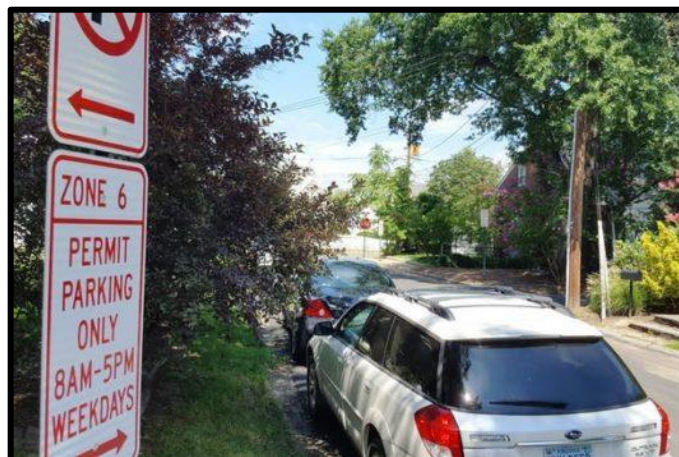# 2022 On-Street Parking Occupancy Study:
Ballston Area

(provided for the Arlington County Department of Environmental Services)

Key Findings

- **The majority of observations on RPP facilities showed an occupancy of less than 85%, with many at 60% occupancy or less**

- **14% of all observations on RPP streets showed occupancy higher than 85% with majority outside of RPP enforced hours**

- **Mean occupancy was higher than the median indicating a positively skewed distribution which can be explained by high occupancy outliers (i.e. 150% occupancy or greater). High occupancy outliers were most commonly observed on facilities with low capacity (1-3 vehicles), since each additional vehicle on these facilities has a greater potential to skew the occupancy calculation higher**

Terminology

Parking Management Types

- **RPP-restricted parking: only parkers with RPP (Residential Permit Parking) permits may park during hours of enforcement**

- **Metered parking: parkers must pay for parking during certain hours and may not stay longer than the maximum time posted**

- **Time-limited parking: parkers may not stay longer than the maximum time posted, but no payment is required**

- **Unmanaged parking: parkers may stay up 10 days, the point at which a vehicle is considered abandoned and may be towed**

Terminology

- **Parking facility**: a section of street curb with a single utilization management type (not synonymous with street blocks or block faces; multiple facilities may exist along a block face)

- **Parking capacity**: theoretical maximum number of vehicles that can be accommodated simultaneously on a given facility

- **Parking occupancy**: share of parking spaces on a facility that are actively in use by parked cars, expressed as a percentage (for this study, occupancy = number of parked vehicles divided by capacity)

- **Mean occupancy**: the average of occupancy readings applicable to a certain collection day and/or collection hour

Terminology

- Occupancy range: One of three percentage ranges (0-60%, 61-85%, or >85%) representing thresholds established in the Arlington County Master Transportation Plan

  - 60% is the threshold at or below which the voluntary removal of off-street surface parking in excess of zoning requirements is encouraged

  - 85% represents what most studies show is an ideal on-street parking occupancy in high-demand areas

Study Purpose (2022)

- Expand previous [on-street parking study](#) implemented 2017-2019 as part of [RPP review](#)

- Collect and analyze parking occupancy and duration data to understand current on-street parking demand on RPP-restricted streets in the Ballston Area

- Full census count of all RPP-restricted parking facilities in Ballston (171 total; see map on next slide for details)

- Other management types (metered, time-limited, unmanaged) were not evaluated in this study

ARLINGTON COUNTY, VIRGINIA
Residential Permit Parking
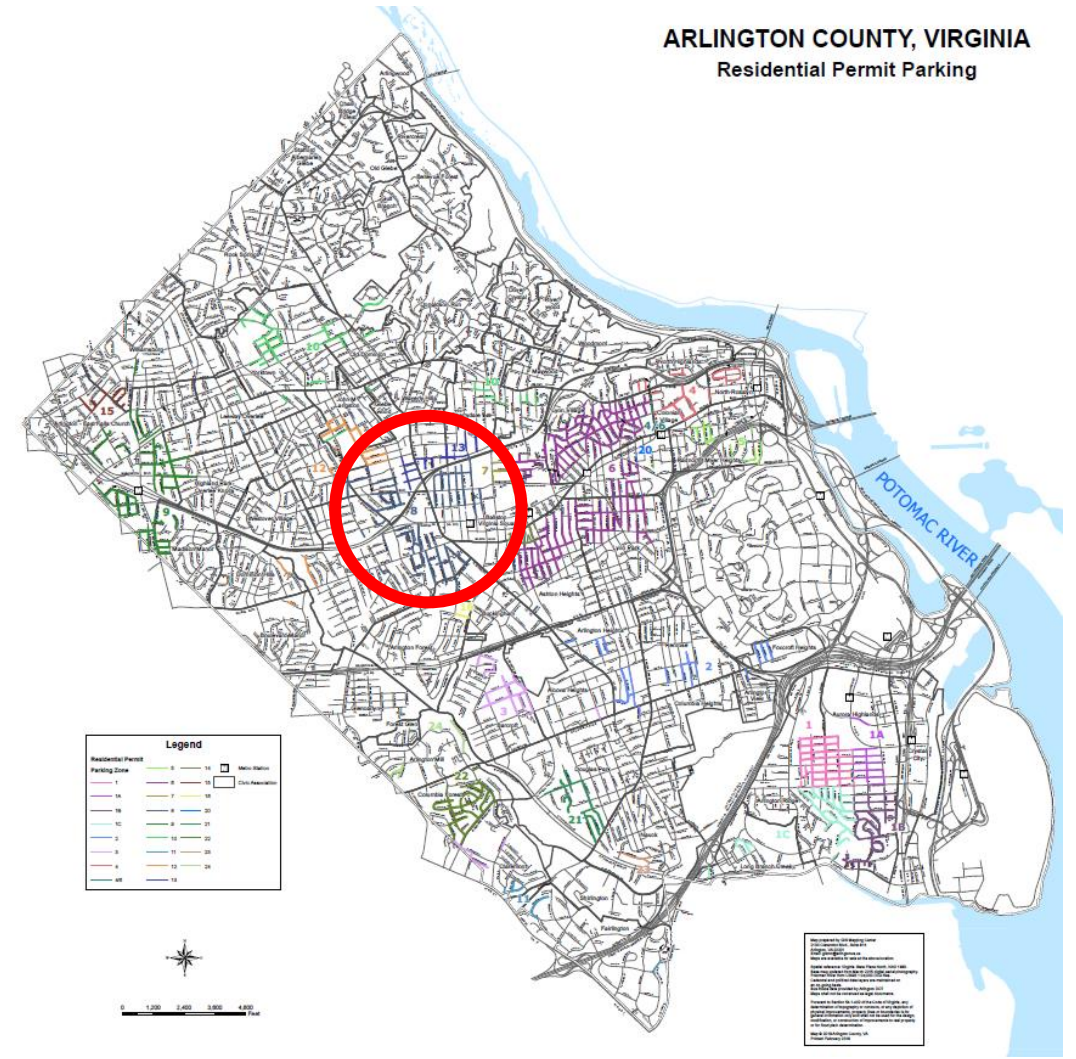
Ballston Study Area, RPP Facilities
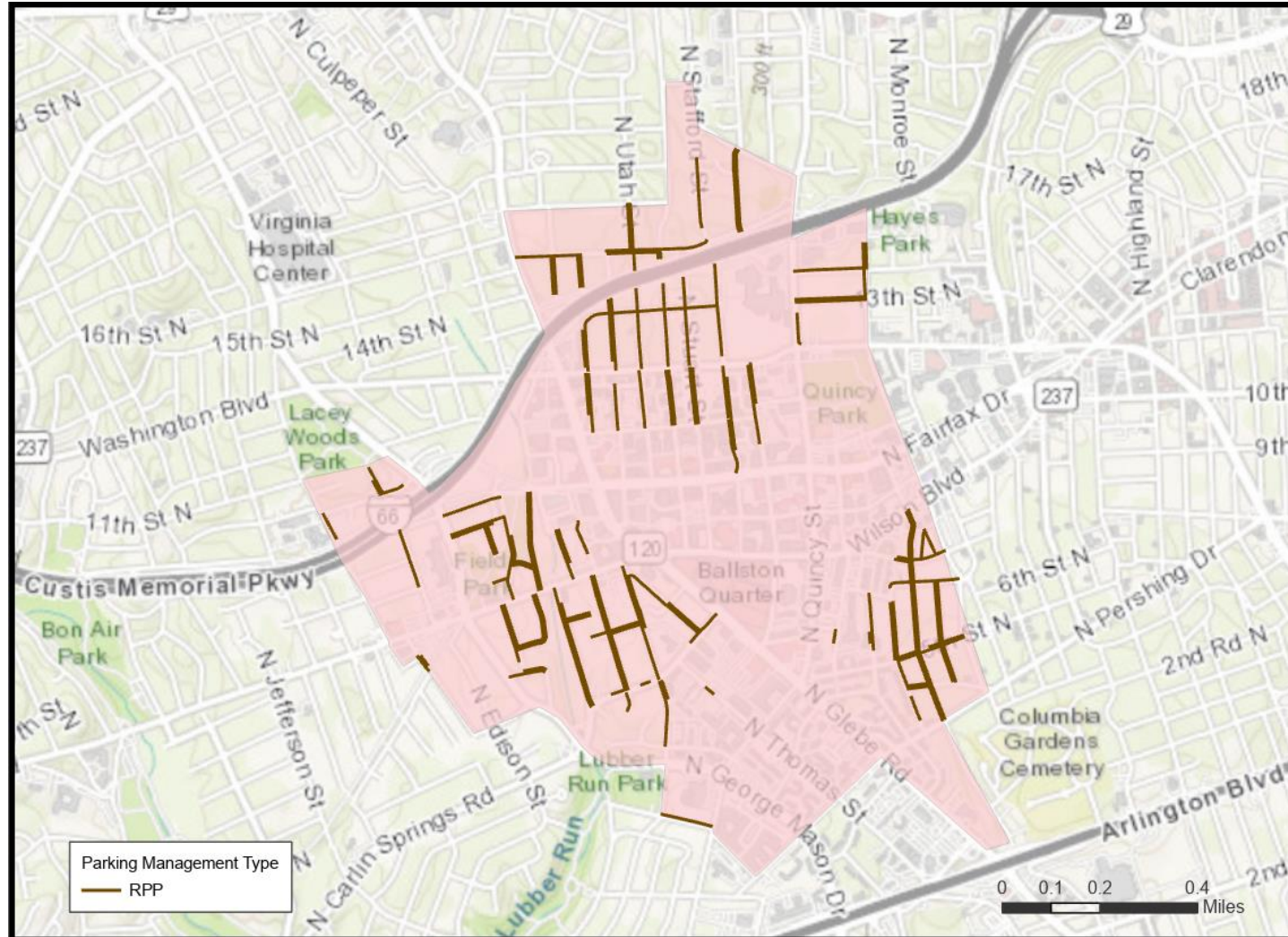
Data Collection

- **Data collected on Thursday, April 21st and Saturday, April 23rd using license plate reader (LPR) technology (see right images)**

- **Routes were driven to capture each desired facility every 2 hours a day (between 8AM and 10PM), providing a total of 2,296 occupancy observations (14 observations for each facility)**

- **Raw LPR data post-processed to remove erroneous entries and assign valid entries to the appropriate facility**

Study Results

- **Mean occupancy ranged between 37-50% on a weekday and 47-51% weekend (see table below)**
- **Daily mean occupancy peaks occurred in the evenings (see next slide)**

Mean Parking Occupancy by Data Collection Hour and Day

Data Collection Hour	Weekday	Saturday
8AM	38%	47%
10AM	38%	48%
12PM	37%	48%
2PM	41%	49%
4PM	41%	47%
6PM	43%	48%
8PM	50%	51%

Mean Parking Occupancy by Data Collection Hour and Day
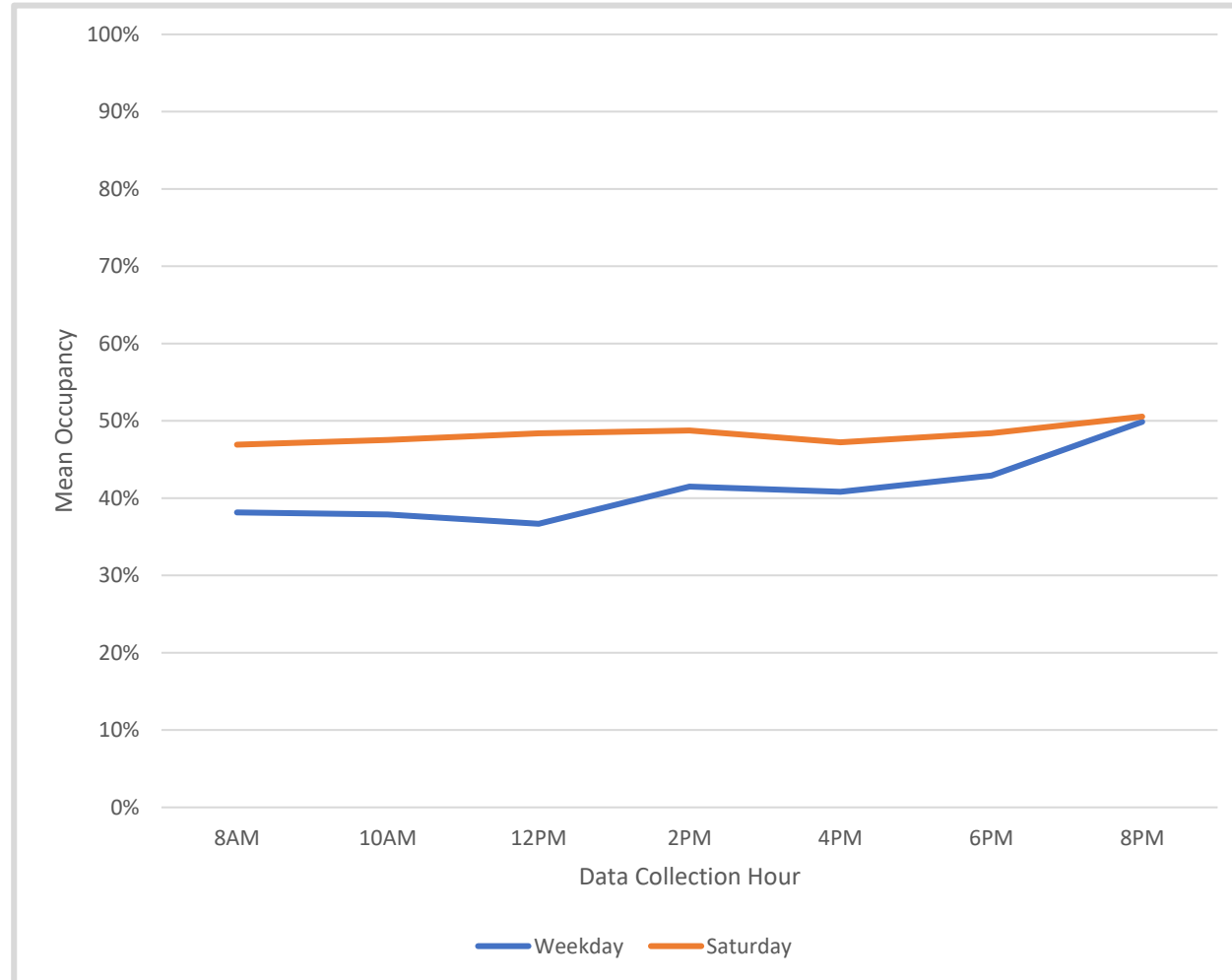
Observations

- Ballston RPP facilities during the week were on average 38% occupied when RPP restrictions were in effect (49% on the weekend), and 50% occupied when restrictions were not in effect (48% on the weekend).

- 72% of total observations (2,296) showed an occupancy equal to or less than 60%; 86% (1,981) were equal to or lower than 85% occupied

- 14% (315) of total observations showed an occupancy >85%, with 4% (89) during and 10% (226) outside of RPP restricted times

- Highest mean occupancies during both weekday/weekend collection periods were observed in the Bluemont (57%/65%) and Ballston-Virginia Square (55%/62%) civic areas (see next slide for map)

- Buckingham civic area experienced largest change between weekday/weekend periods (18%/46%)

Ballston Study Area Civic Areas
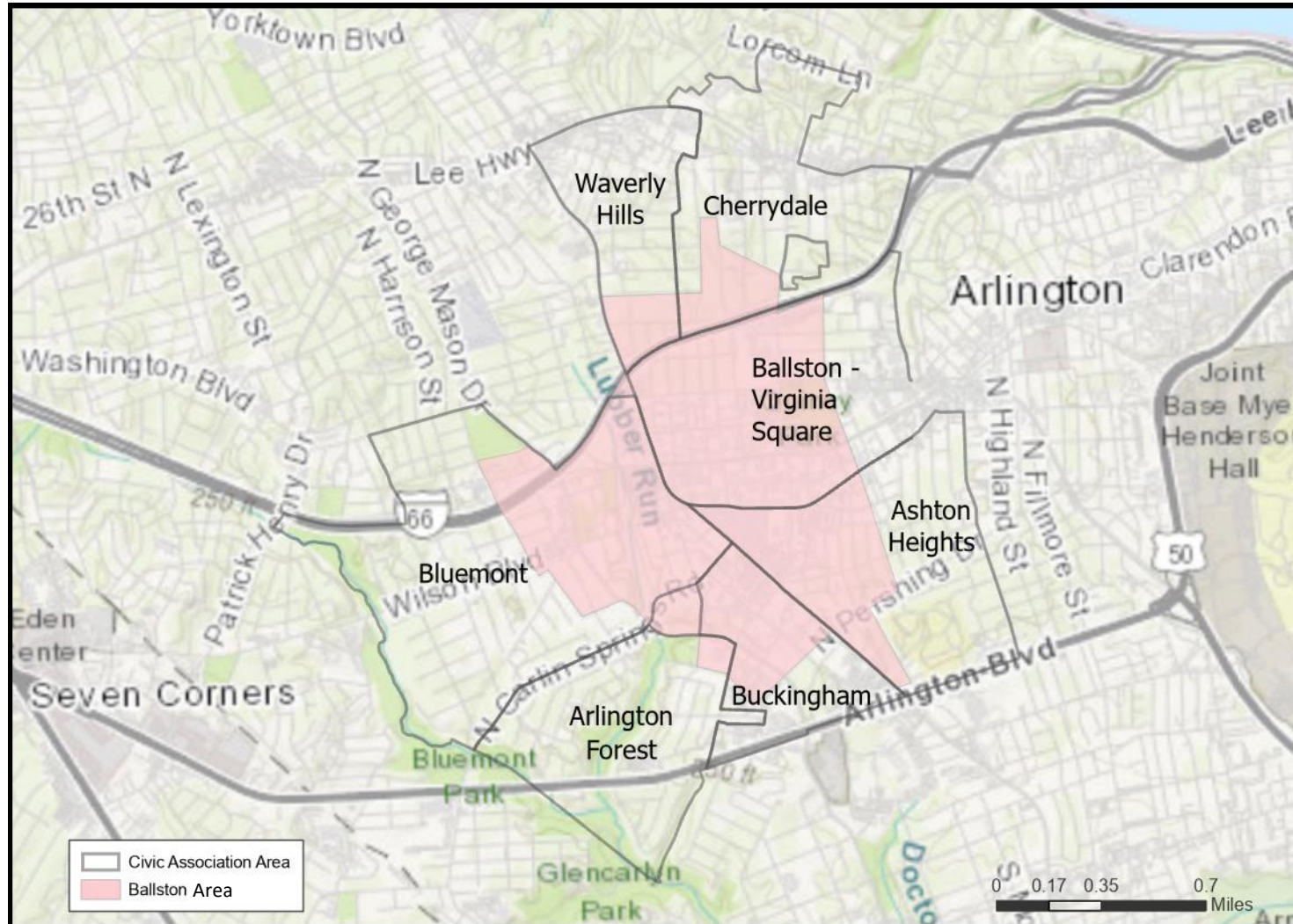
Observations (cont.)

- **Facilities most commonly observed to significantly exceed capacity (i.e., 150% occupancy or greater) were small facilities with low capacity (1-3 vehicles), since additional vehicles on these facilities have greater potential to skew the occupancy calculation**

- **Graphics of occupancy range by facility, collection hour, and day are presented on the following slides**

Figure A-1

Share of Parking Spaces Used by Vehicles at

8AM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 8AM

RPP

— 0-60%
— 61-85%
— >85%

Parking Management Type

— RPP Restriction in Effect

RK&K

ARLINGTON VIRGINIA

Figure A-2

Share of Parking Spaces Used by Vehicles at

10AM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 10AM

RPP
— 0-60%
— 61-85%
— >85%

Parking Management Type
— RPP Restriction in Effect

Figure A-3

Share of Parking Spaces
Used by Vehicles at

12PM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 12PM

RPP
— 0-60%
— 61-85%
— >85%

Parking Management Type
— RPP Restriction in Effect

RK&K   ARLINGTON VIRGINIA

0   0.07   0.15   0.3 Miles

Esri Community Maps Contributors, DCGIS, Fairfax County, VA, VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

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Figure A-4

Share of Parking Spaces Used by Vehicles at

2PM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 2PM

RPP
— 0-60%
— 61-85%
— >85%

Parking Management Type
— RPP Restriction in Effect

Figure A-5

Share of Parking Spaces Used by Vehicles at

4PM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 4PM

RPP
— 0-60%
— 61-85%
— >85%
Parking Management Type
— RPP Restriction in Effect

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Figure A-6

Share of Parking Spaces Used by Vehicles at

6PM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 6PM

RPP
0-60%
61-85%
>85%

Parking Management Type
RPP Restriction in Effect

Figure A-7

Share of Parking Spaces
Used by Vehicles at

8PM

on

Weekday

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 8PM

RPP
- 0-60%
- 61-85%
- >85%

Parking Management Type
- RPP Restriction in Effect

Esri Community Maps Contributors, DCGIS, Fairfax County, VA, VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Figure A-8

Share of Parking Spaces Used by Vehicles at

8AM

on

Weekend

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 8AM

RPP
- 0-60%
- 61-85%
- >85%

Parking Management Type
- RPP Restriction in Effect

Esri Community Maps Contributors, DCGIS, Fairfax County, VA, VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

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Figure A-9

Share of Parking Spaces Used by Vehicles at

10AM

on

Weekend

Study Area: Ballston
Study Period: April 2022

RK&K

ARLINGTON
VIRGINIA

Vehicles/Spaces: 10AM

RPP
— 0-60%
— 61-85%
— >85%

Parking Management Type
— RPP Restriction in Effect

Esri Community Maps Contributors, DCGIS, Fairfax County, VA, VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

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Figure A-10

Share of Parking Spaces
Used by Vehicles at

12PM

on

Weekend

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 12PM

RPP

— 0-60%
— 61-85%
— >85%

Parking Management Type
— RPP Restriction in Effect

Figure A-11

Share of Parking Spaces Used by Vehicles at

2PM

on

Weekend

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 2PM

RPP
- 0-60%
- 61-85%
- >85%

Parking Management Type
- RPP Restriction in Effect

Figure A-12

Share of Parking Spaces Used by Vehicles at

4PM

on

Weekend

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 4PM

RPP
- 0-60%
- 61-85%
- >85%

Parking Management Type
- RPP Restriction in Effect

Figure A-13

Share of Parking Spaces Used by Vehicles at

6PM

on

Weekend

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 6PM

RPP
- 0-60%
- 61-85%
- >85%

Parking Management Type
- RPP Restriction in Effect

Figure A-14

Share of Parking Spaces Used by Vehicles at

8PM

on

Weekend

Study Area: Ballston
Study Period: April 2022

Vehicles/Spaces: 8PM

RPP

— 0-60%
— 61-85%
— >85%

Parking Management Type

— RPP Restriction in Effect