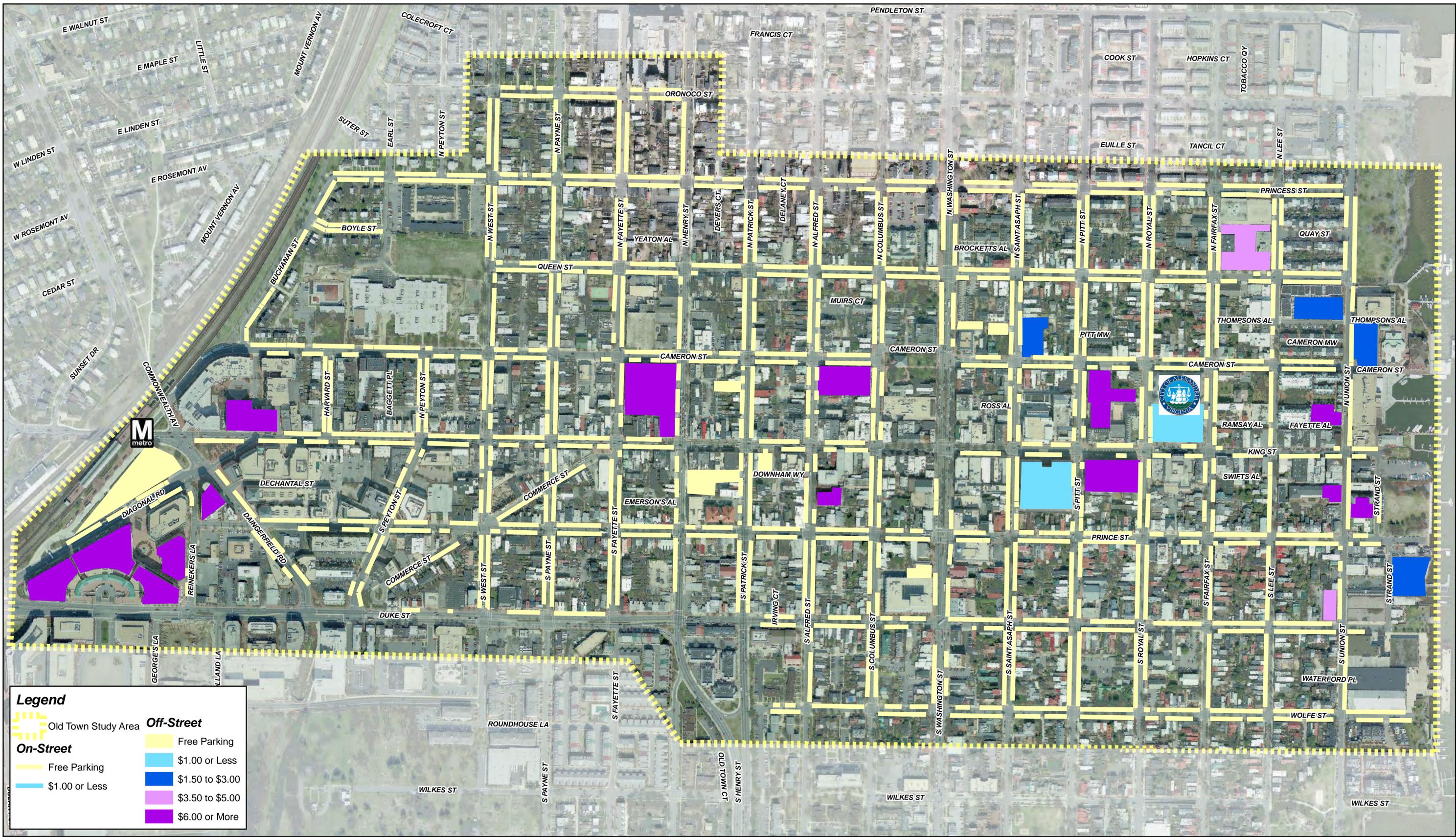


Figure 2-9:
Old Town First Hour Parking Rates
During Friday Nighttime

Kimley-Horn and Associates, Inc.

0 100 200 400 600 800 1,000 Feet

FIGURE 2-9

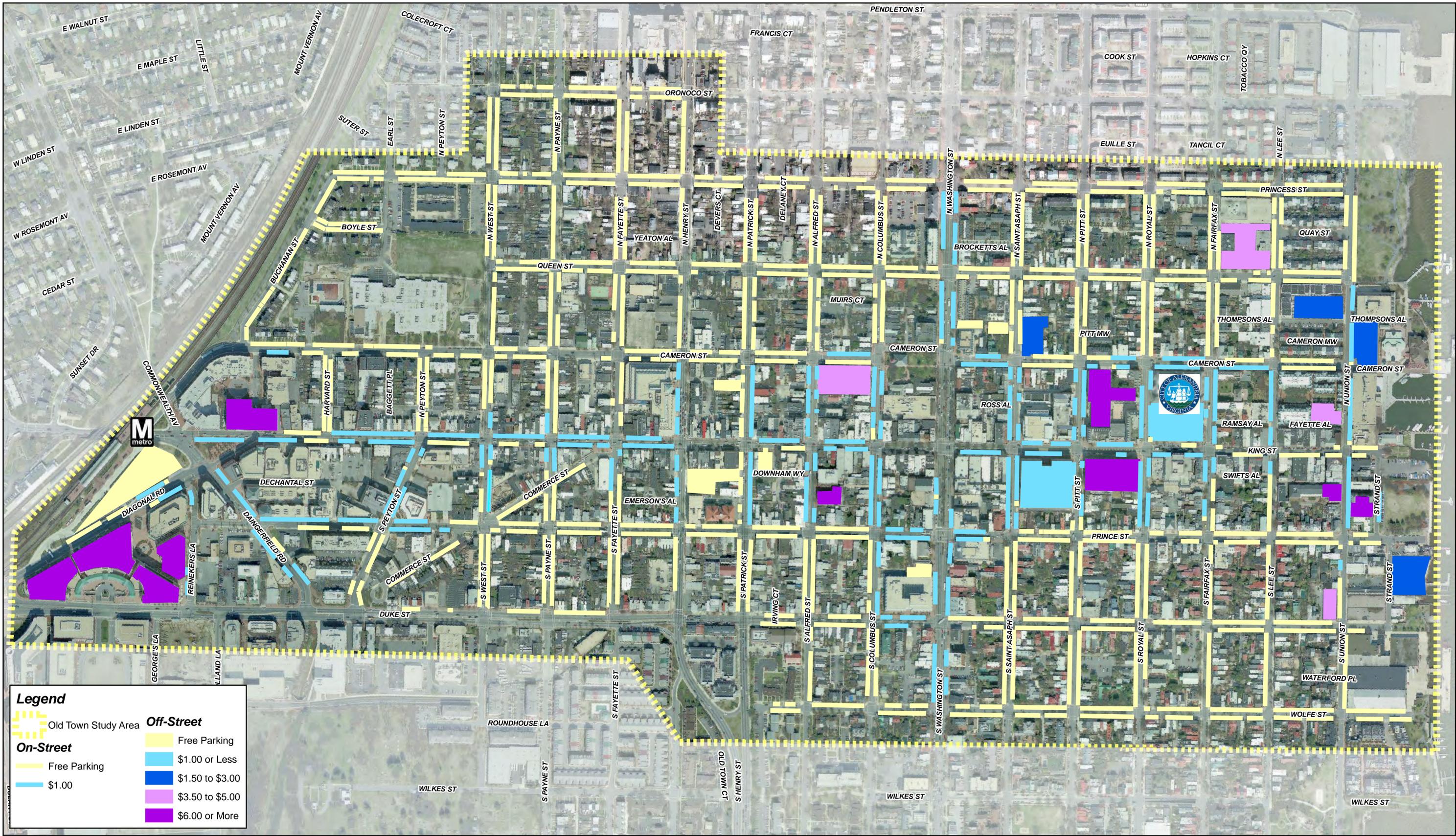


Figure 2-10:
Old Town First Hour Parking Rates
During Saturday Afternoon

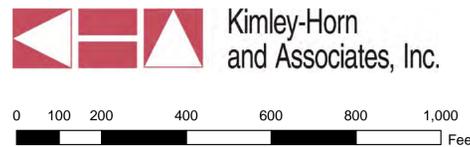


FIGURE
2-10

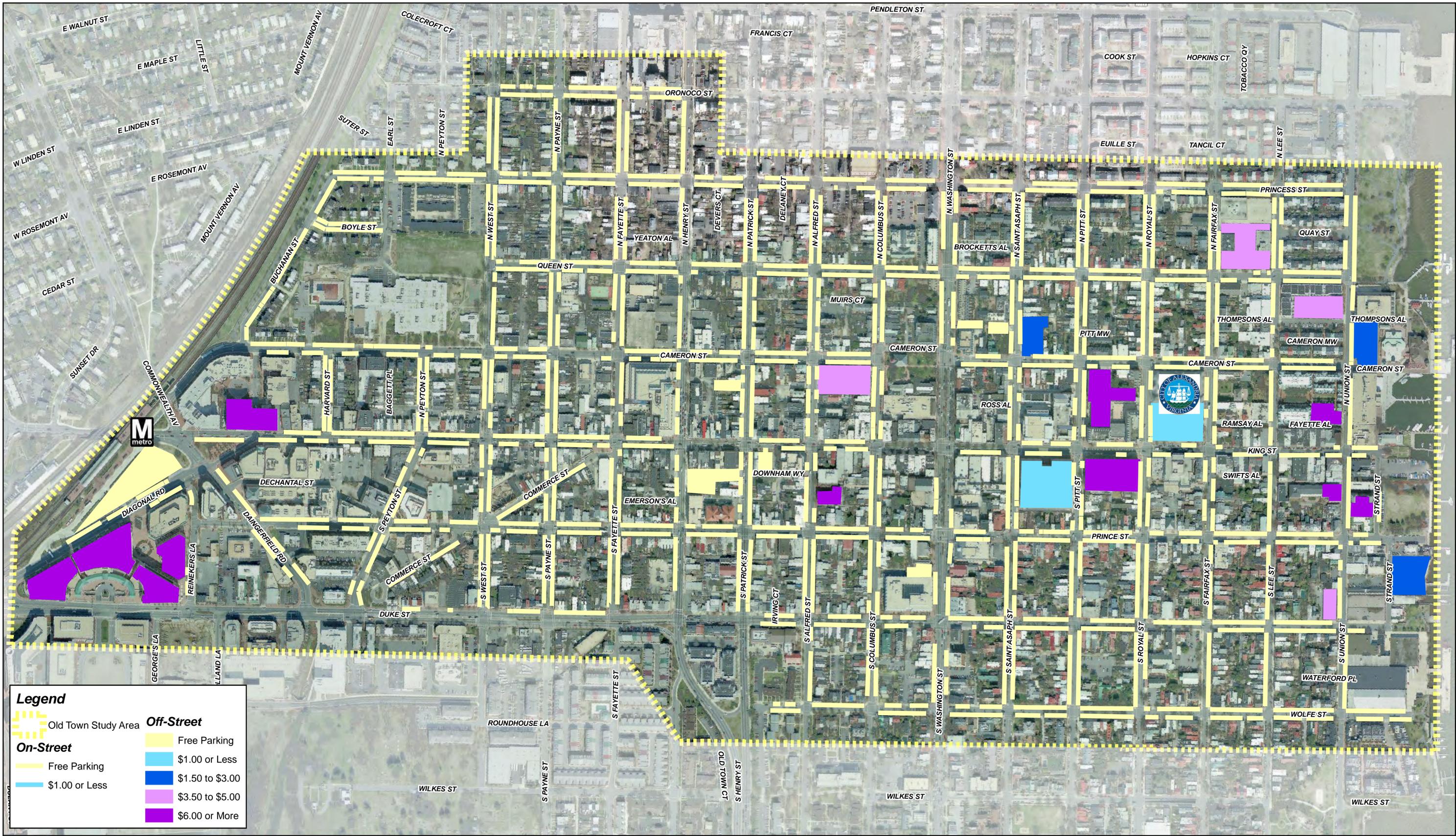


Figure 2-11
Old Town First Hour Parking Rates
During Saturday Evening

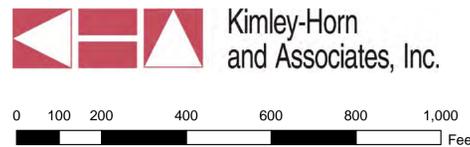


FIGURE
2-11

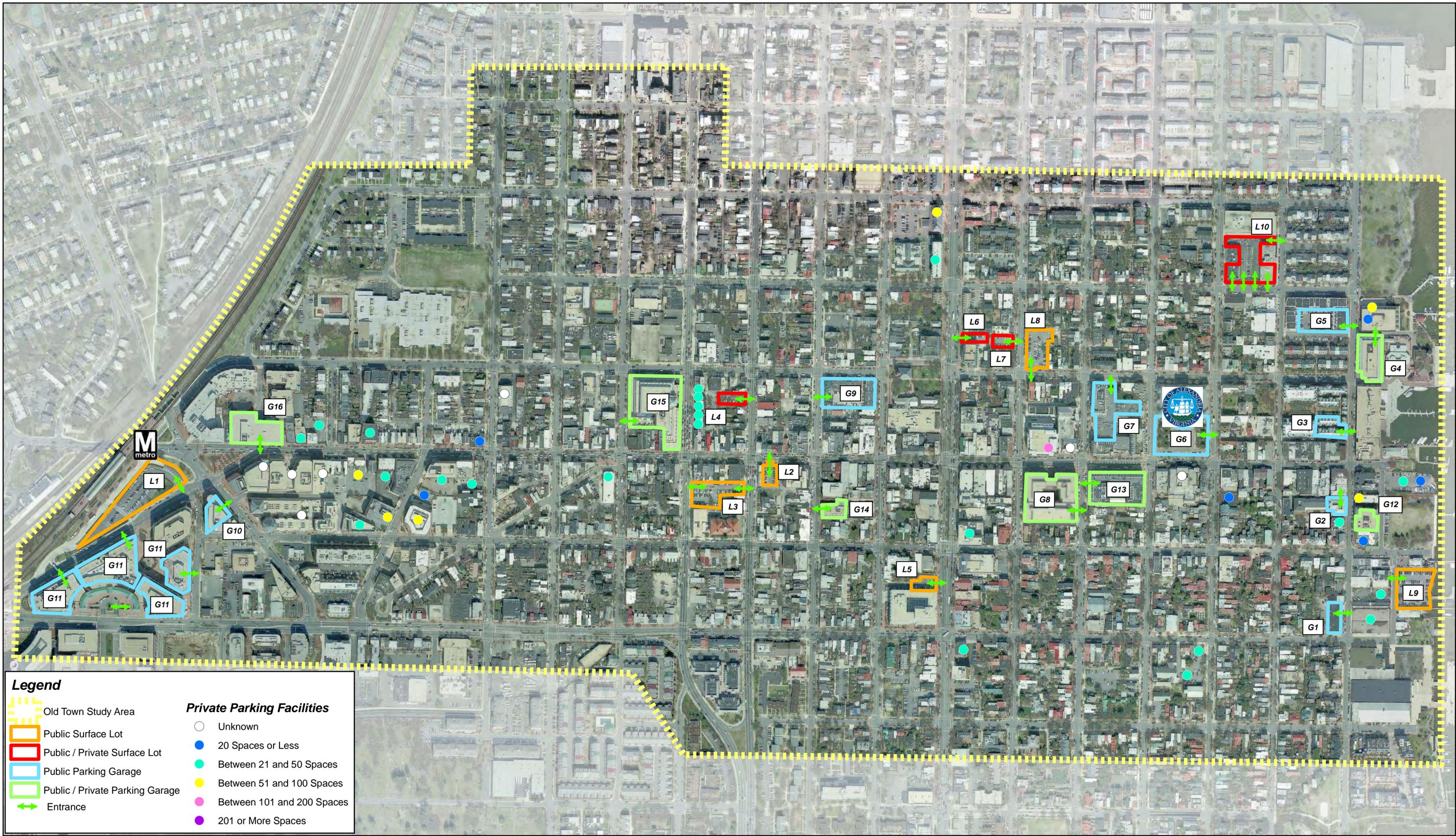


Figure 2-12:
Locations of Public and Private
Parking Lots and Garages

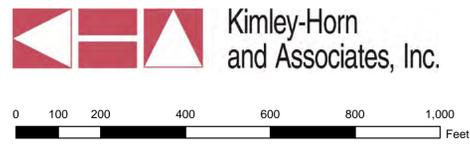


FIGURE
2-12



2.3 PARKING COUNTS

Parking counts were conducted in the study area in June 2009 for on-street parking and off-street surface parking lots. Count information for parking garages was collected at the City's direction in early December 2009, which is during the holiday shopping season where demand for parking is typically higher than during other times of the year. The following is a summary of the methodology used and the results of the data collection. The parking count information is contained in Section 2.4.

2.3.1 ON-STREET PARKING COUNTS

On-street parking counts were collected for the following six, two-hour periods:

1. Thursday, June 4, 2009, 12:00 PM to 2:00 PM
2. Tuesday, June 9, 2009, 6:00 PM to 8:00 PM
3. Friday, June 12, 2009, 12:00 PM to 2:00 PM
4. Friday, June 12, 2009, 6:00 PM to 8:00 PM
5. Saturday, June 13, 2009, 11:00 AM to 1:00 PM
6. Saturday, June 13, 2009, 7:00 PM to 9:00 PM

These periods were selected to capture times of the day and days of the week when peak parking demand is likely to occur for different activities in Old Town. Counts were performed once per hour during each time period. The counts noted the number of occupied handicapped, tour bus or trolley, and general use parking spaces along the street and within public surface parking lots. A detailed summary of the on-street parking counts by curb face is included in the Appendix of this report. It should be noted that along some curb faces where data was collected, the number of parked vehicles exceeds the number of reported parking spaces. This can be attributed to the methodology used to determine the on-street parking inventory (previously described in section 2.1.2) which assumed a standard space size. The presence of a significant number of smaller vehicles would allow more cars to be parked in a smaller area.

2.3.2 PARKING LOT COUNTS

Counts were conducted for publicly accessible off-street surface parking lots during the six periods described in Section 2.3.1. The number of parked cars was collected each hour during each two hour period.

2.3.3 PARKING GARAGE COUNTS

Counts were conducted for publicly accessible parking garages during time periods similar to those described in Section 2.3.1. The following describes the specific time periods for the parking garage data collection:



1. Thursday, December 3, 2009, 12:00 PM to 2:00 PM
2. Thursday, December 3, 2009, 6:00 PM to 8:00 PM
3. Friday, December 4, 2009, 12:00 PM to 2:00 PM
4. Friday, December 4, 2009, 6:00 PM to 8:00 PM
5. Saturday, December 12, 2009, 11:00 AM to 1:00 PM
6. Saturday, December 12, 2009, 7:00 PM to 9:00 PM

The number of parked cars was collected each hour during each two hour period.

2.4 PARKING UTILIZATION

Parking count data was compared to the number of available parking spaces for each curb face, within each surface parking lot, and within each parking garage to determine parking utilization—facility occupancy—during each period studied. Generally, off-street parking facilities are considered full when they reach an occupancy of 85 percent to 90 percent; however, in very large parking facilities with technology to guide parkers to available spaces, the measure of full can often be increased to 90 percent to 95 percent. In the same manner, a large parking system—the combination of lots, garages, and street parking—is viewed as full when it reaches the same 85 percent to 90 percent range. The reason that full occupancy—100 percent of spaces occupied—is not used in parking planning is that as occupancies rise above 85 percent, it is increasingly difficult for parkers to find the spaces that remain open within the system. In areas that employ comprehensive parking guidance systems with real-time parking system information for users, effective full occupancy assumptions can be increased to in-excess of 90 percent.

The narratives, tables, and figures on the following pages describe on- and off-street parking utilization and substantive conclusions that can be drawn from the evaluation of utilization information. **Figures 2-13 through 2-18** show a summary of parking utilization by day (weekday, Friday, or Saturday), time period (mid-day or evening), and for all parking types (on-street, lots, and garages) within the study area.

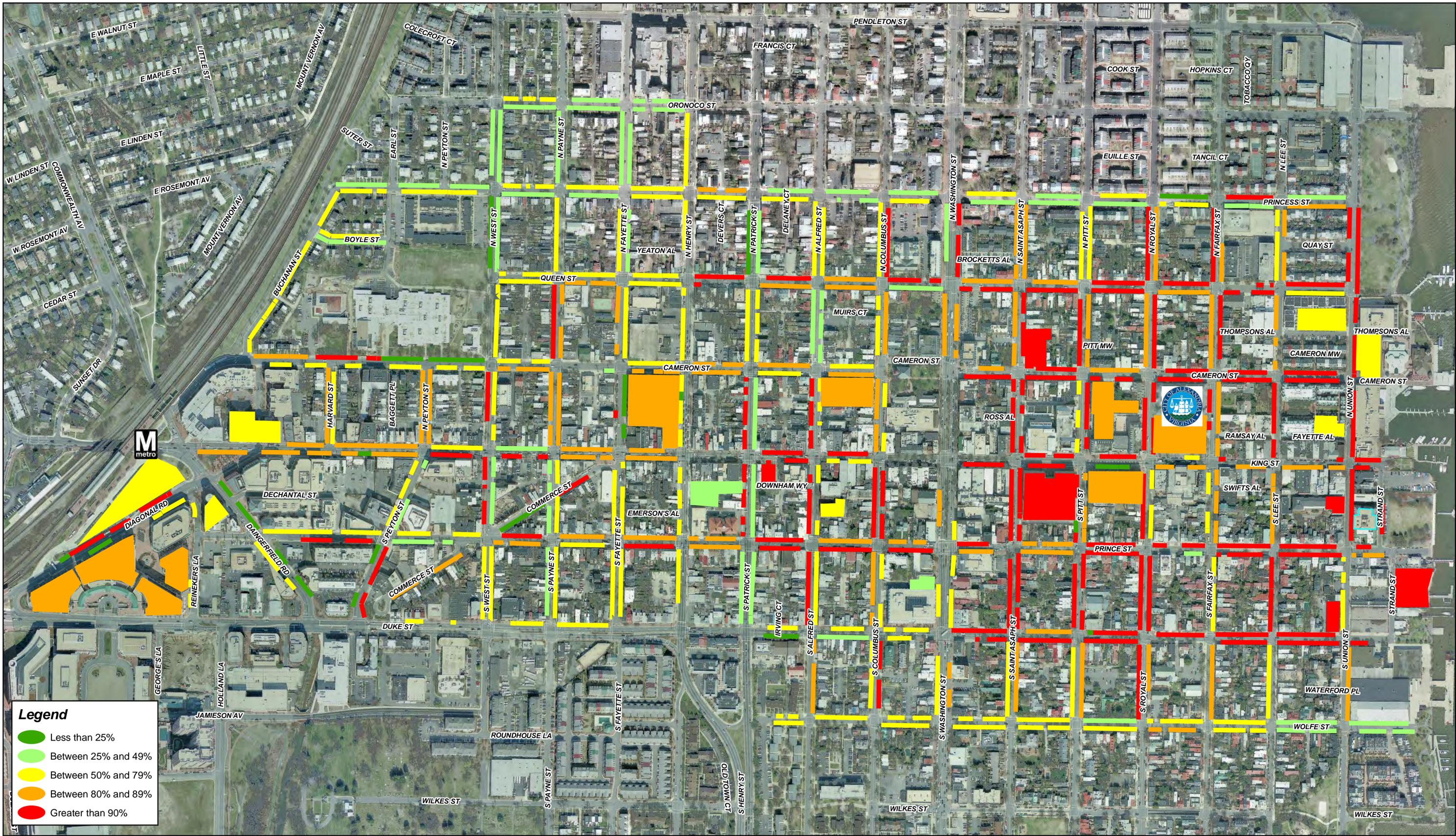
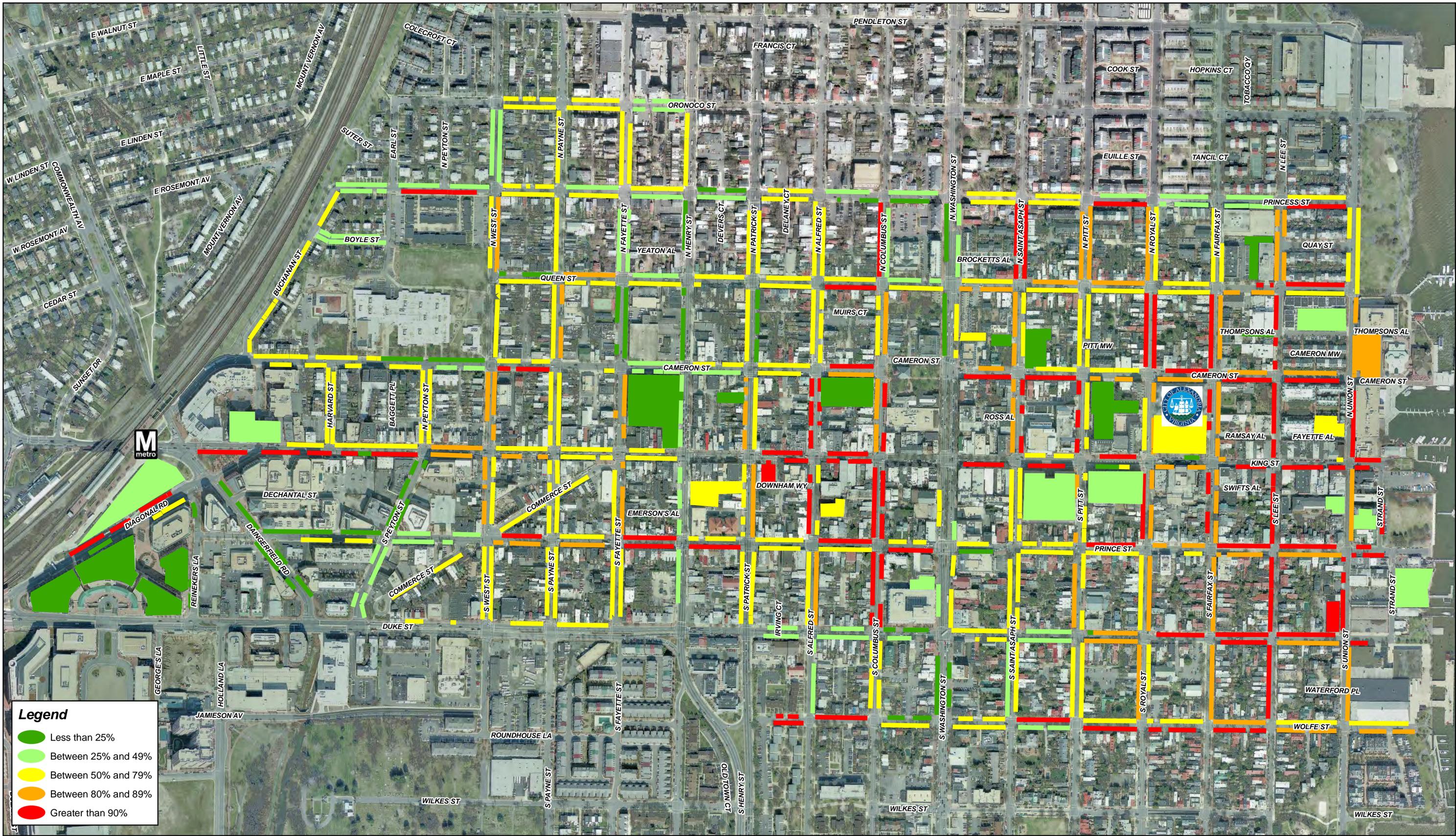


Figure 2-13:
Parking Utilization
During Weekday Afternoon





Legend

- Less than 25%
- Between 25% and 49%
- Between 50% and 79%
- Between 80% and 89%
- Greater than 90%

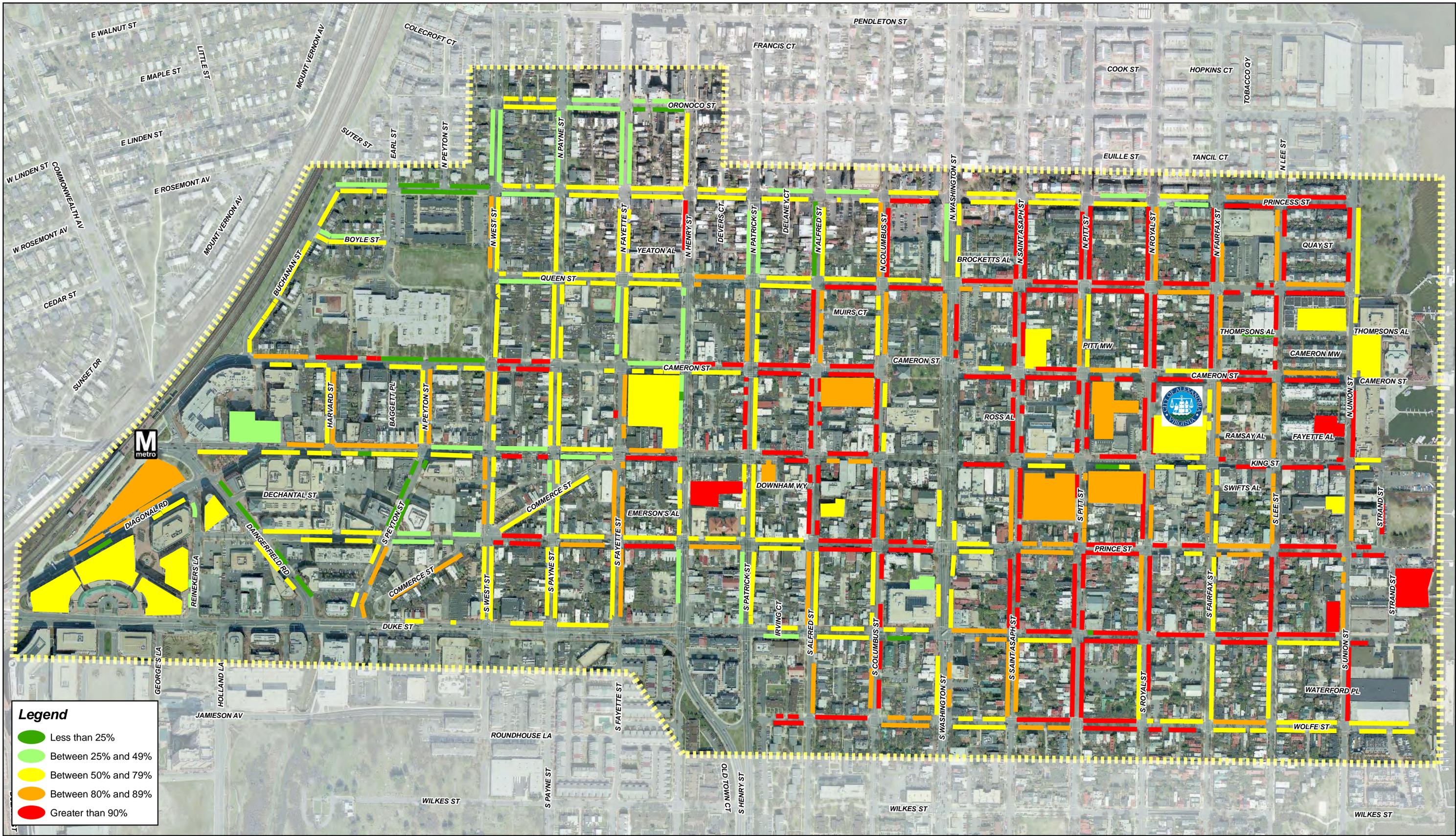


Figure 2-14:
Parking Utilization
During Weekday Evening

Kimley-Horn and Associates, Inc.

0 100 200 400 600 800 1,000 Feet

FIGURE
2-14



**Figure 2-15:
Parking Utilization
During Friday Afternoon**

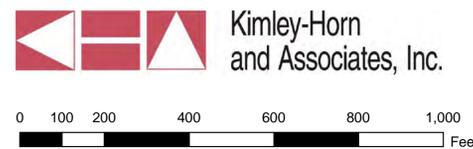
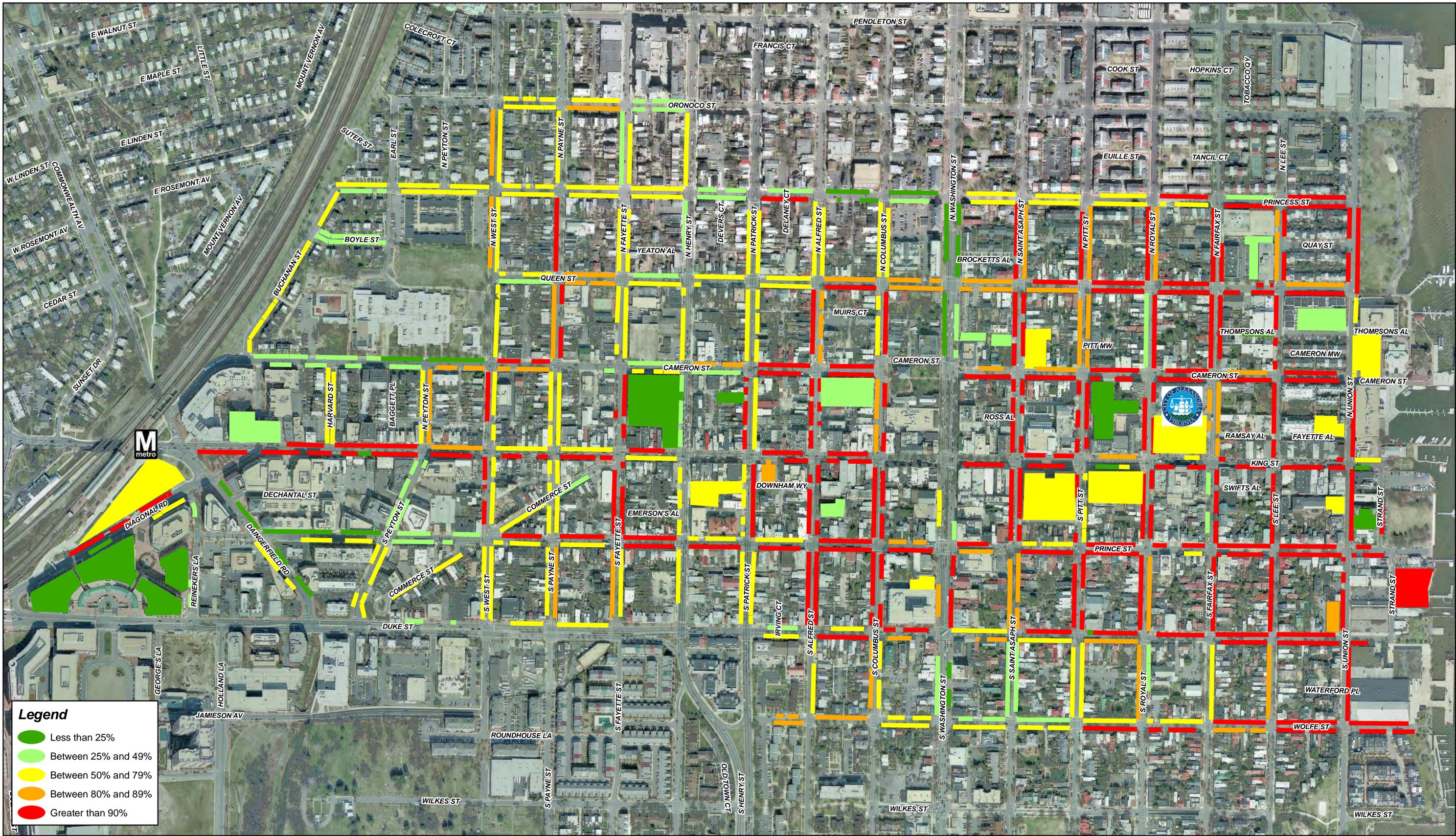
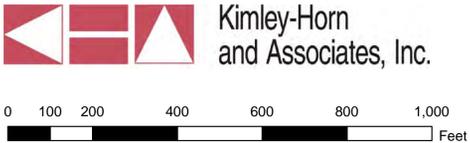


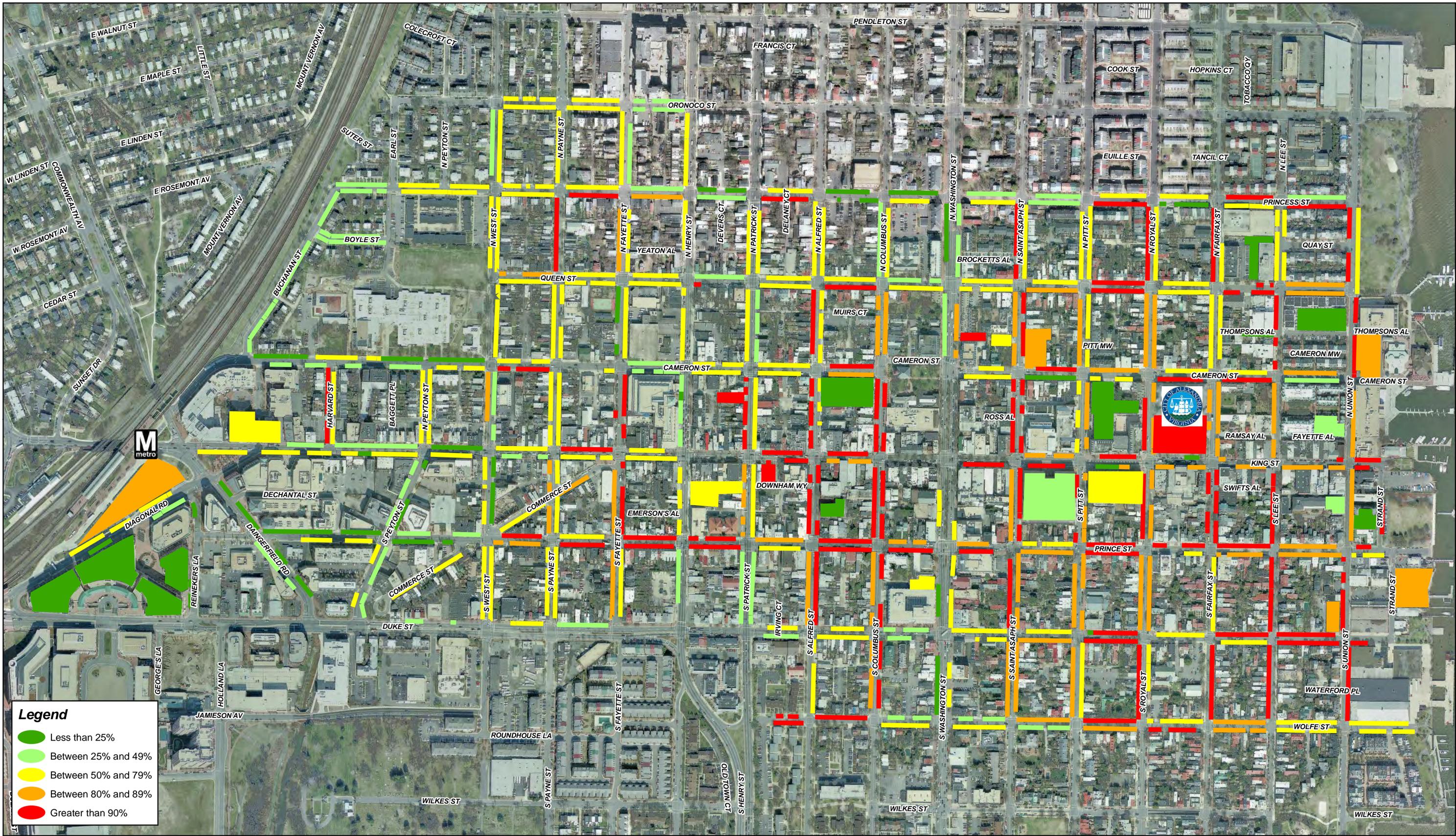
FIGURE
2-15



**Figure 2-16:
Parking Utilization
During Friday Evening**



**FIGURE
2-16**



Legend

- Less than 25%
- Between 25% and 49%
- Between 50% and 79%
- Between 80% and 89%
- Greater than 90%



Figure 2-17:
Parking Utilization
During Saturday Afternoon

Kimley-Horn and Associates, Inc.

0 100 200 400 600 800 1,000 Feet



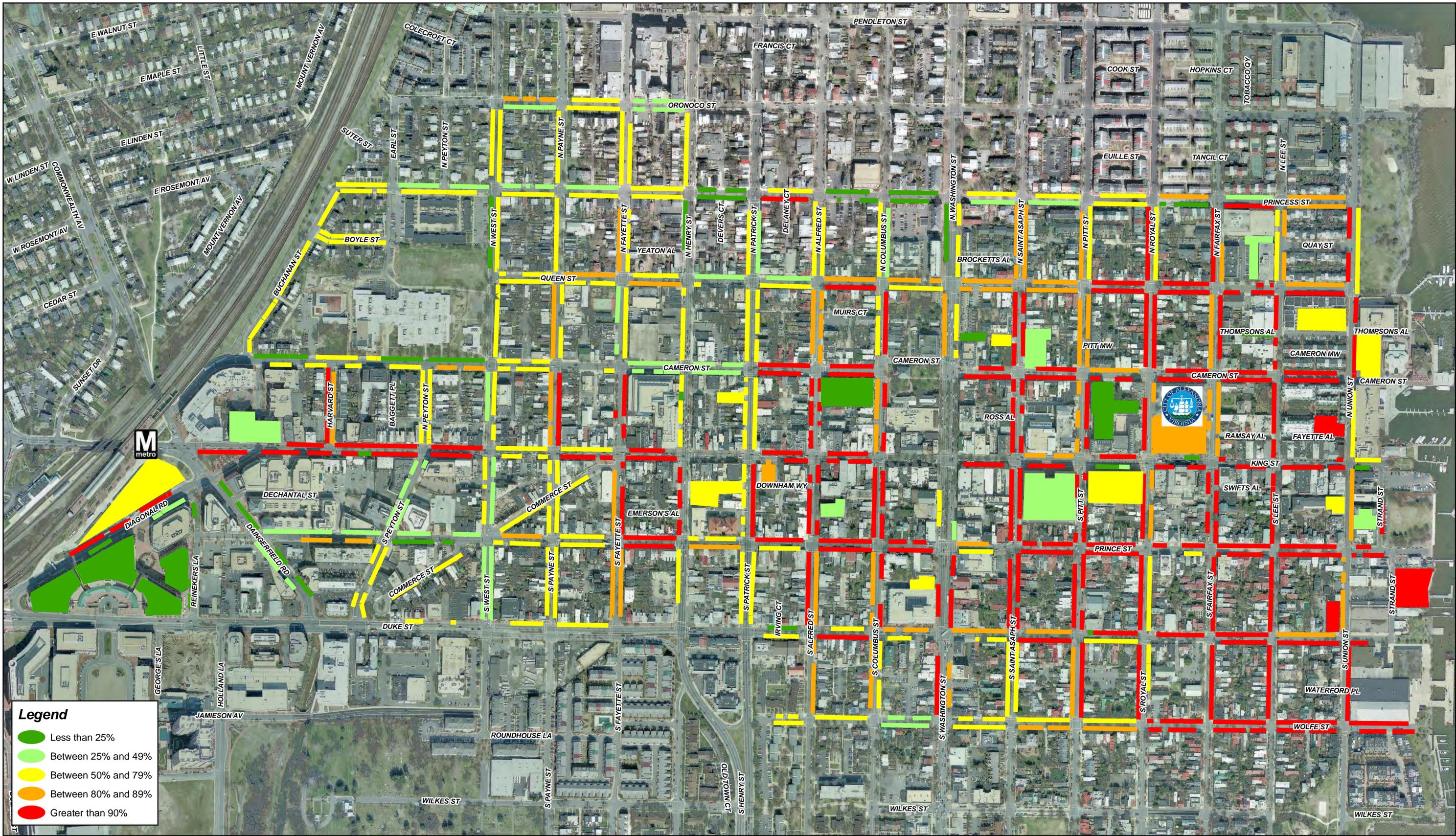


Figure 2-18:
Parking Utilization
During Saturday Evening

Kimley-Horn and Associates, Inc.

0 100 200 400 600 800 1,000 Feet

FIGURE 2-18



2.4.1 ON-STREET PARKING UTILIZATION

Utilization was calculated for each curb face for on-street parking. **Table 2-3** shows a summary of the number of available spaces, the number of parked vehicles, and the percent utilization for each street during each time period counted. The Appendix contains a summary of the on-street parking counts by curb face. Occupancies in-excess of 90 percent are highlighted.

Table 2-3: On-Street Parking Utilization Summary

Street	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
Oronoco St.	66	27	29	35	33	32	26	37	41	40	35	35	35
		41%	44%	53%	50%	48%	39%	56%	62%	61%	53%	53%	53%
Princess St.	307	143	169	157	148	175	180	165	174	170	165	154	147
		47%	55%	51%	48%	57%	59%	54%	57%	55%	54%	50%	48%
Queen St.	289	236	226	183	184	243	235	212	231	218	211	217	238
		82%	78%	63%	64%	84%	81%	73%	80%	75%	73%	75%	82%
Cameron St.	318	255	239	213	223	256	256	229	239	207	190	227	237
		80%	75%	67%	70%	81%	81%	72%	75%	65%	60%	71%	75%
King St.	312	251	255	217	254	272	234	260	301	222	220	272	287
		80%	82%	70%	81%	87%	75%	83%	96%	71%	71%	87%	92%
Prince St.	375	324	298	264	273	306	302	297	305	301	293	299	310
		86%	79%	70%	73%	82%	81%	79%	81%	80%	78%	80%	83%
Duke St.	204	164	156	119	130	164	162	138	170	144	146	174	166
		80%	76%	58%	64%	80%	79%	68%	83%	71%	72%	85%	81%
Wolfe St.	166	100	115	101	121	107	130	111	124	122	120	121	132
		60%	69%	61%	73%	64%	78%	67%	75%	73%	72%	73%	80%
West St.	152	79	93	83	98	92	98	98	111	87	82	76	76
		52%	61%	55%	64%	61%	64%	64%	73%	57%	54%	50%	50%
Payne St.	149	33	32	34	33	40	30	31	32	43	34	36	36
		22%	21%	23%	22%	27%	20%	21%	21%	29%	23%	24%	24%
Fayette St.	170	96	108	98	98	111	111	127	126	116	123	125	134
		56%	64%	58%	58%	65%	65%	75%	74%	68%	72%	74%	79%
Henry St.	76	49	45	27	25	53	41	40	45	47	41	47	45
		64%	59%	36%	33%	70%	54%	53%	59%	62%	54%	62%	59%



Table 2-3 (continued): On-Street Parking Utilization Summary

Street	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
Patrick St.	140	69 49%	84 60%	81 58%	83 59%	94 67%	83 59%	97 69%	100 71%	87 62%	79 56%	89 64%	94 67%
Alfred St.	150	114 76%	122 81%	116 77%	104 69%	123 82%	117 78%	113 75%	132 88%	123 82%	125 83%	128 85%	132 88%
Columbus St.	175	141 81%	138 79%	142 81%	140 80%	143 82%	149 85%	134 77%	146 83%	141 81%	145 83%	147 84%	149 85%
Washington St.	121	84 69%	77 64%	32 26%	41 34%	68 56%	74 61%	35 29%	57 47%	53 44%	56 46%	71 59%	83 69%
St. Asaph St.	174	159 91%	163 94%	121 70%	126 72%	158 91%	166 95%	122 70%	142 82%	149 86%	155 89%	143 82%	158 91%
Pitt St.	171	151 88%	147 86%	104 61%	128 75%	149 87%	162 95%	130 76%	150 88%	130 76%	133 78%	141 82%	153 89%
Royal St.	180	168 93%	166 92%	112 62%	145 81%	168 93%	166 92%	140 78%	153 85%	135 75%	159 88%	150 83%	161 89%
Fairfax St.	137	116 85%	127 93%	98 72%	117 85%	111 81%	113 82%	125 91%	116 85%	112 82%	112 82%	124 91%	130 95%
Lee St.	106	88 83%	94 89%	83 78%	101 95%	98 92%	93 88%	96 91%	102 96%	99 93%	94 89%	99 93%	99 93%
Union St.	114	113 99%	97 85%	77 68%	99 87%	101 89%	96 84%	108 95%	120 105%	93 82%	104 91%	105 92%	105 92%
The Strand	16	16 100%	15 94%	15 94%	15 94%	17 106%	15 94%	17 106%	16 100%	16 100%	16 100%	16 100%	16 100%
Thompson Alley	30	13 43%	14 47%	15 50%	17 57%	18 60%	17 57%	20 67%	23 77%	22 73%	21 70%	18 60%	22 73%
Fayette Alley / Ramsey Alley	19	11 58%	12 63%	8 42%	10 53%	11 58%	14 74%	14 74%	15 79%	11 58%	10 53%	17 89%	17 89%
Buchanan Street	35	32 91%	33 94%	26 74%	30 86%	30 86%	29 83%	23 66%	28 80%	24 69%	22 63%	21 60%	22 63%
Boyle Street	37	19 51%	18 49%	14 38%	16 43%	19 51%	19 51%	16 43%	17 46%	15 41%	13 35%	18 49%	19 51%



Table 2-3 (continued): On-Street Parking Utilization Summary

Street	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
Diagonal Road	34	30	34	26	28	26	26	29	29	13	22	26	25
		88%	100%	76%	82%	76%	76%	85%	85%	38%	65%	76%	74%
Reinekers Lane	10	5	7	3	2	8	3	3	4	1	2	2	2
		50%	70%	30%	20%	80%	30%	30%	40%	10%	20%	20%	20%
Daingerfield Road	27	6	6	2	2	9	5	5	5	4	4	5	4
		22%	22%	7%	7%	33%	19%	19%	19%	15%	15%	19%	15%
Harvard Street	28	23	24	18	14	24	23	17	15	25	26	27	27
		82%	86%	64%	50%	86%	82%	61%	54%	89%	93%	96%	96%
Peyton Street	71	46	42	31	31	42	40	32	40	31	32	35	37
		65%	59%	44%	44%	59%	56%	45%	56%	44%	45%	49%	52%
Commerce Street	40	27	40	25	25	31	36	23	23	31	29	24	24
		68%	100%	63%	63%	78%	90%	58%	58%	78%	73%	60%	60%
TOTAL	4,399	3,189	3,226	2,680	2,894	3,300	3,252	3,044	3,332	3,032	3,019	3,189	3,323
		72%	73%	61%	66%	75%	74%	69%	76%	69%	69%	72%	76%

The following identifies the peak hours of the on-street parking during each time period studied:

- Weekday afternoon, 1:00 PM to 2:00 PM
- Weekday evening, 7:00 PM to 8:00 PM
- Friday afternoon, 12:00 PM to 1:00 PM
- Friday evening, 7:00 PM to 8:00 PM
- Saturday afternoon, 11:00 AM to 12:00 PM
- Saturday evening, 8:00 PM to 9:00 PM

As shown in Table 2-3, on-street parking utilization is between 61 percent and 76 percent for all time periods studied. This would indicate that on-street parking is available within the study area during each time period; however, parking may not be proximate to people’s desired destinations. Typical of any parking system, utilization is uneven throughout the overall on-street system and parking nearest to popular destinations and/or at the least cost



is the most utilized. This condition of high utilization in high demand areas is likely to give some the impression that there is not parking available. Locations and time periods where parking utilization was in excess of 90 percent are summarized in the following:

- King Street on Friday and Saturday evenings
- St. Asaph Street on typical weekday afternoons, Friday afternoons, and Saturday evenings
- Pitt Street on Friday afternoons
- Royal Street on typical weekday and Friday afternoons
- Fairfax Street on typical weekday afternoons, Friday evenings, and Saturday evenings
- Lee Street on typical weekday evenings, Friday afternoons, Friday evenings, Saturday afternoons, and Saturday evenings
- Union Street on typical weekday afternoons, Friday evenings, Saturday afternoons, and Saturday evenings
- Strand Street during all six time periods
- Vicinity of King Street Metrorail station on typical weekday afternoons, Friday afternoons, Saturday afternoons, and Saturday evenings
- Vicinity of the Potomac River waterfront during all six time periods

2.4.2 OFF-STREET PARKING UTILIZATION

Utilization was calculated for each surface parking lot and parking garage. **Table 2-4** and **Table 2-5** show a summary of the number of available spaces, the number of parked vehicles, and the percent utilization for each street during each time period counted for surface lots and parking garages, respectively. It should be noted that some parking lots and parking garage operators park vehicles in tandem (double-park) to maximize lot and garage capacity during periods of high demand. The tandem parking practice is reflected in the data by the indication of utilization in excess of 100 percent. Occupancies of 90 percent or greater are also highlighted.



Table 2-4: Off-Street Surface Lot Utilization Summary

Lot	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
L1. King Street Metro Lot	45	31	28	32	21	38	36	27	26	41	40	41	34
		69%	62%	71%	47%	84%	80%	60%	58%	91%	89%	91%	76%
L2. King Street Metered Lot	15	15	15	19	20	12	12	14	13	13	15	11	13
		100%	100%	127%	133%	80%	80%	93%	87%	87%	100%	73%	87%
L3. South Henry Street Lot	49	19	14	41	37	42	44	37	37	31	29	35	38
		39%	29%	84%	76%	86%	90%	76%	76%	63%	59%	71%	78%
L4. N. Patrick Street Lot*	19	-	-	4	3	-	-	1	2	17	18	14	14
		-	-	21%	16%	-	-	5%	11%	89%	95%	74%	74%
L5. Lyceum Museum Lot**	21	8	7	4	8	7	10	13	15	8	12	10	16
		38%	33%	19%	38%	33%	48%	62%	71%	38%	57%	48%	76%
L6. Military Officers Association Lot***	13	-	-	6	9	-	-	3	4	13	12	2	1
		-	-	46%	69%	-	-	23%	31%	100%	92%	15%	8%
L7. Military Officers Association Lot***	18	-	-	6	4	-	-	6	7	13	12	9	13
		-	-	33%	22%	-	-	33%	39%	72%	67%	50%	72%
L8. Cameron Street/St. Asaph Street Lot	54	54	45	10	8	36	38	31	31	40	43	28	26
		100%	83%	19%	15%	67%	70%	57%	57%	74%	80%	52%	48%
L9. The Strand Lot	85	81	94	35	37	76	91	85	100	65	69	75	80
		95%	111%	41%	44%	89%	107%	100%	118%	76%	81%	88%	94%
L10. Altman's Lot	87	-	-	20	18	-	-	27	28	10	13	35	31
		-	-	23%	21%	-	-	31%	32%	11%	15%	40%	36%
TOTAL	406	208	203	177	165	211	231	244	263	251	263	260	266
		77% ¹	75% ¹	44%	41%	78% ¹	86% ¹	60%	65%	62%	65%	64%	66%

*Permit parking only, 7:00 AM to 6:00 PM, Monday through Friday

**Lyceum Museum visitor parking only

***Reserved parking, 6:00 AM to 6:00 PM, Monday through Friday

1. Based on 269 available public spaces as a result of L4, L6, L7 and L10 restrictions



The following identifies the peak hours of the surface parking lots during each time period studied:

- Weekday afternoon, 12:00 PM to 1:00 PM
- Weekday evening, 6:00 PM to 7:00 PM
- Friday afternoon, 1:00 PM to 2:00 PM
- Friday evening, 7:00 PM to 8:00 PM
- Saturday afternoon, 12:00 PM to 1:00 PM
- Saturday evening, 8:00 PM to 9:00 PM

As shown in Table 2-4, surface parking lot utilization is between 41 percent and 86 percent for all periods studied. This would indicate that surface lot parking is available within the study area during each time period with the exception of Friday afternoons. However, this does not mean that parking is available in all lots or areas of the study area. The data indicates that the following surface lots are effectively full during one or more periods:

- King Street Metro Lot during Saturday afternoon and evenings
- King Street Metered Lot during typical weekday afternoons and evenings, Friday evening, and Saturday afternoons
- South Henry Street Lot on Friday afternoons
- North Patrick Street Lot on Saturday afternoons
- Military Officers Association Lot on Saturday afternoons
- The Strand Lot during typical weekday afternoons, on Friday afternoons and evenings, and on Saturday evenings



Table 2-5: Off-Street Parking Garage Utilization Summary

Garage	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
G1. Solo Garage	25	33 132%	34 136%	20 80%	24 96%	32 128%	27 108%	21 84%	21 84%	17 68%	22 88%	26 104%	25 100%
G2. 115 S. Union St. Garage	68	61 90%	57 84%	21 31%	17 25%	43 63%	46 68%	30 44%	35 51%	13 19%	18 26%	31 46%	37 54%
G3. Torpedo Plant Garage	361	273 76%	287 80%	184 51%	203 56%	288 80%	330 91%	168 47%	232 64%	80 22%	139 39%	268 74%	340 94%
G4. Thompson's Alley Garage	43	24 56%	32 74%	40 93%	36 84%	33 77%	34 79%	25 58%	25 58%	33 77%	36 84%	27 63%	26 60%
G5. N. Union Street Garage	174	99 57%	103 59%	82 47%	65 37%	109 63%	112 64%	66 38%	58 33%	34 20%	35 20%	92 53%	96 55%
G6. Market Square Garage	196	163 83%	185 94%	109 56%	105 54%	149 76%	152 78%	132 67%	154 79%	168 86%	182 93%	188 96%	172 88%
G7. Tavern Square Garage	164	136 83%	134 82%	48 29%	26 16%	125 76%	132 80%	39 24%	28 17%	25 15%	22 13%	15 9%	11 7%
G8. Courthouse Square Garage	293	270 92%	263 90%	140 48%	90 31%	240 82%	262 89%	146 50%	147 50%	106 36%	122 42%	128 44%	137 47%
G9. N. Alfred Street Garage	220	185 84%	184 84%	47 21%	40 18%	194 88%	196 89%	56 25%	54 25%	50 23%	47 21%	27 12%	28 13%
G10. PNC Bank Garage	102	68 67%	66 65%	- -	- -	70 69%	69 68%	93 91%	- -	- -	- -	- -	- -
G11. King Street Station Garages	831	675 81%	593 71%	240 29%	157 19%	630 76%	628 76%	211 25%	128 15%	62 7%	65 8%	87 10%	92 11%
G12. Altman Garage	62	- -	- -	6 10%	21 34%	- -	- -	13 21%	15 24%	16 26%	15 24%	22 35%	25 40%



Table 2-5 Continued: Off-Street Parking Garage Utilization Summary

Garage	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
G13. Hotel Monaco Garage	174	140	145	78	72	139	141	92	89	122	123	90	89
		80%	83%	45%	41%	80%	81%	53%	51%	70%	71%	52%	51%
G14. Morrison House Hotel Garage	54	39	39	27	28	34	35	20	19	12	13	17	15
		72%	72%	50%	52%	63%	65%	37%	35%	22%	24%	31%	28%
G15. 1100 Cameron Street Garage	472	378	376	62	29	342	345	66	51	-	-	-	-
		80%	80%	13%	6%	72%	73%	14%	11%	-	-	-	-
G16. Hilton Hotel Garage	288	151	152	125	127	131	129	110	104	133	146	136	140
		52%	53%	43%	44%	45%	45%	38%	36%	46%	51%	47%	49%
TOTAL	3,527	2,695	2,650	1,229	1,040	2,559	2,638	1,288	1,160	871	985	1,154	1,233
		78% ¹	76% ¹	36% ²	30% ²	74% ¹	76% ¹	37%	34% ²	29% ³	33% ³	39% ³	42% ³

1. Based on 3,465 available public spaces as a result of G12 closure
2. Based on 3,425 available public spaces as a result of G10 closure
3. Based on 2,953 available public spaces as a result of G10 and G15 closures

The following identifies the peak hours of the surface parking lots during each time period studied:

- Weekday afternoon, 12:00 PM to 1:00 PM
- Weekday evening, 6:00 to 7:00 PM
- Friday afternoon, 1:00 PM to 2:00 PM
- Friday evening, 6:00 PM to 7:00 PM
- Saturday afternoon, 12:00 PM to 1:00 PM
- Saturday evening, 8:00 PM to 9:00 PM

As shown in Table 2-5, parking garage utilization is between 29 percent and 78 percent for all periods studied. This would indicate that there is parking available in garages within the study area during each time period; however, this does not mean that parking is available in all garages or areas of the study area. Data indicates that the following garages are effectively full during the periods indicated:

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- Solo Garage during typical weekday afternoons and evenings, Friday afternoons, and Saturday evenings
- 115 S. Union Street Garage during typical weekday afternoons
- Torpedo Plant Garage on Friday afternoons and Saturday evenings
- Thompson's Alley Garage during typical weekday evenings
- Market Square Garage during typical weekday afternoons and Saturday afternoons and evenings
- Courthouse Square Garage during typical weekday afternoons
- PNC Bank Garage on Friday evenings



2.5 SUMMARY OF EXISTING CONDITIONS

The field inventory revealed that there are 8,332 publicly accessible parking spaces in the study area. On-street parking accounts for the majority of available parking and comprises 53 percent (4,399 spaces) of the system. Parking garages account for 42 percent (3,527 spaces) of the inventory and surface lots comprise 5 percent (406 spaces) of the parking system. As shown in **Table 2-6**, which summarizes the parking utilization for all public parking during the six time periods, parking is available during all periods studied in Old Town. The evaluation of parking data for individual areas revealed that Old Town does not have an overall supply problem, it has proximity, rate, and facility availability problems.

Table 2-6: Study Area Public Parking Summary

Type	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
		On-Street	4,399	3,189 72%	3,226 73%	2,680 61%	2,894 66%	3,300 75%	3,252 74%	3,044 69%	3,332 76%	3,032 69%	3,019 69%
Surface Lot	406	208 77% ¹	203 75% ¹	177 44%	165 41%	211 78% ¹	231 86% ¹	244 60%	263 65%	251 62%	263 65%	260 64%	266 66%
Garage	3,527	2,695 78% ²	2,650 76% ²	1,229 36% ³	1,040 30% ³	2,559 74% ²	2,638 76% ²	1,288 37%	1,160 34% ³	871 29% ⁴	985 33% ⁴	1,154 39% ⁴	1,233 42% ⁴
Total	8,332	6,092 75% ⁵	6,079 75% ⁵	4,086 50% ⁶	4,099 50% ⁶	6,070 75% ⁵	6,121 75% ⁵	4,576 55%	4,755 58% ⁶	4,154 54% ⁷	4,267 55% ⁷	4,603 59% ⁷	4,822 62% ⁷

1. Based on 269 available public spaces as a result of L4, L6, L7 and L10 restrictions
2. Based on 3,465 available public spaces as a result of G12 closure
3. Based on 3,425 available public spaces as a result of G10 closure
4. Based on 2,953 available public spaces as a result of G10 and G15 closures
5. Based on a total of 8,133 spaces as a result of surface lot and garage restrictions
6. Based on a total of 8,230 spaces as a result of surface lot and garage restrictions
7. Based on a total of 7,758 spaces as a result of surface lot and garage restrictions

Reviewing the utilization data presented in Figures 2-13 through 2-18, parking utilization appears to be highest east of Alfred Street. Utilization increases approaching the Potomac River waterfront. **Tables 2-7 and 2-8** summarize parking data for areas west (and including) and east of Alfred Street, respectively.

Table 2-7: Summary of Parking West of Alfred Street

Type	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
		On-Street	2,007	1,246 62%	1,270 63%	1,116 56%	1,120 56%	1,332 66%	1,235 62%	1,224 61%	1,302 65%	1,217 61%	1,170 58%
Surface Lot	128	65 60% ¹	57 52% ¹	96 75%	81 63%	92 84% ¹	92 84% ¹	79 62%	78 61%	102 80%	102 80%	101 79%	99 77%
Garages	1,693	1,272 75%	1,187 70%	427 27% ²	313 20% ²	1,173 69%	1,171 69%	480 28%	283 18% ²	195 17% ³	211 19% ³	223 20% ³	232 21% ³
Total	3,828	2,583 68% ⁴	5,514 66% ⁴	1,639 44% ⁵	1,514 41% ⁵	2,597 68% ⁴	2,498 66% ⁴	1,783 47%	1,663 45% ⁵	1,514 47% ⁶	1,483 46% ⁶	1,541 47% ⁶	1,581 49% ⁶

1. Based on 109 parking spaces as a result of time-of-day restrictions
2. Based on 1,591 parking spaces as a result of time-of-day restrictions
3. Based on 1,119 parking spaces as a result of time-of-day restrictions
4. Based on a total 3,809 spaces as a result of time-of-day restrictions on surface lot parking
5. Based on a total of 3,726 spaces as a result of time-of-day restrictions on garage parking
6. Based on a total of 3,254 spaces as a result of time-of-day restrictions on garage parking



Table 2-8: Summary of Parking East of Alfred Street

Type	Available Spaces	Weekday Afternoon (12:00PM to 1:00PM)	Weekday Afternoon (1:00PM to 2:00PM)	Weekday Evening (6:00PM to 7:00PM)	Weekday Evening (7:00PM to 8:00PM)	Friday Afternoon (12:00PM to 1:00PM)	Friday Afternoon (1:00PM to 2:00PM)	Friday Evening (6:00PM to 7:00PM)	Friday Evening (7:00PM to 8:00PM)	Saturday Afternoon (11:00AM to 12:00PM)	Saturday Afternoon (12:00PM to 1:00PM)	Saturday Evening (7:00PM to 8:00PM)	Saturday Evening (8:00PM to 9:00PM)
		On-Street	2,392	1,943 81%	1,956 82%	1,564 65%	1,774 74%	1,968 82%	2,017 84%	1,820 76%	2,030 85%	1,815 76%	1,849 77%
Surface Lot	278	143 89% ¹	146 91% ¹	81 29%	84 30%	119 74% ¹	139 87% ¹	165 59%	185 67%	149 54%	161 58%	159 57%	167 60%
Garages	1,834	1,423 80% ²	1,463 83% ²	802 44%	727 40%	1,386 78% ²	1,467 83% ²	808 44%	877 48%	676 37%	774 42%	931 51%	1001 55%
Total	4,504	3,509 81% ³	3,565 82% ³	2,447 54%	2,585 57%	3,473 80% ³	3,623 84% ³	2,793 62%	3,092 67%	2,640 59%	2,784 62%	3,062 68%	3,241 72%

1. Based on 160 parking spaces as a result of time-of-day restrictions
 2. Based on 1,772 parking spaces as a result of time-of-day restrictions
 3. Based on a total 4,324 spaces as a result of time-of-day restrictions on surface lot parking

2.5.1 SUMMARY OF PARKING ISSUES AND OBSERVATIONS

Based on the field inventory, information provided by the city, field observations, and utilization calculations a number of parking issues were identified in the study area. These issues are described in the following:

Primary Issues

- Limited on-street metered parking availability. Particularly, east of Alfred Street the density of desirable destinations (jobs, attractions, entertainment, restaurants, shops, and similar) places substantial demand on metered parking. Ideally, metered parking should be set-up to create high turnover—to increase the number of different vehicles using a space in a given period of time. The low rate charged for metered parking probably encourages employees, business owners, and some visitors to “feed the meters” and park for relatively long periods of time.
- Limited on-street parking availability east of Alfred Street in the neighborhood permit district. Again, the density of desirable destinations places substantial demand on on-street parking east of Alfred Street. Generous time limits (2 to 3 hours) for free parking in the residential permit district make on-street parking



attractive to visitors as well as to employees and business owners. During weekdays, it is likely that some people move their vehicles throughout the day to avoid being ticketed.

- Garages and lots are underutilized. In areas where there is substantial on-street parking demand, many of the off-street facilities are significantly less utilized. A number of factors probably contribute to this condition. These include high rates charged for lots and garages, low (or free during the evenings) rates charged at meters, free residential neighborhood parking, unclear signage as to a facility's use (public or private), limited operating hours of lots and garages, lack of visibility of garage and lot entrances, and fee collection method for off-street facilities.
- Proximity. Data demonstrates that even during the busiest periods, parking is available within the system. Typical of many busy parking systems, Old Town appears to have a parking supply proximity problem, not an overall supply problem; however, it is arguable as to whether parking at the western periphery would ever be effective in serving eastern areas of Old Town.

Secondary Issues

- Difficulty in locating off-street parking. Signage related to parking is neither clear nor consistent in the study area. While some signage exists, it is relatively inconspicuous and incomplete. Wayfinding signage guides vehicles to parking facilities but does not indicate driveway locations. Similarly, some garages are publicly accessible; however, signage is not sufficient to communicate this condition. It is likely that Old Town visitors are not fully aware of the availability of off-street parking opportunities. Old Town's off-street parking system is comprised of relatively small facilities spread over a fairly broad geographic area. During peak periods, finding the remaining open parking spaces is likely to be difficult for some parkers.
- Inconsistent parking rates. The current rate structure for on- and off-street parking does not provide incentive for people to park in off-street facilities. The inconsistency of rates from facility to facility and between times of day is confusing and can be intimidating. Variability between facilities is acceptable; however, it should be based on reasonable decision-making as to the facility's use and not arbitrary rate-setting. Existing meter rates are \$1.00 for each hour throughout the system whereas off-street rates vary widely, but are generally significant higher per hour. Off-street parking facility rates should be set according to facility location and intended use. Daily parking facilities, which are usually less convenient to popular destinations, should have high first-hour rates, but relatively low daily rates. Daily rates for these facilities should be considerably less than the fee that would be



accumulated if the same vehicle were parked at a curbside meter space. Hourly facilities are typically located closer to popular destinations. These facilities should have consistent hourly rates that are less than on-street metered spaces.

- Fee collection method. Nearly all of the off-street parking facilities in the study area only accept cash payments for parking. Meters only accept coins, which some view as problematic due to the inconvenience of finding quarters or other change. In higher rate parking facilities, many people find it undesirable and inconvenient to use cash for parking transactions. The use of a cash payment system has advantages; however, it does create security and convenience issues for users and operators.
- Inconsistent hours of operation. Parking garage hours of operation vary widely throughout the study area. Patrons who are unfamiliar with the area may choose not to park in off-street facilities for fear of being unable to retrieve their vehicle at the end of the night. Creating consistency in hours of operation and appropriate durations of facility operation provides users the confidence that they will be able to retrieve their vehicle.
- High auto use. While transit services are available to Old Town, a large percentage of area visitors, employees, residents, and shoppers choose to drive and park in the area. Bus trolley service is provided free of charge; however, it runs relatively infrequently and gets stuck in traffic on King Street. Metrorail is available at the western edge of the study area, but is relatively ineffective in serving the waterfront due to its distance. Parking demand can be reduced in Old Town through improved transit service, enhancements to pedestrian and bicycle facilities and programs, and through other incentives and disincentives.
- Insufficient tour bus parking. Buses bring countless visitors to Old Town to shop and visit other local attractions. Based on other studies conducted by the city, it is understood that there is insufficient space within Old Town to park buses for long periods of time. Currently, buses are provided short-term lay by space for loading and unloading and long-term parking is provided outside Old Town.
- Loading, valet, taxi, and other standing spaces reduce available on-street parking supply. Based on field observations, some block faces have a considerable number of areas where parking is not permitted due to the need to designate the space for other uses.
- Illegal parking. Some vehicles were observed to illegally park adjacent to fire hydrants, in crosswalk zones, and encroaching on driveways. Pavement markings, signage, and enforcement can be used to direct people to permissible parking areas.



3. RECOMMENDATIONS

Recommendations were developed to improve parking conditions in Old Town Alexandria based on issues identified in the review of existing conditions and from information provided by the city. The recommendations are based on successful parking management strategies being employed within the Washington, DC region and throughout the country. The following identifies general recommendations for consideration as well as specific issues from the existing conditions evaluation and potential recommendations to resolve the issues:

General Recommendations

- Develop a task force that includes the major stakeholders in the area including representatives of retail establishments, business associations, employers, civic associations, residents, etc. to help develop consensus on parking management strategies.
- Install multi space meters that accept cash, coins, and credit/debit to replace existing coin-operated single-space meters on King Street and in side street locations with high demand. Multi space meters have been shown to accommodate more parked vehicles along a curb face than single-space meters since individual spaces are not designated. These meters also provide the City with flexibility to modify parking rates.⁴
- Review on-street and off-street parking rates. Increasing parking rates for on-street parking will increase turn-over of the spaces, making the same parking available to more people throughout the day. It also will discourage long-term parking by employees and business owners. Vary rates for off-street parking according to facility location and use—short-term, long-term, visitor, daily, and similar. Generally, longer-term parking should be less convenient and less expensive. Typically, long-term parking rate structures have a high first hour rate and then very low subsequent hour rates. Shorter-term parking should be closer to desired destinations and should employ a rate structure that encourages shorter-term parking and high turn-over. Create a public education process to communicate that all must pay for parking.
- Decrease on-street meter parking duration in locations where the adjacent land use may benefit from higher turnover. Decreasing allowable duration at meters in

⁴ The City budget included \$250,000 in CIP funding in the FY2002-04 budgets for necessary replacement parts and upgrades to the traditional, single-space meters that were, at the time, more than 20 years old. Over several years, the City upgraded approximately 1,000 meters in Old Town to LED, digital display meters. The meters installed at that time predated the commercially available, solar-powered multi-space meters that now accept various forms of payment such as credit/debit cards, Smart Phone payments and more.

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- tandem with increased enforcement increases the likelihood of parking turnover at a higher rate, thereby making the same number of spaces available more often.
- Decrease the allowable parking duration in residential permit districts. Decreasing the duration will encourage long-term parkers to travel to Old Town by another mode or park in an appropriate facility.
 - Extend on-street parking meter hours of operation into the evening. In the evenings, the free on-street parking is more attractive than paying for off-street parking. Extending the meter hours will improve off-street parking utilization. This modification also has the potential to reduce the attractiveness of curb parking in high demand areas for employees and business owners.
 - Work with parking garage owners and operators with regard to the installation of pay-on-foot or pay-and-display machines in off-street facilities. This measure may eliminate the need for parking attendants and would allow facilities to remain open for longer periods of time without being constrained by attendants' work schedules. These machines are generally attractive to parkers since they offer a secure payment form and accept coins, bills, and credit/debit. The extended time also reduces people's uncertainty about retrieving their vehicle. Pay-on-foot and pay-and-display machines also can simplify cash handling.
 - Implement an area-wide parking wayfinding program to include the branding of publicly-accessible parking facilities in a consistent manner. This will improve the off-street parking utilization by making the facilities more visible and easier to find.
 - Evaluate the value and feasibility of providing real-time-parking information to parkers.
 - Reduce parking demand by improving attractiveness of transit and non-vehicular modes of travel. Reduce the headway for the King Street trolley to encourage people to travel to Old Town on Metrorail or to use the parking facilities in western portions of Old Town. Work with employers to encourage them to offer employees transit subsidies if they do not drive and park in Old Town.
 - Identify key private parking facilities that have the potential to relieve pressure on existing public facilities and work with owners to determine whether it is feasible to offer parking to the public.



Specific Issues and Recommendations

Each of the primary issues listed in Section 2.5.1 contain multiple interrelated issues. The following is a list of those more specific issues and recommendations that correspond to each.

Issue: Limited on-street metered parking availability on King Street and intersecting side streets due to abuse of metered spaces by long-term parking.

Recommendations:

- Decrease on-street meter time limits during weekday business hours to limit employee and business owner use of meter parking
- Raise hourly parking rates to discourage long-term use
- Install multi space meters to increase the efficiency of available space for parking along streets
- Increase enforcement
- Develop and implement a system-wide parking rate structure that encourages parkers to use appropriate parking facilities to meet short- and long-term needs

Issue: Limited on-street parking availability east of Alfred Street in the neighborhood permit district due to long-term parking.

Recommendations:

- Decrease non-permit holder parking time limit (consider 90-minutes or one hour)
- Expand metered on-street parking to residential permit areas (permit holders would be exempt from paying the parking fee)
- Increase enforcement
- Develop and implement a system-wide parking rate structure that encourages parkers to use appropriate parking facilities to meet short- and long-term needs

Issue: Underutilization of garages and lots system-wide.

Recommendations:

- Institute a parking wayfinding system to guide people to appropriate parking facilities through consistent and clear signage identifying the facility location (street and name or through directional arrows), type (garage/lot), and intended use (visitor garage, hourly garage, daily garage, etc.)
- Consistently brand publicly accessible parking facilities through the use of standard facility identification markers (the parking "P" symbol) and entrance signage ("Daily Public Parking")
- Develop and implement a consistent and predictable system-wide parking rate structure and communicate the rates to the public clearly through signage and internet resources
- Provide consistent hours of operation for off-street parking facilities



- Continue working with owners/operators of private garages to encourage shared parking strategies. Two garages that were surveyed as part of this study include the Morrison House Hotel and Hotel Monaco garages. These garages have capacity for additional parked vehicles in the evenings and on weekends. However, use of these garages is currently confined to hotel/restaurant patrons (Morrison House Hotel) or to those who utilize existing valet services (Hotel Monaco).

Issue: Overutilization of parking facilities east of Alfred Street.

Recommendations:

- Implement parking wayfinding to guide people to publicly available parking facilities
- Study the feasibility of providing real-time parking information to parkers through signage and internet-enabled devices to make them aware of available parking in garages and off-street lots
- Develop and implement a system-wide parking rate structure that encourages parkers to use appropriate parking facilities to meet short- and long-term needs
- Increase trolley/transit frequency along King Street to increase the attractiveness of largely underutilized parking facilities in western portions of the study area

Issue: Difficulty locating off-street parking.

Recommendation:

Implement parking wayfinding to guide people to publicly-available parking facilities

Issue: Inconsistent parking rates.

Recommendation:

Evaluate the role of on-street parking and publicly available off-street parking facilities throughout the study area as to their highest and best use for the public and work to institute rates that are reflective of the users they intend to attract.

- Metered parking. Increase the rates in coordination with rate adjustments to off-street facilities. Decrease the time limit from 2 hours to 1 hour or 90 minutes.
- Daily-use lots and garages. Set a daily rate that is less than the rate would be for parking in an hourly garage or parking meter for the same 8- to 10-hour period. Consider setting a first-hour rate that is higher than other hours to discourage hourly parking.
- Hourly-use lots and garages. Set an hourly rate that is slightly lower than metered parking, but higher than the rate for a daily garage over an 8- to 10-hour period. Charge consistent hourly rates or develop a rate schedule that increases in logical increments.
- Create a public education process to communicate that all must pay for parking.



- Explore the possibility of adding meters to handicap spaces.
- Event-specific use of parking facilities. Set fixed prices for event-duration parking and collect fees on entry.

Issue: Fee collection method.

Recommendations:

- For on-street metered parking, install multi space meters along each block face. Multi space meters should also accept credit and debit cards.
- For attended off-street parking, work with operators to encourage accepting credit and debit card payments for parking.
- For unattended off-street parking, work with garage owners and operators with regard to the installation of pay-on-foot technology (accepts coins, bills, and credit/debit) to limit the need for parking attendants and to enable the extension of facility operating hours.

Issue: Inconsistent hours of operation.

Recommendation:

Work with facility operators to establish consistent and reasonable hours of operation for parking facilities based on facility location, use, and day of the week. Facilities in entertainment areas should remain open at least 30-minutes after closing of area venues. As an alternative to having to retain an attendant at parking facilities late-at-night, consider alternate fee collection methods that do not involve an attendant such as collection of full fee on entry or pay-on-foot technology.

Issue: High auto use.

Recommendations:

- Continue to implement City policies related to reduction in single-occupant auto demand.
- Examine the potential to implement a bike sharing program with stations throughout Old Town to extend the reach of transit and the parking system.
- Increase trolley service and the trolley's efficiency (reduce travel time) between the King Street Metrorail station and the waterfront.

Issue: Loading, valet, taxi, and other standing spaces reducing available on-street parking supply.

Recommendations:

- Implement a curbspace management plan that prioritizes curbspace use among transit, loading, emergency services, valet, taxi, and general parking.



- Work with valet companies to consolidate operations and decrease inefficiencies in parking facilities used by valets.

Issue: Illegal parking.

Recommendations:

- Install signage and pavement markings to clearly delineate available parking areas and increase enforcement

4. PARKING MANAGEMENT TOOL BOX

Over time, the parking system in Old Town will be subject to ever-evolving parking demands; it will be influenced by new policies; new technologies will help to resolve existing issues; and users will have new concerns. The development of strategies and the implementation of specific measures will help to ensure that the parking system continues to be able to accommodate the changing demands of its users. **Table 4-1** contains a starter tool box of parking management measures for consideration that can be used as a reference when considering the ways in which to address future parking concerns and issues, maximize the parking system, and increase/maintain its ease of use.

Table 4-1: Parking Management Toolbox

Measure	Description	Applicability
Parking Wayfinding	<p>Parking wayfinding or signage systems provide information on the location and type of parking in an area to travelers. Typically, parking wayfinding is combined with other destination-oriented signage in an area in a standardized format. Wayfinding signage should clearly communicate the location of parking, the name and type of the facility, whether it is public or private, its hours of operation, and its fee structure and methods of payment. Wayfinding should be located on key ingress routes in an area. Typically, the level of information provided increases as proximity to a parking facility decreases. For example, in the outskirts of an area, wayfinding may only provide directional guidance to public parking, whereas in the immediate vicinity of a facility, the name (ex. City Center Parking Garage), use (Public), and rate (daily, hourly, free, etc.) may also be provided. Parking wayfinding is typically used in conjunction with parking facility branding and can be combined with elements of a parking guidance system.</p>	<ul style="list-style-type: none"> • Reduces extraneous traffic circulation • Informs unfamiliar visitors of parking locations
Parking Facility Branding	<p>Parking facility branding is used to standardize the way in which a facility's use and availability is communicated to the public. In most parking systems, the nearly universally recognized "P" is used to communicate a facility's status as entirely or partially publicly accessible. Parking branding is often used in conjunction with parking wayfinding and guidance systems; however, parking branding can be successful without the presence of a comprehensive wayfinding system.</p>	<ul style="list-style-type: none"> • Encourages and reinforces use of off-street public parking
Facility Signage	<p>Parking facilities should have signage that clearly indicates use, hours of operation, and whether parking is free or if a fee is charged. Ideally, signage for facilities of similar use (i.e. Public or Private) should be similar. Parking facility signage is an essential element of parking wayfinding systems and is a key part of parking facility branding.</p>	<ul style="list-style-type: none"> • Identifies publicly available parking

Table 4-1: Parking Management Toolbox (Continued)

Measure	Description	Applicability
<p>Parking Guidance System</p>	<p>Parking guidance systems are used to provide travelers information on the availability of parking within a system and within individual facilities. These systems are typically composed of dynamic information delivery devices that convey information about the system and individual parking facilities and standard static signage. Traditionally, guidance systems have been designed to deliver information through dynamic message signs and highway advisory radio and similar broadcast technologies. More recently, information is being delivered through 511 and similar telephone-based systems and through the internet via handheld mobile devices. When implemented comprehensively, parking guidance systems can maximize utilization and increase overall system occupancy by 5- to 10-percent. Parking guidance systems are typically used to supplement wayfinding and branding.</p>	<ul style="list-style-type: none"> • Reduces extraneous traffic circulation on streets • Informs people of available parking • Optimizes parking system • Event management • Parking system monitoring
<p>Real-time Parking Facility Information</p>	<p>Modern parking revenue control systems in parking facilities can provide information to users as to the number and location of parking spaces within individual facilities. They can let users know how many and where spaces are available, or that a facility is full. Data from revenue control systems configured to provide real-time information is an essential element of parking guidance systems.</p>	
<p>Multi Space Meters (Pay-and-Display)</p>	<p>Multi space meters are a relatively recent advance in parking technology. Instead of a single parking meter for each space, one machine can be used to control six to ten parking spaces. The machines are generally solar powered, using an internal battery, and they accept credit cards, coins, and bills. Where parking rates are higher, many transactions have been found to be with credit cards, which improves the security of cash management. Multi space meters have the ability to offer different rates at different times of the day and on different days of the week. Multi space meters can be used to simplify enforcement and can be used with mobile phone technology to allow a person to check on the status of their parking limit and add additional time if needed. Multi space meters can help to clean-up pedestrian spaces by allowing for the removal of the multitude of single-space meters. One unintended drawback to the installation of multi space meters has been the loss of meters that were used to lock bikes.</p>	<ul style="list-style-type: none"> • Increases on-street parking supply • Simplifies enforcement • Improves cash management security • Provides flexibility in on-street parking management

Table 4-1: Parking Management Toolbox (Continued)

Measure	Description	Applicability
Pay-on-Foot	<p>This method of parking revenue collection (payment) is integrated with a parking revenue control system for lots and garages. Pay-on-foot involves a parker driving into a parking facility and receiving a ticket at a gate, parking and taking the ticket with them, and then paying at a machine at the exit, in the lot, or in the garage (typically in an elevator lobby or stairwell on a landing) for the parking based on time spent in the facility. Pay-on-foot machines operate similar to pay-and-display machines in that they accept coins, bills, and credit transactions. Pay-on-foot machines also can operate time-of-way and day-of-week programs to offer a range of parking rates to suit localized conditions. When used in parking lots or garages, pay-on-foot technology allows facilities to be operated and suitably enforced without an attendant. Typically, entrance and exit transactions are monitored through the use of CCTV cameras.</p>	<ul style="list-style-type: none"> • Reduces need for parking attendants • Provides for alternative payment methods • Allows for flexible facility operations
Single-Space Meters	<p>Typically coin or park card operated, single-space meters are simple to install and relatively easy to manage. They offer a place to securely lock a bicycle, even though this is not their intended purpose. Some localities are experimenting with the use of single-space meters to control parking and offer electricity to plug-in vehicles.</p>	<ul style="list-style-type: none"> • Simple way to collect parking cost • Easily understood by public
Credit Card Payment Acceptance	<p>Offering credit card transactions at parking facilities can improve an area's ability to raise parking rates without shifting parkers to other facilities. As parking rates increase, cash payment becomes less and less attractive and is problematic from a collection, management, and security perspective.</p>	<ul style="list-style-type: none"> • Improves cash management • Supportive of higher parking rate structure
Free Parking	<p>Free parking is typically not provided in core areas of urban places since it tends to increase parking demand. It is more frequently provided in remote facilities.</p>	<ul style="list-style-type: none"> • Encourages parking
Remote Parking	<p>In instances where sufficient parking cannot be provided within a high demand area, remote parking can be a viable option. Simply providing adequate parking at the periphery of an area is not typically enough to attract parkers. It is often necessary to offer remote parking at a reduced rate (as compared to more convenient parking) and with accompanying transit services (typically free) to connect with the local area.</p>	<ul style="list-style-type: none"> • Adds parking supply to an area where land is expensive or difficult to provide • Shifts parking demand

Table 4-1: Parking Management Toolbox (Continued)

Measure	Description	Applicability
Mechanical/Automated Parking Solutions	Mechanical parking solutions include the wide range of mechanical and automated stacked parking systems. These systems are effective in space-constrained situations and where traditional parking solutions would be inefficient.	<ul style="list-style-type: none"> Increases parking supply on constrained sites
Shared Parking	Shared parking involves making all or a designated number of spaces within a parking facility available for use by a designated group of parkers (employees, residents, shoppers, visitors, etc.). Sharing parking increase a facility's overall utilization during more periods of the day, thereby maximizing the parking system and reducing the number of new spaces that would otherwise be constructed for a single use.	<ul style="list-style-type: none"> Maximizes parking system
High Fixed Hourly Rate Parking	Whether provided on-street or in a parking garage, the intention of high fixed hourly rate parking is to encourage turn-over and discourage long-term parking. High hourly rate parking is typically located along prime sections of retail streets and is typically the most convenient parking to a destination. The rate for this type of parking should be noticeably higher than other parking facilities. High hourly rate parking discourages parking by employees in areas where high turnover is important.	<ul style="list-style-type: none"> Encourages turnover and discourages long-term parking
High First Hour Rate Parking	This type of parking is typically located in off-street lots and garages. Parking with a relatively high first hour or half hour charge and then significantly lower rate for subsequent hours encourages people to park once and rewards them for this behavior by offering value for a long stay. Typically, this type of parking is somewhat less convenient to a destination than high fixed hourly rate parking.	<ul style="list-style-type: none"> Encourages people to park once and walk to various destinations Encourages long-term/daily parking
Low First Hour Rate Parking	This type of parking is typically located in off-street lots and garages. Parking with a relatively low first or two hour rate and increasing hourly rates thereafter encourages shorter term parking and ensures that parking is available throughout the day by creating turnover. This type of parking can be used as an alternative to high fixed hourly rate parking.	<ul style="list-style-type: none"> Encourages short- to mid-term parking duration

Table 4-1: Parking Management Toolbox (Continued)

Measure	Description	Applicability
Low Daily Rate Parking	This type of parking is typically provided in less convenient locations and larger facilities than higher rate parking. This type of parking is intended to serve longer term parkers (employees and visitors).	<ul style="list-style-type: none"> • Adds parking supply for long term parkers (such as visitors or employees) • Decreases demand for on-street parking spaces
Parking Rates by Time-of-Day/Day-of-Week	In areas with different weekday and weekend day and evening characteristics, it is often beneficial to establish parking rates/time limits by day of the week and time of the day. For example, in an area with few daytime retailers, it may be beneficial to allow longer duration street parking at a relatively low rate during business hours and then to increase the parking rate and reduce the duration during evening hours to ensure that employees vacate parking that is most valuable for customers. Conversely, in areas with a significant retail presence, it may be advisable to establish short duration (30 minutes to one hour maximum), high rate curb parking during normal business hours and then somewhat longer duration (one to two hour maximum) high rate curb parking during a portion of the evening hours.	<ul style="list-style-type: none"> • Manage parking demand at different times of day and days of the week
Valet Service	Valet service involves the parking of vehicles by an attendant (valet) in a parking lot or garage. This service is typically offered for a premium fee (above the cost of self-parking at a facility). Vehicles parked in valet-designated areas are often double (or more) parked, which can allow a normally self-parked facility to accommodate a much higher number of vehicles in the same space.	<ul style="list-style-type: none"> • Provides the convenience of "front door" parking but uses less attractive off-street parking spaces
Area Permit Parking	This type of parking offers permit holders a specific set of privileges over non-permit holders. Privileges for permit holders typically include unrestricted parking by time and location. Non-permit holders parking in the same area are often duration and time-of-day restricted. Most often permit parking is used in neighborhoods adjoining retail and employment areas to prevent on-street parking spaces from being consumed by visitors. Time limits of one to four hours are typical of permit zones. In many permit zones, parking is not allowed by non-permit holders during evening and early morning hours.	<ul style="list-style-type: none"> • Shares use of parking spaces • Protects residents' parking

Table 4-1: Parking Management Toolbox (Continued)

Measure	Description	Applicability
Transit Service	When provided at an appropriate frequency (short enough headway), transit can extend the reach of parking facilities. Appropriate headways for services need to be determined on an area-specific basis; however, headways of less than 15 minutes are generally desirable. Transit services operating within a specific district are often subsidized by businesses within the area in order to reduce the burden on the locality, offer a low fare (or no fare), and increase service frequency. Some residential parking permits prohibit non-permit parking entirely.	<ul style="list-style-type: none"> • Reduces parking demand • Extends the reach of parking facilities
Free or Reduced Price Transit Passes	This measure can be used to reduce parking demand. By offering employees and/or visitors reduced transit fares or free rides, often, longer-term parking demand can be reduced at a primary destination.	<ul style="list-style-type: none"> • Reduces parking demand • Increases transit attractiveness
Bicycle Parking	Bicycle parking is most effective when it is provided convenient to destinations in a secure location. Short-term parking should be located where it is convenient to the front door of a facility whereas longer term parking can be located in conjunction with parking structures or lots in secure off-street locations.	<ul style="list-style-type: none"> • Reduces vehicle parking demand
Head-in Angle Parking	This type of parking involves a vehicle pulling forward into a curb space and parking at a set angle, typically 30, 45, or 60 degrees. In this arrangement, vehicles reverse into intersecting traffic. Reversing out of a parking space can be problematic due to sight distance limitations and the speed and volume of intersecting traffic. This type of parking can double the number of on-street spaces in the same distance as parallel on-street parking, but requires approximately 20 feet of street width.	<ul style="list-style-type: none"> • Provides more parking spaces than parallel parking
Reverse-in (Back-in) Angle Parking	This type of parking involves a vehicle driving past and then reversing into a curb space at a set angle, typically 30, 45, or 60 degrees. Studies have shown that this type of parking is easier for vehicles to enter into and depart from than parallel parking. When leaving a parking space, vehicles pull forward into intersecting traffic. Compared to the reverse movement needed to depart from head-in angle parking, the movement out of a reverse-in angle parking space is safe and easy. This type of parking can double the number of on-street spaces in the same distance as parallel on-street parking, but requires approximately 20 feet of street width.	<ul style="list-style-type: none"> • Provides more parking spaces than parallel parking • Safer than head-in angle parking

Table 4-1: Parking Management Toolbox (Continued)

Measure	Description	Applicability
Street Reconfiguration	Where parking is at a premium and there is the ability to reallocate space between curbs on a street, the reduction in the number of travel lanes has the ability to create space for new or reconfigured on-street parking. Where sufficient width is available, parallel parking could be converted to head-in or reverse-in angle parking.	<ul style="list-style-type: none"> • Reallocates street space • May reduce street width for vehicle travel lanes
Structured Parking	Parking structures vary in size, configuration, and construction method. They generally include ramped vertical circulations systems for vehicles and elevators and stairs for pedestrians. Parking structures can be free-standing or can be incorporated into buildings above or below ground.	<ul style="list-style-type: none"> • Increases parking supply

APPENDIX

A - On-Street Parking Count and Utilization Summary

B - Off-Street Surface Parking Lot Summary

C - Off-Street Parking Garage Summary