



**ARLINGTON**  
VIRGINIA

# System Optimization Analysis of Performance Parking Pilot in Commercial Corridors in Arlington County

## Final Report

*Prepared by:*

**Kimley»»Horn**



**UNOJO**  
CONNECT. INTEGRATE. COMMUNICATE.

**avid**  
**core**

December 15, 2025

## Contents

Executive Summary .....	ES-1
Overview .....	ES-1
Methodology .....	ES-1
Key Findings .....	ES-2
Challenges Encountered in the Evaluation .....	ES-3
Conclusions .....	ES-3
Recommendations.....	ES-3
Summary.....	ES-4
Introduction .....	1
Description of the Performance Parking Pilot .....	1
Description of the System Optimization Analysis .....	2
Evaluation Methodology .....	3
Study Sites.....	3
User Surveys .....	4
Parking Sensor Data Analysis .....	6
Other Data.....	6
Evaluation Limitations.....	7
Findings By Theme .....	7
Findings Related to the Public’s Overall Perception of On-Street Parking .....	8
Findings Related to Public Awareness of Available Parking Information .....	9
Findings Related to Public Adoption of Parking Information Tools .....	10
Findings Related to Drivers’ Price Sensitivity .....	14
Findings Related to Trends in Active and Repeat Users .....	18
Findings Related to Payment Compliance .....	20
Findings Related to Project Goals .....	21
Recommendations for Future Deployments.....	29
Public Engagement and Awareness.....	29
Technology and Data Integration .....	29

Pricing Strategy and Enforcement .....	30
Evaluation and Continuous Improvement.....	30
Summary of Recommendations .....	31
Challenges Encountered in the Evaluation .....	31
Data Integration and System Reliability .....	32
Limited Access to External and Supplemental Data .....	32
Challenges with the Use of Cameras and Video Analytics to Measure Double Parking.....	32
Survey and Feedback Constraints .....	33
Evolving Project Conditions .....	34
Summary.....	34
Conclusions.....	34
Appendix A. Definitions .....	36
Appendix B. Quarterly Average of Sensor-Based Metrics by Study Site and Quarter (Weekdays, 8am-8pm) .....	39
Appendix C. List of County Outreach Activities .....	42
Appendix D. Hourly Sensor-based Metrics by Study Site and Quarter.....	46
Appendix E: Quarterly Daily Pricing Schedule by Study Site .....	50
Appendix F. Occupancy Tables for High- and Low-Demand Sites and Timeframes.....	57

## List of Figures

<b>Figure 1:</b> Project Area of the Performance Parking Pilot.....	1
<b>Figure 2:</b> Timeline of Pilot Project Pricing Adjustments .....	2
<b>Figure 3:</b> Study Sites Map and Q6 Pricing Updates .....	4
<b>Figure 4:</b> Snapshot of Happy or Not scoring of parking experience performance .....	8
<b>Figure 5:</b> Arlington Pilot Website Visit Analysis .....	10
<b>Figure 6:</b> Google Web Analytics Report from November 2023 – August 2025.....	11
<b>Figure 7:</b> eXactnav User Interface.....	12
<b>Figure 8:</b> eXactnav Downloads on Android Devices .....	13
<b>Figure 9:</b> eXactnav Downloads on iOS devices .....	13
<b>Figure 10:</b> (From left to right, top to bottom) Availability, Occupancy, Turnover Rate, and Compliance for Site 6A.....	14

<b>Figure 11:</b> Availability at Site 17B. ....	15
<b>Figure 12:</b> Daily Active Users (top), Monthly Active Users (middle), DAU/MAU (bottom) .....	19
<b>Figure 13:</b> Percent Repeat Users by Day of the Week.....	20
<b>Figure 14:</b> Compliance (%) across the entire county from Baseline through Q6 Evaluation Periods. ....	21
<b>Figure 15:</b> Occupancy averaged across study sites for: all study sites; high-demand sites; and low-demand sites. ....	22
<b>Figure 16:</b> Occupancy at High-Demand (>80% Occupancy during Baseline Period) Sites and Timeframes .....	23
<b>Figure 17:</b> Occupancy at Low-Demand Sites and Timeframes .....	24
<b>Figure 18:</b> Strong Satisfaction Field Intercept Comments .....	26
<b>Figure 19:</b> Parking Experience Survey Results for Satisfied Users in Quarter 5 (Highlights) .....	27
<b>Figure 20:</b> Parking Experience Survey Results for Unsatisfied Users in Quarter 5 (Pain Points) .....	27
<b>Figure 21:</b> Hourly Availability (%) each Pricing Period by Study Site.....	46
<b>Figure 22:</b> Hourly Occupancy (%) each Pricing Period by Study Site .....	47
<b>Figure 23:</b> Hourly Turnover Rate each Pricing Period by Study Site .....	48
<b>Figure 24:</b> Hourly Compliance (%) each Pricing Period by Study Site.....	49
<b>Figure 25:</b> Baseline Period Hourly Pricing Schedule by Study Site.....	50
<b>Figure 26:</b> Quarter 1 Hourly Pricing Schedule by Study Site.....	51
<b>Figure 27:</b> Quarter 2 Hourly Pricing Schedule by Study Site.....	52
<b>Figure 28:</b> Quarter 3 Hourly Pricing Schedule by Study Site.....	53
<b>Figure 29:</b> Quarter 4 Hourly Pricing Schedule by Study Site.....	54
<b>Figure 30:</b> Quarter 5 Hourly Pricing Schedule by Study Site.....	55
<b>Figure 31:</b> Quarter 6 Hourly Pricing Schedule by Study Site.....	56

## List of Tables

<b>Table 1:</b> Availability (%) at each Study Site and Availability Differences across Pricing Periods.....	39
<b>Table 2:</b> Occupancy (%) at each Study Site and Occupancy Differences across Pricing Periods.....	40
<b>Table 3:</b> Turnover Rate at each Study Site and Turnover Rate Differences across Pricing Periods .....	41
<b>Table 4:</b> High-demand Study Sites and Timeframes Occupancy for each Pricing Period .....	57
<b>Table 5:</b> Low-demand Study Sites and Timeframes Occupancy for each Pricing Period.....	58



## Executive Summary

### Overview

This executive summary presents the key findings, conclusions, and recommendations from the System Optimization Analysis of the Performance Parking Pilot in Arlington County, Virginia. Funded by the Virginia Department of Transportation's Innovation and Technology Transportation Fund (ITTF), the project evaluated a three-year pilot designed to optimize on-street parking management using data-driven, demand-responsive pricing strategies. ITTF provides this type of funding for emerging programs, tests innovative technologies in pilots across the Commonwealth, and provides insights into new ideas.

Arlington County deployed approximately 4,500 in-pavement sensors across metered spaces and two public surface lots within the Rosslyn–Ballston and Crystal City/Pentagon City corridors (See **Figure 1**). These sensors collected real-time data on occupancy and turnover, which informed quarterly rate adjustments. Prices were increased in high-demand areas and lowered in underused areas to encourage balanced parking utilization. This system was complemented by public information tools such as the eXactnav app and dynamic signage to guide drivers toward available spaces.

The evaluation, conducted independently by Kimley-Horn, assessed how well the pilot met its objectives: improving parking availability, reducing cruising and emissions, enhancing user experience, and optimizing pricing efficiency (See **Figure 2**).

### Methodology

The evaluation employed a mixed-methods approach combining quantitative and qualitative data sources:

- **Sensor Data:** Captured real-time availability, occupancy, turnover, and compliance rates across 20 representative study sites.
- **User Surveys:** Leveraged the HappyOrNot tool embedded in the ParkMobile app and conducted in-person intercepts to gauge user satisfaction and awareness.
- **Complementary Datasets:** Included transaction records, citation data, INRIX traffic analytics, and app usage data from ParkMobile, Flowbird, and eXactnav.
- **Statistical Modeling:** Used regression analyses to estimate the relationship between pricing and occupancy, controlling for time, location, and user behavior.
- **Video Analytics from Portable Cameras:** Used portable cameras to detect double parking instances in the study areas.

Limitations included incomplete datasets, low payment compliance (approximately 50%), external factors such as construction, and limited public awareness—all of which affected behavioral interpretation and outcome precision.

## Key Findings

### *Public Perception and Awareness*

Public satisfaction with parking remained consistently high throughout the pilot, maintaining an average Happy Index of 85 out of 100 (See **Figure 4**). Despite price adjustments, most drivers reported stable or improved satisfaction. However, awareness of the pilot and its tools was very low; most respondents were unaware of real-time parking information or the rationale behind dynamic pricing. Early outreach efforts through community meetings and media yielded limited engagement, though late-stage innovations such as QR-coded sidewalk decals showed promise.

### *Adoption of Parking Information Tools*

Adoption of the County's digital parking platforms was modest. Website traffic fluctuated but did not correspond to measurable behavior change (See **Figure 5**). Downloads of the *eXactnav* app spiked only during intensive outreach periods (See **Figure 8, Figure 9**), indicating that proactive education directly influences user uptake. Barriers included skepticism about data accuracy, reluctance to use multiple apps, and confusion over on-street signage content.

### *Price Sensitivity and Driver Behavior*

Data revealed weak price sensitivity among drivers. Despite price increases up to \$4.75/hour, occupancy and availability levels remained largely unchanged (See **Figure 10, Figure 11**). Statistical analysis showed that a 10% price increase corresponded to only a 0.3% decrease in paid transactions—a relationship that was statistically insignificant. Limited awareness and compliance likely diluted the behavioral effect of pricing.

Saturday parking demand showed mild responsiveness, with a 1–2% drop in occupancy per \$1 increase, while weekday demand remained inelastic. These results suggest that pricing alone cannot meaningfully shift driver behavior without complementary awareness and enforcement strategies.

### *Payment Compliance and User Trends*

Across all study sites, payment compliance hovered around **50%**, meaning that only half of all parking sessions were influenced by pricing (See **Figure 14**). ParkMobile data showed consistent engagement among repeat users, indicating that regular users did not opt out of paid parking even as rates rose (See **Figure 13**). However, low compliance levels fundamentally limited the pilot's effectiveness.

### *Achievement of Project Goals*

The pilot partially achieved its goals:

- Occupancy in high-demand areas modestly trended lower (See **Figure 15** and **Figure 16**).
- Occupancy in low-demand areas trended slightly higher (See **Figure 17**).
- Congestion and emissions impacts could not be quantified due to limited data granularity.

- Double-parking detection proved technically infeasible due to unreliable camera analytics.

Overall, while the program improved Arlington’s understanding of curbside dynamics, the observed behavioral outcomes were modest and largely shaped by external factors.

### Challenges Encountered in the Evaluation

The evaluation encountered several challenges that affected data collection and analysis. Data integration across multiple platforms proved difficult due to inconsistencies in definitions, time intervals, and reporting standards among sensor readings, payment transactions, and survey responses. Access to external datasets for measuring broader transportation outcomes—such as vehicle miles traveled and emissions—was limited, as third-party providers either discontinued or restricted data sharing during the evaluation period.

Efforts to measure double parking using video analytics were ultimately unsuccessful; despite deploying dedicated cameras with improved coverage, the detection algorithms could not reliably distinguish double-parked vehicles from those temporarily stopped in traffic, rendering the data unsuitable for quantitative analysis. Survey collection was periodically disrupted by technical issues with the ParkMobile integration, and many respondents mistakenly provided feedback about the app rather than the parking pilot itself. Additionally, external factors such as construction activities and changes in parking supply at certain study sites complicated longitudinal comparisons and required periodic recalibration of evaluation parameters.

### Conclusions

The Performance Parking Pilot successfully demonstrated the technical feasibility of sensor-based, data-driven parking management but revealed the limits of pricing as a standalone lever. Occupancy and turnover metrics remained stable despite significant rate changes, underscoring the need for integrated strategies combining pricing, enforcement, communication, and technology.

Key takeaways include:

- Public awareness is a prerequisite for behavioral change.
- Simplified, transparent pricing structures improve comprehension and trust.
- Enforcement consistency is critical to price effectiveness.
- Future systems must merge technological precision with human-centered design.

### Recommendations

#### *Public Engagement and Awareness*

Focus on direct, point-of-decision communication. Use consistent branding across meters, signage, and apps. Conduct on-street demonstrations and targeted outreach to frequent parkers. Consolidate tools under a single, intuitive platform with clear messages about pricing and benefits.

---

### *Technology and Data Integration*

Ensure real-time synchronization among sensors, meters, and mobile platforms. Enhance collaboration with vendors to improve data transparency and integrate parking data into mainstream navigation tools such as Google Maps and Waze. Conduct user testing for signage clarity and app usability.

### *Pricing Strategy and Enforcement*

Adopt simplified pricing tiers and standardized increments. Use visual cues—like curb colors or signage—to differentiate rates. Strengthen enforcement visibility and consider progressive penalties to boost compliance.

### *Continuous Evaluation*

Institutionalize iterative learning through quarterly evaluations, user feedback loops, and open data sharing. Establish measurable targets for awareness, compliance, and occupancy reductions. Expand analytics within apps (e.g., user alerts for cheaper nearby spaces).

### *Summary*

The Arlington Performance Parking Pilot provided critical insights into the operational, behavioral, and technological dynamics of demand-based parking. While it did not yield dramatic shifts in parking behavior, it set the foundation for next-generation curb management—one that blends adaptive pricing with enhanced communication, equity, and data-driven governance.

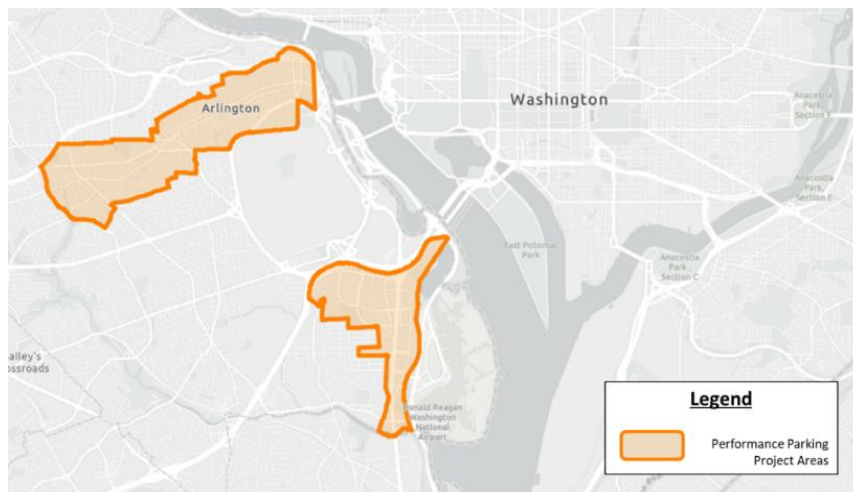
## Introduction

This is the final report of the evaluation of a project funded by the Virginia Department of Transportation (VDOT) to improve the on-street parking experience in Arlington County. It is organized as follows:

- Introduction to the project
- Introduction to the system optimization analysis
- Presentation of the evaluation methodology
- Presentation of the findings of the evaluation by theme and related to the projects' goals
- Recommendations
- Challenges encountered in the evaluation
- Conclusions

## Description of the Performance Parking Pilot

Arlington County is nearing the end of a three-year Performance Parking Pilot funded by VDOT's Innovation and Technology Transportation Fund (ITTF), which aimed to improve the way residents and visitors experience metered parking spaces and two county-owned surface lots in two key commercial and residential corridors (**Figure 1**).



*Figure 1: Project Area of the Performance Parking Pilot*

The project installed approximately 4,500 in-pavement sensors in on-street parking spaces and in county-managed parking lots to capture when vehicles arrive and depart and how long they stay. These events were used to measure occupancy and turnover, which have been used to inform quarterly changes in hourly parking rates. Rates were increased in the busiest areas at the busiest times in an effort to make parking more available in the busiest areas. Rates were held steady or decreased in areas and times with more availability to encourage drivers to better use the available capacity. The project also made pricing and real-time availability information available to the public in different ways to aid in the search for available parking.

The project aimed to reduce the negative impacts often associated with searching for parking, such as excessive cruising, double parking, safety risks, and driver frustration. The goals of the project were as follows:

1. On-street parking is easier to find on block faces with high parking demand than it is today.
2. More people choose to park on block faces where demand is low today.
3. Fewer instances of double parking occur, thus freeing up travel lanes for bicycles and automobiles and reducing the number of conflicts between drivers and other road users.
4. Drivers spend less time looking for on-street parking.
5. Drivers perceive that they spend less time looking for on-street parking.
6. Members of the public perceive that they have better on-street parking information.
7. Vehicle miles traveled resulting from on-street parking searches or “cruising” are reduced in the areas with the system.
8. Mobile emissions from vehicles are reduced in the areas with the system due to reduced vehicle miles traveled.

### Description of the System Optimization Analysis

This document is the final report of the “System Optimization Analysis of Performance Parking Pilot in Commercial Corridors in Arlington County,” a parallel project funded by VDOT to independently assess how well the Performance Parking Pilot met Arlington’s goals for the project. Due to the innovative nature of the project and the vast amount of parking data available to understand driver behavior, VDOT desired an independent assessment to gather lessons learned and to inform future innovation projects. In addition, the System Optimization Analysis supplemented Arlington’s own analysis and provided additional feedback each quarter to help improve project outcomes. The evaluation team conducted its own user surveys to better understand the user experience and any behavior change arising from the project.

The Performance Parking Pilot adjusted parking meter rates by time of day for each block face in the Project Area. Rates were fixed for roughly three months at a time and then revised based primarily on average peak-hour occupancy. Before the first price change, a baseline period was established after sensor installation to collect and analyze data for the initial pricing quarter. The dates for each quarter of prices are provided in **Figure 2**.

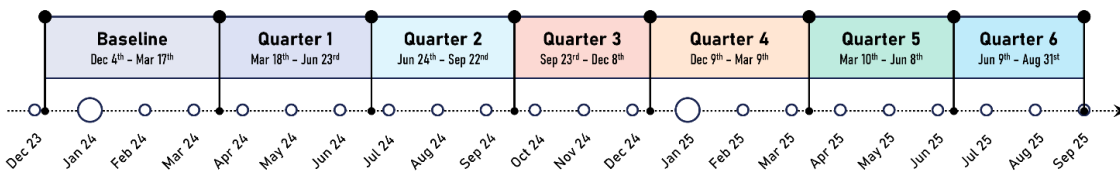


Figure 2: Timeline of Pilot Project Pricing Adjustments

During this baseline analysis, block faces with similar activity patterns were grouped into 30 price “zones.” After the first price adjustment, the number of zones increased to 60 to allow finer-grained pricing. Zones with average peak-hour occupancy above 80% for four hours were targeted

for peak-time rate increases, while zones with occupancy below 40% were considered for rate reductions across all metered hours.

The County conducted further analysis to refine rate adjustments, since peak-hour data alone did not capture full daily demand patterns. The review also considered factors such as delayed sensor installations, low payment compliance, and changes in adjacent zones.

## Evaluation Methodology

This independent evaluation sought not only to measure performance outcomes but also to understand *why* changes in parking behavior did or did not occur. The following methodology outlines the data sources, study sites, and analytical approaches used to assess these behavioral responses and to support evidence-based recommendations for future deployments.

Because the pilot relied on multiple new technologies and third-party data sources, the evaluation faced several data completeness and consistency challenges. These limitations are summarized later in this section to provide context for interpreting results.

After the baseline period and each quarterly price change, data were analyzed, and findings were presented based on the most recent information. This report is a culmination of the findings from each interim report.

### Study Sites

In order to focus outreach efforts on a consistent set of locations that could be studied over time to track trends, the evaluation team selected a sample of 20 block faces, which were termed “study sites” for the evaluation. Initially, Arlington created pricing zones where busier locations were classified as “A” zones and less busy locations as “B” zones. These designations were made with the best available data at the time—parking payment transactions and staff’s judgment. The evaluation team chose ten study sites from the “A” zones and ten sites from the “B” zones. Each site in an “A” zone was paired with a nearby site in a “B” zone, intending to capture shifts in demand between high and low demand sites in the same general area due to their proximity. It was envisioned that “A” zones would increase in price while “B” zones would stay the same or decrease in price.

As Arlington collected and analyzed sensor data during the baseline period, it quickly became clear that payment transactions were a poor proxy for the busyness of a block face. There was a significant difference between the number of payment transactions and the number of sensor sessions; the number of drivers who paid for their parking session was surprisingly low. This was an important initial observation by the project, which has had significant implications for influencing driver behavior through price setting. This will be discussed in more detail later in this report.

With more accurate measurements of block face occupancy, Arlington refined its price change methodology, evaluating each zone based on the sensor data, regardless of the initial “A” or “B” designation. The baseline data revealed that some study sites in previously designated “B” zones were actually busier than many sites in “A” zones. Additionally, as Arlington deviated from its

initial designations of “A” and “B” zones, it became clear that these designations would not function as intended in the experimental design. Therefore, while the “A” and “B” classifications were retained for the study sites, they were not analyzed as pairs (i.e., shifts in demand between site 8A and 8B, for instance, were not compared directly), but rather as a general indication of demand. Furthermore, as construction activities affected certain study sites, these sites were re-evaluated multiple times throughout the evaluation period. Each adjustment aimed to maintain a balance of ten high- and ten low-demand study sites. However, site selection ultimately relied on measured occupancy and pricing data to ensure a representative mix of higher- and lower-priced locations for evaluating the pilot’s impact across different demand conditions.

The final group of study sites used in the analysis is shown in **Figure 3**. Details for each site are provided in [Appendix B](#). While the study sites changed over the course of the project, the data for the final selection of study sites were analyzed from the beginning of the project to get a full time series.

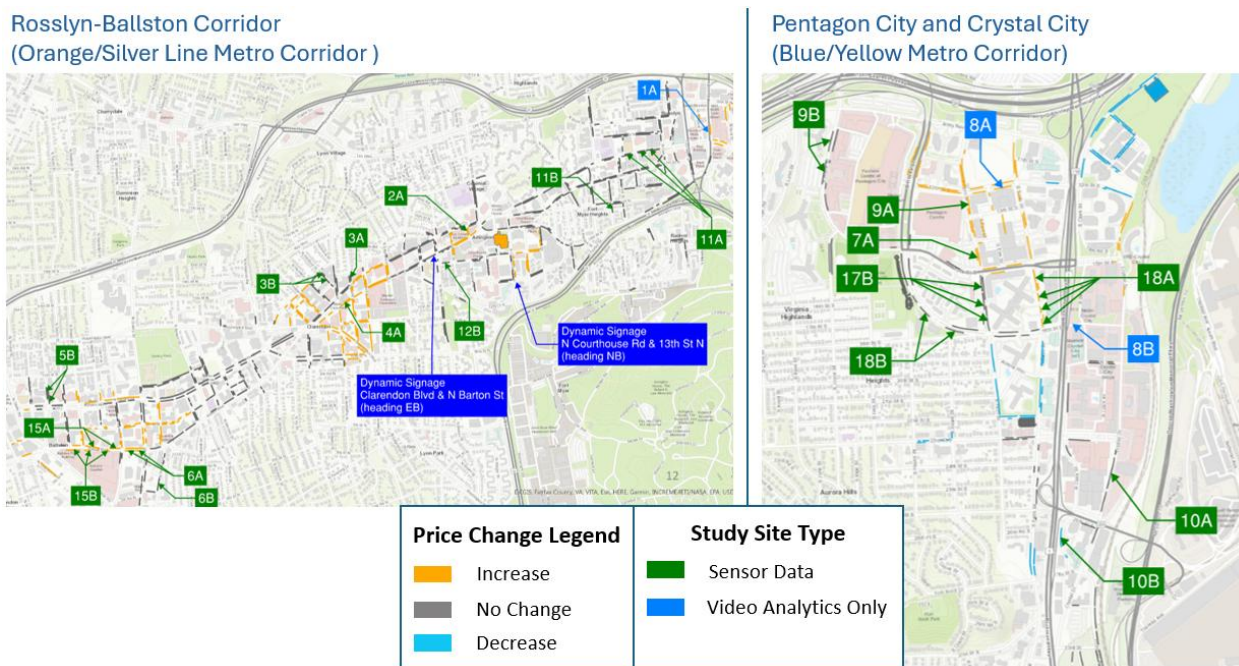


Figure 3: Study Sites Map and Q6 Pricing Updates

### User Surveys

A variety of methods were used to gather data on the user experience. An online survey tool called HappyOrNot was the primary mechanism for gathering user sentiment. HappyOrNot has a simple interface. It presents the user with four icons along a happy-to-sad scale. Based on that response, it follows up with additional questions. Finally, it presents the user with a form for open feedback. The HappyOrNot platform provides some analytics to track trends over time to reveal the overall satisfaction level, and which aspects of the parking experience were positive or

negative. The open feedback was useful to provide additional context about what people did and did not like about their parking experience.

The evaluation team partnered with ParkMobile to embed the survey into the app so it would appear at the end of parking transactions. The survey was set to appear to a ParkMobile user at most once per quarter. Over the course of the evaluation, which spanned almost two years, most responses to the survey were received through ParkMobile. It should be noted that the survey went to users over the entire project area, not just the study sites identified by the project team.

There were also inconsistencies from ParkMobile regarding how often users received notifications, and this had to be further coordinated with them to ensure notifications appeared at least once every three months as intended.

Each quarter, the evaluation team conducted on-street intercepts at each of the study sites. During these intercepts, a member of the evaluation team would ask the following questions and follow-up questions for clarification:

**1. Have you parked here before?**

- **If YES** -> How often do you park here? Did you notice any changes in your parking experience?
- **If NO** -> What is your usual on-street parking location?

**2. (For sites near new PPP<sup>1</sup> signage) Why did you decide to park in this location today?**

- Why did you decide to park in this location today?
- Did you notice this sign explaining the pilot or where you could find cheaper parking locations?
- If so, did it influence your decision to park here?

**3. How do you feel about the current pricing?**

- How did the price of parking influence your decision of where to park today?
- Did you notice a change in price? If so, what is the change?
- What would you consider too expensive to pay for hourly parking?
- If you were traveling back to this area, would you park in this location again? Why?
- Would you be more likely to use an app to search for lower parking rates?
- How would you like to find out about available parking options and fees?

**4. Which sites or apps did you visit to look up available parking locations?**

---

<sup>1</sup> PPP is an abbreviation for the Performance Parking Pilot Project

## 5. Why did you choose to park here today?

- Was your decision based on what was available near your destination?
- Did you circle the block?
- If you were traveling back to this area, would you park in this location again? Why?

Links to the survey were also provided on QR codes located on parking meters at the study sites, as well as from the County website. Each link was unique, allowing the evaluation team to understand the source of the input. However, very few survey responses came from the QR codes on the meters. Rather, most responses came from the ParkMobile embedded link, and the most detailed information came from the street intercepts. The other sources didn't garner much additional input, including from the Arlington project website's feedback form.

Although the combination of app-based and intercept surveys captured a broad range of feedback, response rates were uneven across locations, and most responses came from drivers already using ParkMobile, potentially underrepresenting non-digital users.

### Parking Sensor Data Analysis

The evaluation team accessed parking-related data through direct APIs to the eleven-X sensor data, ParkMobile transactions and various meter vendors. Custom dashboards were developed to facilitate real-time analysis of key metrics—including occupancy, availability, turnover, and compliance—across the duration of the project. These tools enabled the team to evaluate parking behaviors and system performance.

### Other Data

While the sensor data formed the foundation of the evaluation, a broader set of complementary datasets was also used to provide context and validate observed patterns in occupancy and user behavior. The following is a summary of these additional data sources and their role in the analysis:

- **Citation data from Arlington.** Used to identify trends in ticketing
- **Parking transaction data from ParkMobile, Flowbird and Cale.** Used to identify trends in compliance and recurring user trends.
- **eXactnav, CurbIQ, Arlington website usage/clicks.** Used to identify trends in users accessing data available, as well as downloads of apps.
- **INRIX roadway speeds.** Used to identify trends in congestion in the study area

Congestion and delay data for road segments within the Rosslyn-Ballston Corridor and the Crystal City/Pentagon City Corridor, the two corridors within the County that comprised the project area, were provided by INRIX. INRIX aggregates traffic data captured by mobile devices and roadway sensors and organizes it geographically into street sections, segmented at significant intersections.

Some supplemental datasets, including congestion and emissions data, were not available at a level of granularity sufficient for meaningful before-and-after comparisons.

## Evaluation Limitations

While this evaluation relied on an extensive set of sensor, transaction, and survey data, several limitations influenced the precision and scope of the analysis. These limitations do not diminish the validity of findings but should be considered when interpreting results:

- **Payment Compliance.** Less than half of all parking sessions were paid and therefore recorded in the ParkMobile data. This limits the ability to generalize findings from paid transactions to all drivers.
- **External Influences.** Construction activities, changing land uses, and overlapping transportation initiatives occurred throughout the evaluation period. These factors may have affected parking patterns independently of the pilot's interventions.
- **Effects of Seasonality.** While the evaluation extended close to two years, it is likely that drivers behave differently in different seasons. In the winter, for instance, people may be less likely to go out or may be less willing to walk distances in cold weather. In the summertime, travel demand may be naturally down due to summer vacations. In some cases, it was difficult to distinguish quarter-over-quarter trends from seasonality differences.
- **Data Gaps and Synchronization.** Some sensor data were missing or delayed due to equipment issues, while transaction and citation datasets operated on different time intervals. These differences required alignment and interpolation that may introduce small errors.
- **Limited Behavioral Tracking.** Because individual driver data were anonymized, the evaluation could not track long-term changes in specific users' behavior beyond repeat transaction analysis.
- **Environmental Metrics.** Available congestion and emissions datasets were not granular enough to capture localized changes related to parking activity. As a result, VMT and emissions impacts were assessed qualitatively rather than quantitatively.

## Findings By Theme

In this section, the evaluation findings are organized by major themes reflecting user perception, public awareness, adoption of parking tools, and behavioral response to pricing changes. Overall, the pilot produced mixed results. Public satisfaction with on-street parking remained consistently high, indicating that the program did not negatively affect user experience. However, awareness of the pilot and its associated tools was limited, and adoption of digital resources such as eXactnav and dynamic signage remained low.

Analysis of transaction and sensor data showed that drivers were largely insensitive to the modest price changes implemented during the evaluation period. These pricing changes coincided with a period of high inflation (over 5%), and many surveyed users initially attributed price increases to inflation. Compliance levels also remained steady, constraining the reach of price-based

interventions. While these findings suggest that the pilot did not significantly alter parking behavior, they also underscore the importance of complementary strategies—such as stronger public outreach, enhanced enforcement, and simplified pricing—to achieve lasting results.

### Findings Related to the Public’s Overall Perception of On-Street Parking

Throughout the evaluation period of December 2023 – August 2025, the public’s perception of their parking experience was measured with Happy or Not’s Happy Index score. Satisfaction with parking among the public remained strong overall and has remained remarkably steady, as seen in the trend line provided in **Figure 4**.

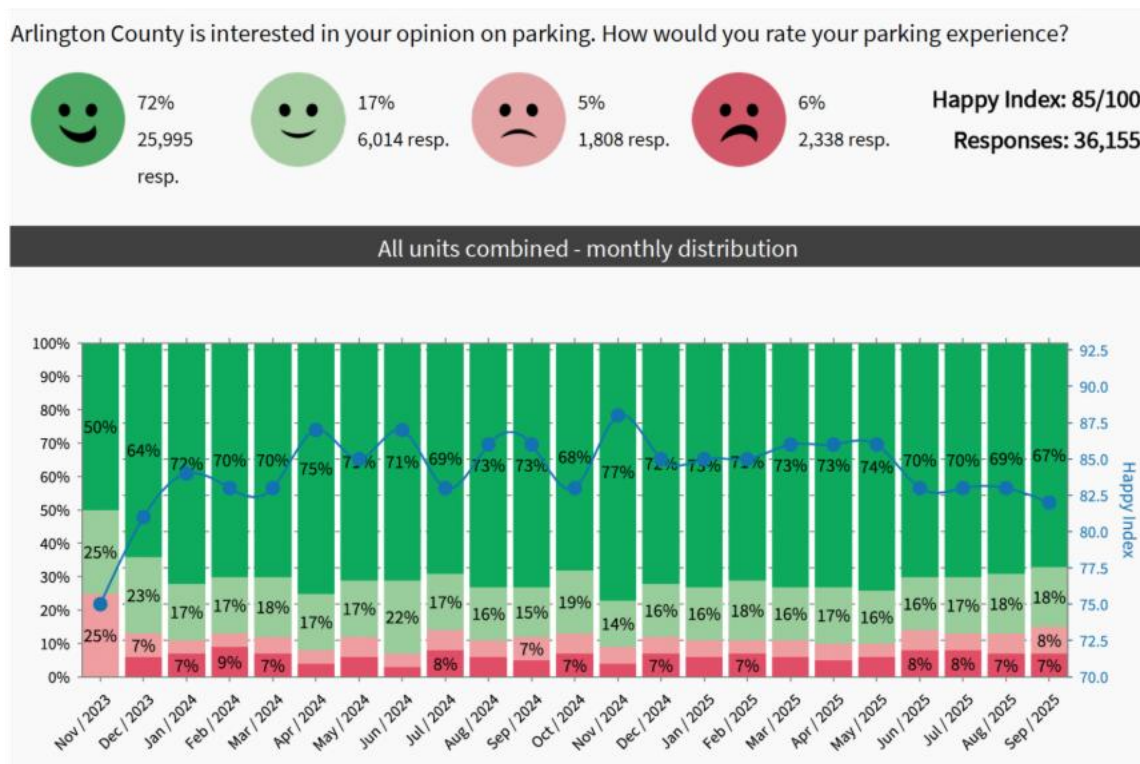


Figure 4: Snapshot of Happy or Not scoring of parking experience performance

The quarterly Happy Index score remained within a six-point range between a high of 88 in Quarter 3 and a low of 82.5 recorded during the final quarter. At the conclusion of the study, the overall Happy Index score was 85. Despite significant price increases at the busiest locations, satisfaction with the on-street parking experience appears not to have been impacted.

ParkMobile issues were frequently noted throughout the evaluation period and were factored into the Happy Index score. 181 of the negative scores and comments were related to ParkMobile app functionality and issues in Quarter 6. The relevant comments and suggested improvements were sent to ParkMobile periodically for review.

While public satisfaction with on-street parking remained stable throughout the pilot, satisfaction alone does not indicate understanding or engagement with the program's goals. The next section examines the extent to which the public was aware of the pilot and the parking information tools intended to support informed decision-making.

### Findings Related to Public Awareness of Available Parking Information

Public awareness of the performance parking pilot information was low throughout the evaluation. Arlington County implemented numerous initiatives during the evaluation period, and target audiences may have experienced survey fatigue or "information fog" since multiple transportation projects were concurrently pushing information to the public.

The County's Public Engagement team developed a public engagement plan with multiple tactics to reach Arlington County stakeholders and collect input. Outreach activities included presentations at various citizen group meetings, including the Transportation Commission, Planning Commission, Disability Advisory Commission, Commission on Aging, and the Information Technology Advisory Commission. It also included outreach to businesses via Business Improvement Districts (BIDs), Chamber of Commerce, and other economic development groups. Business and residential stakeholder groups received emails on the pricing changes each quarter. Direct outreach to the public was conducted through appearances at farmers' markets, the Clarendon Day festival, Clarendon Music by the Metro, Rosslyn Jazz Fest, Jazz at Met, ArlingtonPalooza, and the County Fair. Focus groups were also held with retailers at restaurants on two occasions, and four technology trainings were held for the 55+ program at neighborhood community centers. The project team hosted an all-day data hack idea sharing event where students and developers were invited to create tools based on the project's data available through APIs, as well as an author talk.

Other types of outreach included social media blasts, emails to local businesses, ads in the *ArlNow* online newspaper, door-to-door outreach to businesses, ads on taxi cabs and mailers to residents. A complete list of outreach activities is included in Appendix C.

During the evaluation team's street intercepts, the evaluation team polled customers after they parked to assess users' awareness of available parking information. The majority of interviewees were not familiar with the parking tools or the pilot. In most cases, a member of the evaluation team would demonstrate the parking information tools on a mobile device. The demonstrations were effective in determining whether the parking information would be considered valuable and influence parking behaviors. All interviewees cited that they would like to save time and money. The evaluation team observed "proximity to destination" as a common motivator to influence parking behavior. A few customers noted their preference to pay at meters or avoid using apps to navigate to an open parking space. There was a reluctance to use digital parking tools for some users.

Once the dynamic digital signs were deployed, the evaluation team collected feedback from parking customers near the signs and at the high occupancy sites. Overall, the sentiments expressed confusion about the information displayed on the dynamic signs. Users explained their uncertainty about what the numbers signified, the locations listed and the relation to public

parking locations. The County adjusted font, text and data displayed on the new signs installed in May-June 2025.

During the final evaluation period, the County’s public engagement team increased outreach activities by attending more community events and applying sidewalk decals in high traffic areas to direct the public to learn more about the pilot. QR codes on the sidewalk decals piqued interest and were scanned 117 times in the first 30 days after installation, indicating a promising outreach method for the future.

Low levels of public awareness naturally limited the adoption of the pilot’s digital parking tools. The following section explores this relationship in greater depth, assessing how awareness—or lack thereof—translated into actual use of the available parking information resources.

**Figure 5** shows the number of visits to Arlington County’s project website from users scanning the QR codes on sidewalk decals, which were installed in June 2025.

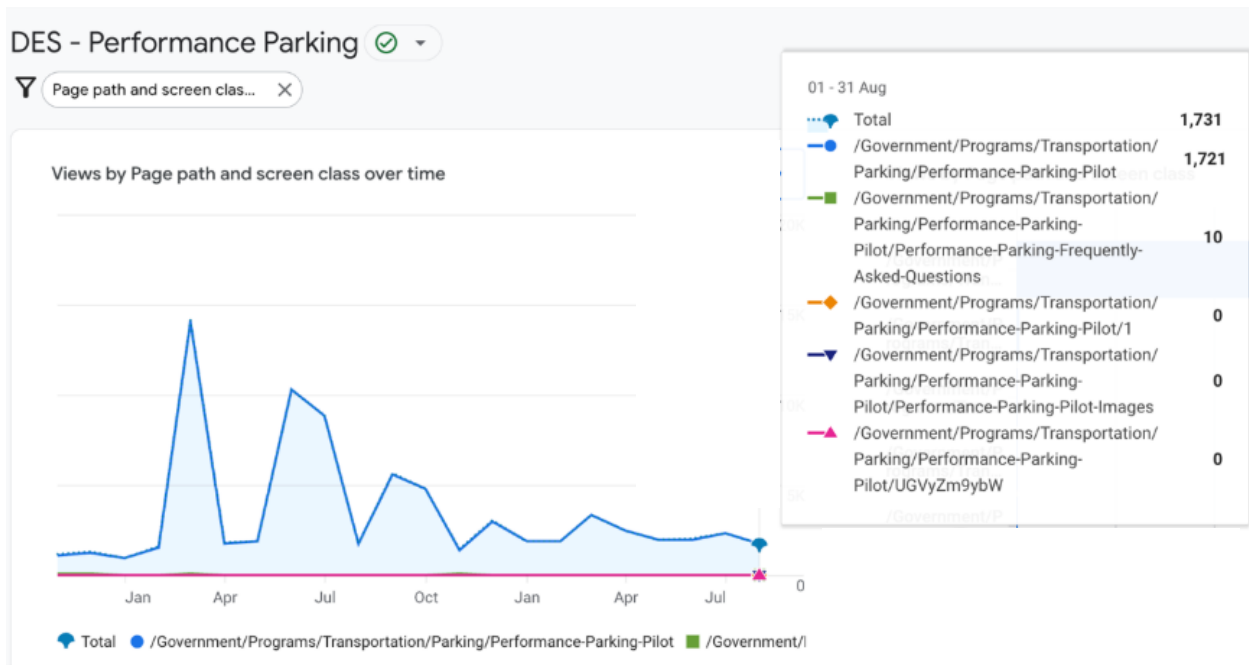


*Figure 5: Arlington Pilot Website Visit Analysis*

### Findings Related to Public Adoption of Parking Information Tools

The street intercepts allowed the evaluation team to probe more about preferred methods to learn about parking availability information and gauge awareness about the existing tools. External factors, such as the County’s budget, were often perceived as the driver for increased prices. During street intercepts in Quarter 6, five respondents reported familiarity with the pilot, and eight expressed interest in learning more about parking availability. While adoption was low, more in-person promotional activities educating parking stakeholders may lead to more usage.

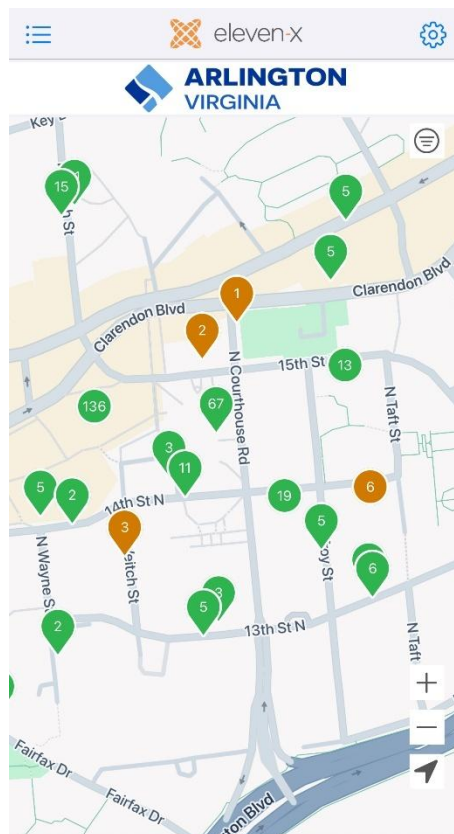
The County’s Performance Parking Pilot website was an important resource to educate the public about the program’s goals, links to parking information tools, an overview of the project’s progress, price changing briefings and parking information resources. Traffic to the website ebbed and flowed throughout the evaluation period as shown in **Figure 6**. From this web traffic data alone, the evaluation team could not measure whether website visitors utilized parking information tools or were influenced by the website.



*Figure 6: Arlington Pilot Website Google Web Analytics Report from November 2023 – August 2025.*

Street intercepts identified sentiments about potential adoption challenges among parking customers. Barriers included uncertainty about which of several available parking apps to use, reluctance to download new tools, difficulty interpreting complex data, safety concerns, and limited trust in the accuracy of real-time information. These barriers to adoption limited the effective integration with existing systems (such as ParkMobile, Google Maps or Waze) and an overall lack of awareness.

The team monitored adoption of the eXactnav application using app store download reports. eXactnav is an app developed by eleven-X, the lead firm on the pilot project. A screenshot of the application’s interface is shown in **Figure 7**. It was the county's primary public information tool for real-time price and parking availability. Earlier in the project, the pilot project team's primary public information tool was a website called CurbiQ, but eXactnav was considered a better option because it offered a superior mobile user experience.



*Figure 7: eXactnav User Interface*

According to eleven-X, no user feedback was submitted, and there were no app reviews available at the time of this report. The following figures (**Figure 8** and **Figure 9**) describe the relationship between outreach activities and the acquisition of eXactnav users on Apple and Android devices. The assumption is that when the eXactnav app is promoted and explained to a user, the user is more likely to download the app. The most eXactnav users were acquired during the peak public engagement period in August 2025.

The limited use of parking information tools also affected how drivers responded to price changes. Without clear awareness of price differentials or real-time availability information, many drivers were unlikely to adjust their parking choices in response to dynamic pricing. The following section examines how these behavioral factors influenced price sensitivity across the study sites.

## Android eXactnav Downloads

January 1, 2024 - September 8, 2025

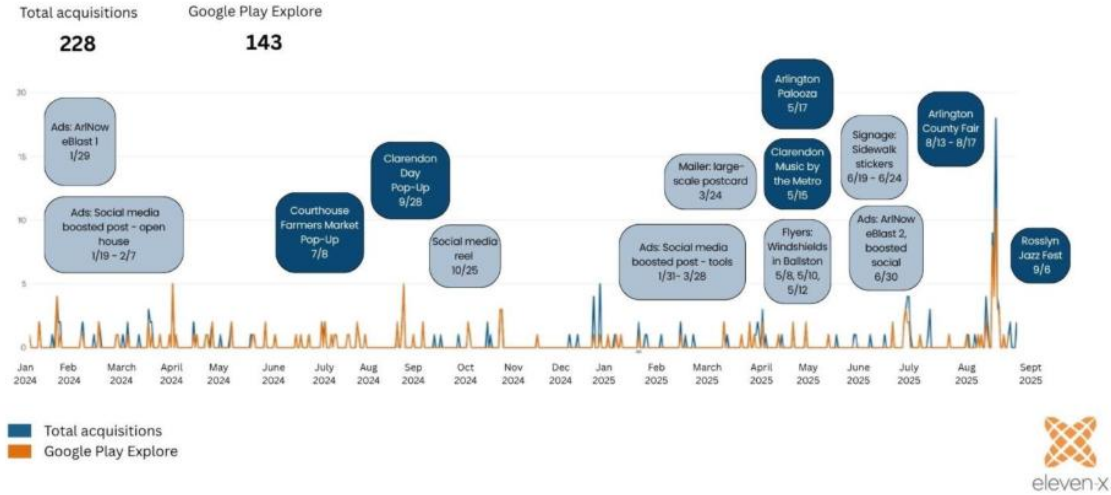


Figure 8: eXactnav Downloads on Android Devices

## Apple eXactnav Downloads

January 1, 2024 - September 11, 2025

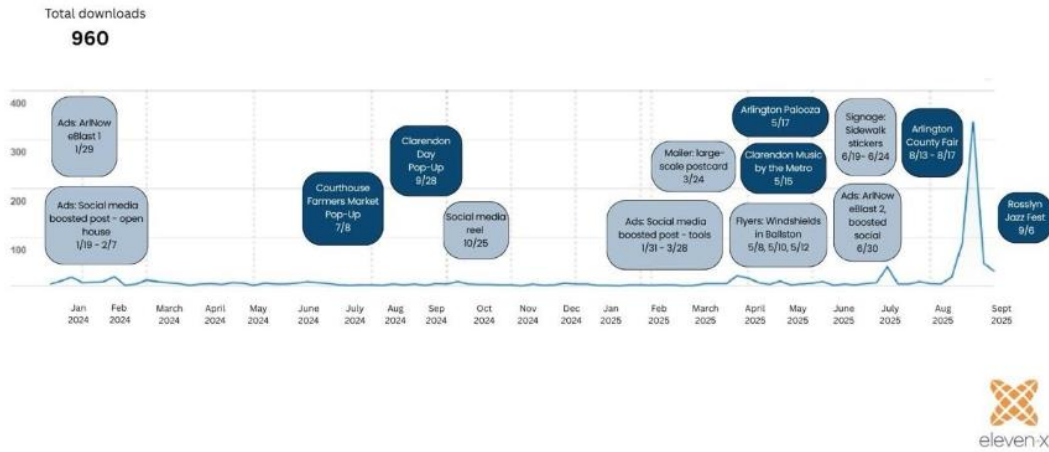


Figure 9: eXactnav Downloads on iOS devices

### Findings Related to Drivers' Price Sensitivity

Using data-driven parking pricing strategies, the pilot aimed to (1) improve parking availability, (2) reduce vehicle cruising, and (3) reduce emissions. A key assumption behind these aims was that drivers are sensitive to parking pricing and will adjust their behavior in response to changes in parking prices. With prices as the mechanism for behavioral change, this evaluation assumed that drivers' price sensitivity would successfully encourage driver behavior to align with the project goals over the course of the evaluation.

### Observations From Study Sites

The findings across the evaluation period revealed limited evidence that drivers in Arlington were sensitive to the implemented parking price changes. Graphs depicting Availability, Occupancy, Turnover, and Compliance for all study sites are in [Appendix D](#).

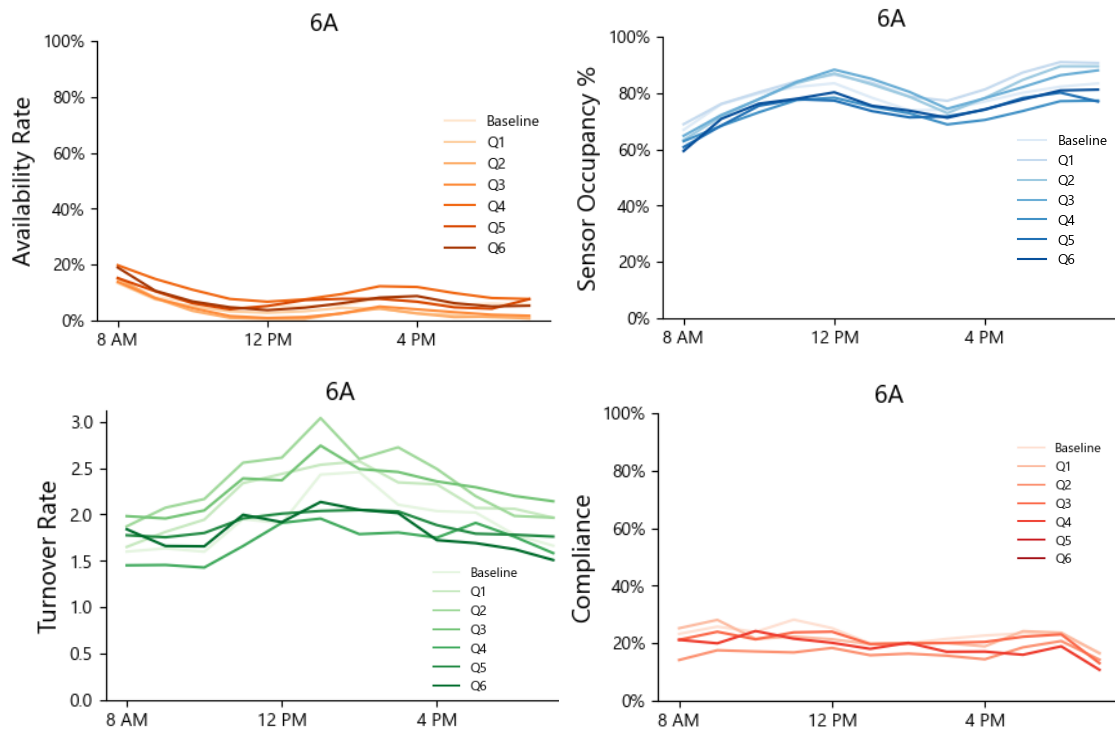


Figure 10: (From left to right, top to bottom) Availability, Occupancy, Turnover Rate, and Compliance for Site 6A

The largest price increase in any study site across the evaluation period was from \$1.75 in the baseline to \$4.75 in Q6 at Site 6A. With price sensitivity, availability would be expected to increase, occupancy to decrease, and turnover rate to increase. Over the course of the evaluation, Availability (%) and Occupancy (%) have stayed nearly constant at this site (Figure 10). The turnover rate similarly hovered around two vehicles per hour. Notably, compliance has remained low at this site, around 20%, suggesting that pricing changes would not influence the majority of drivers parking. As a result, despite the large price increase, the data suggests no measurable effect on driver behavior at this site.

Other sites suggest changes in behavior were due to factors external to the evaluation. For example, Site 17B saw a notable drop in Availability from Baseline (~60%) to Q6 (between 5 and 30% over the course of a day), despite no change in price over the course of the evaluation.

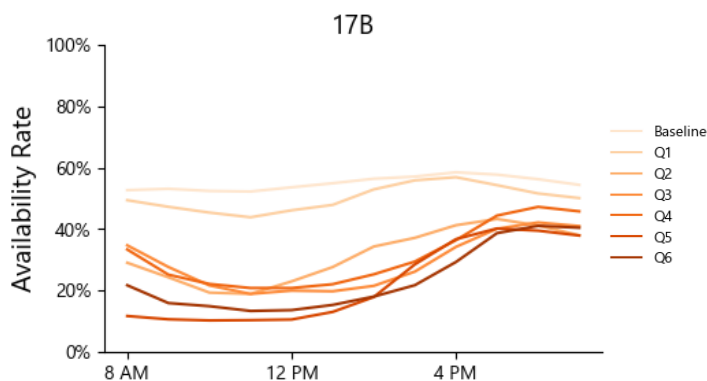


Figure 11: Availability at Site 17B.

#### *Analysis of Price-Occupancy Relationship Based on ParkMobile Transaction Data*

In addition to these observations, to assess how drivers responded to parking price changes, the evaluation team analyzed individual parking transaction data from ParkMobile by driver, location, and time of day. Each unique vehicle was tracked by its license plate number, allowing us to observe how frequently that vehicle parked in specific zones at different times. The evaluation team then used a statistical model designed for count data (a Poisson regression) to estimate how the number of parking transactions changes when parking prices increase, while holding other factors constant.

The model controlled for many influences that could otherwise confound the relationship between price and behavior. These included fixed effects for individual drivers, parking zones, months, days of the week, and hours of the day. This means that the results compared each driver’s own behavior across time and place rather than comparing different people or unrelated locations. In effect, the model isolates the relationship between price and parking activity while controlling for other factors. It should be noted that because this analysis used ParkMobile transactions, it only considers drivers and parking sessions where the driver paid for their parking session. Because the rate of compliance was so low, these transactions may not be representative of all drivers and parking transactions. Nonetheless, it is an indicator based on this particular subset of sessions.

The estimated relationship between price and the number of transactions was very small and statistically inconclusive. The point estimate indicated that a 10 percent increase in price corresponds to about a 0.3 percent decrease in the number of transactions, with a 95 percent confidence interval from -0.062 to 0.004—a difference that is indistinguishable from random variation. In practical terms, this means that drivers’ likelihood of parking did not appear to change meaningfully in response to modest price adjustments within the range observed in this

data set. This includes choosing other options, such as parking outside of the project area and parking in private garages.

This finding suggests that, overall, parking demand in this evaluation was inelastic—that is, relatively insensitive to price. However, it is important not to interpret this as definitive evidence that price has no effect on parking behavior. Several factors limit what can be concluded from this analysis. Prices may not have varied enough across time and space to reveal stronger effects. The pooled model treats all drivers and locations as having the same level of price sensitivity, which is unlikely to be the case. For example, short-term visitors might be more responsive to price changes than daily commuters, and certain zones may show stronger reactions than others.

In summary, this analysis did not find a clear relationship between parking price and transaction frequency in the aggregated parking transaction data. While the results indicated that parking behavior was not significantly affected by price within the observed conditions, this conclusion should be viewed as inconclusive rather than final. Further analysis that allows sensitivity to vary by location, time, and driver type will provide a more complete picture of where and when price adjustments may meaningfully influence parking activity.

#### *Analysis of Price-Occupancy Relationship Based on Sensor Data at Study Sites*

The evaluation team also developed a model based on sensor data at the study sites to estimate the association between hourly parking price and occupancy. This model uses a technique called fixed-effects panel regression, which controls for time-invariant differences across locations while capturing weekday and hour-of-the-day patterns. The dependent variable was Occupancy, and the model included a baseline linear effect of price, main effects for day-of-the-week and hour-of-the-day, and interactions of price with day-of-the-week and hour-of-the-day. Location (“entity”) fixed effects absorbed time-invariant attributes of a study site, and standard errors were clustered by entity to account for serial correlation within locations. The estimation used 9,357 observations spanning 19 entities (study sites) over 7 time periods (the baseline period and six quarterly price change periods).

Focusing on price, the results indicated that occupancy is not strongly linked to changes in price on the reference day and at the reference hour. However, there does appear to be some sensitivity by day of the week. On Saturdays, higher prices were associated with lower occupancy: combining the Saturday adjustment with the baseline implies that a \$1 increase corresponds to roughly a 1-2% point drop in occupancy, and this Saturday-specific pattern is statistically detectable. On weekdays, the price–occupancy relationship is weak. By hour of the day, once the day of the week has been accounted for, the additional hour-specific price effects are small and not consistently distinguishable from zero.

In practical terms, the results show that price has the most impact on Saturdays, while weekday occupancy appears to be driven more by non-price factors. If the goal is to open up a space or two during the busiest periods, Saturday price adjustments are the most likely to move the needle; during typical weekdays, other tools (time limits, curb management, information) may be more effective than price alone.

These conclusions are subject to several limitations. First, the model assumed independence between price and occupancy, but these were not independent since the pilot set prices in response to occupancy. Second, seasonality fixed effects are limited, with only seven time periods. Price-impacting events (weather, special events, etc.) could impact the Price terms if they coincide with price updates. Finally, the analysis is at the individual-block level and does not model spillovers; if higher prices shift drivers to adjacent blocks, the within-block price effect may understate system-wide responses. Within these caveats, the evidence indicates that time-of-week differences dominate level variation in occupancy, and that price–occupancy tradeoffs are most pronounced on Saturdays, suggesting price changes on Saturdays are more likely to have an impact on behavior compared to weekdays.

### *Conclusions on Price Sensitivity*

Below are five possible explanations for the apparent lack of driver price sensitivity. These explanations are speculative and not exhaustive.

- *Driver Knowledge of Parking Price Options*

Although the evaluation included public outreach and surveys, public awareness of the pilot remains limited. When making parking decisions without knowledge of alternative parking sites and prices, it is unlikely that all, or even most, drivers would adjust their behavior accordingly. This might explain why driver price sensitivity is not captured in the evaluation results.

- *Pricing Schedule Complexity*

Across the pilot study sites, across the quarters of the evaluation, different pricing schedules were used. These pricing schedules can be found in **Appendix E**. At the start of the evaluation, during the baseline period, all sites had hourly parking rates of either \$1.50 or \$1.75. Pricing changes were introduced during each quarter of the evaluation period at various sites for a variety of time periods. In other words, pricing was not ramped up consistently across all sites in the evaluation across all six evaluation quarters; further, pricing schedule changes were likely difficult for drivers to keep track of across the study sites, making it difficult for drivers to adjust their behavior based on available options.

- *Driver Price Sensitivity Outside of Pricing Changes*

It is possible that driver price sensitivity is not captured in the range of price changes included in the evaluation. The largest increase in hourly rate was from \$1.75 to \$4.75. It is possible that drivers were not sensitive to a \$3.00-per-hour price change but might have altered their behavior in response to a more significant price change.

- *More Compelling External Factors*

It is possible that while drivers might have been sensitive to price, more compelling factors were prioritized. For example, if parking options became more limited in nearby corridors not

included in the evaluation, perhaps due to construction, drivers may have settled for a parking spot regardless of the price.

- *Some Drivers are More Price Sensitive Than Others*

While it didn't come through clearly in the street intercepts or surveys, different drivers are more price sensitive than others. This came through in the statistical analysis of site occupancy data, where price sensitivity was seen on Saturday but not during the week. This reflects both different trip purposes and a different driver population on weekends compared with weekdays. Also, some of the Sunday street intercept respondents said they shopped on Sundays rather than Saturdays because parking was free. More information about driver demographics and their choices would be needed to evaluate this effect further.

The following sections provide further insight and explanation for the finding that drivers appeared to be insensitive to price changes introduced by the evaluation.

### Findings Related to Trends in Active and Repeat Users

The evaluation team sought to understand behavioral trends among active and repeat users based on ParkMobile transaction data. The data available to the evaluation team comprised individual transactions, each associated with a ParkMobile user, enabling the evaluation team to measure individual user trends over time. The evaluation team was interested in whether user engagement had waned as prices increased over the course of the pilot.

One commonly used measure of user engagement is the ratio of daily average users to monthly active users. This measures the percentage of the unique users in that month who engage with the app on any given day. While this number has some meaning in isolation, it is more meaningful as a metric to track over time. An increase would indicate more engagement over time. As shown in **Figure 12**, this metric is steady over the duration of the evaluation period at approximately 6%, indicating no measurable change in user engagement, and by extension, rates of parking in the pilot area by individual user.

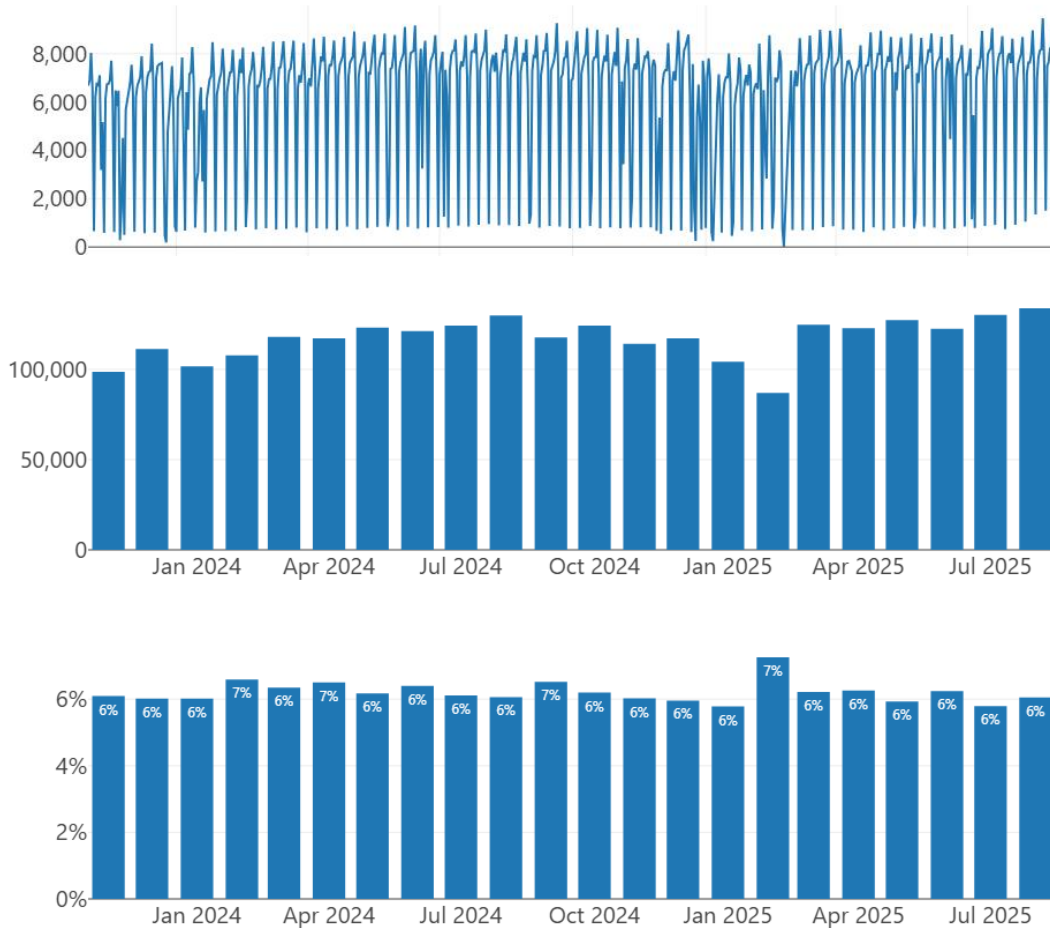


Figure 12: Daily Active Users (top), Monthly Active Users (middle), DAU/MAU (bottom)

Another metric recorded in the ParkMobile transaction data was the number of repeat users over time. Although the evaluation gathered a lot of valuable feedback through online user surveys and street intercept surveys, by the nature of how the evaluation team reached people, this feedback has nearly always come from people parking in the study area. The evaluation team was interested in whether a segment of the population was missed—those priced out by the pilot. In such cases, those users wouldn't be reached, since they wouldn't be parking and wouldn't be available for user surveys. Therefore, the evaluation team looked at trends in the number of repeat users of the ParkMobile app over time. A decrease in repeat users over time could indicate that users were not returning for some reason. In addition, there was little reduction in occupancy, even in areas with the largest price hikes; the evaluation team was interested in whether this indicated latent demand or price insensitivity among regular users. **Figure 13** shows the percentage of repeat users since the start of the project in November 2023. Giving some time for the data to stabilize, the figures show that the rate of new repeat users was steady, if not slightly increasing, over the course of the project. The vast majority of weekday users were repeat

users, while the weekends had more new users. Sunday had the most new users of all the days of the week. This suggests no evidence for opt-out behavior by users in the pilot corridors.

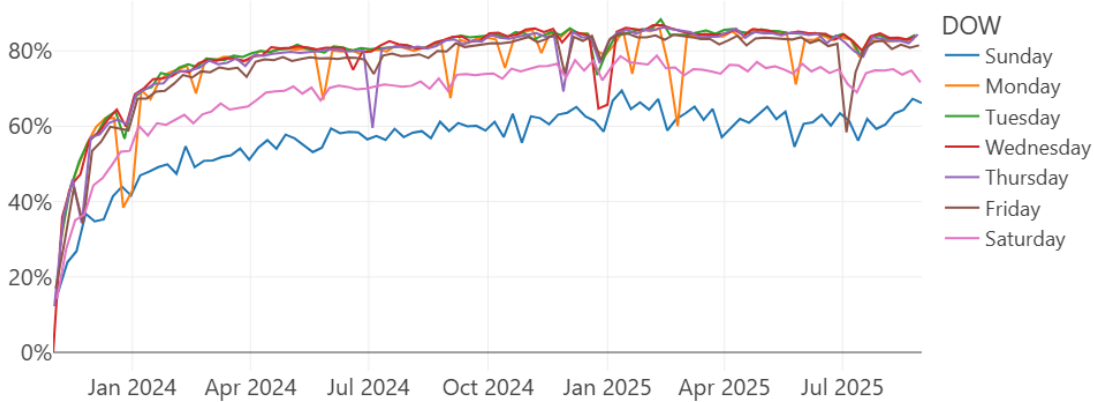
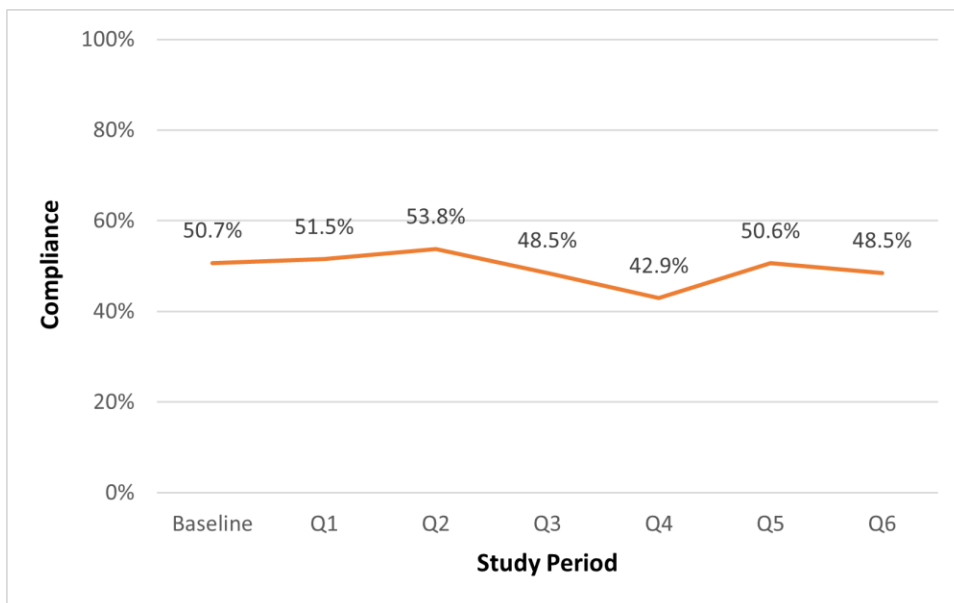


Figure 13: Percent Repeat Users by Day of the Week

### Findings Related to Payment Compliance

Price was the main factor used by the pilot to influence parking behavior, so payment compliance is key to understanding whether price changes achieved the evaluation’s goals. The impact of these changes depended on the percentage of drivers paying for parking in the study area. Ultimately, the pilot’s effectiveness will be determined by its impact on the behavior of drivers who comply with parking payments.

Throughout the evaluation, driver payment compliance in Arlington County hovered around 50% for the entire pilot area, not just the study sites. Despite some fluctuation, the compliance rate did not rise above 54% for any evaluation period in the pilot. **Figure 14** shows the rate of driver payment compliance across the entire county for each evaluation period in the pilot.



*Figure 14: Compliance (%) across the entire county from Baseline through Q6 Evaluation Periods.*

It can be assumed that if a relationship between parking behavior and pricing existed, at most half of all parking sessions could be influenced by price. The limited change in parking behavior observed since the start of the evaluation may partly be attributed to the low compliance rates.

Taken together, these findings highlight how price, awareness, and compliance shape parking behavior. To better understand how these dynamics aligned with the County’s stated objectives, the following section evaluates the pilot’s performance against each of the project’s original goals.

## Findings Related to Project Goals

The following section provides an overview of findings from observed patterns and trends from the start of the project (baseline period) through Quarter 6. For each of the eight project goals set out in the experimental design memorandum, this section reviews key findings from applicable data analyses related to that goal.

1. *On-street parking is easier to find on block faces with high parking demand than it is today.*

---

*This goal aims to improve the availability of street parking in areas where it is most needed.*

---

### **Key Finding**

Arlington County utilized 80% or greater occupancy as the threshold for increasing prices. This evaluation identifies sites and timeframes that had 70% or greater occupancy during the baseline Period as high-demand sites and timeframes.

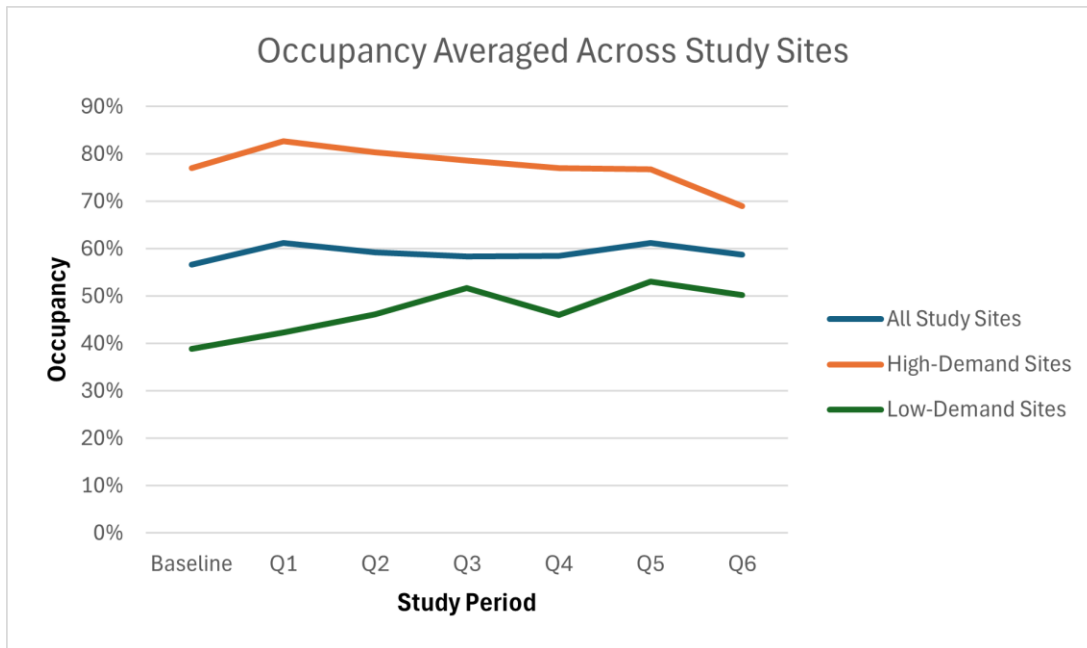


Figure 15: Occupancy averaged across study sites for: all study sites; high-demand sites; and low-demand sites.

Overall, high-demand sites saw a general trend of decreasing occupancy over the evaluation period, suggesting results are in line with Goal 1 (Figure 15). This is notable because, as a group, these sites saw the largest parking price increases, suggesting that drivers’ price sensitivity might play a role in the trends observed. However, when examining individual sites, changes in pricing at these sites correspond to mixed results: some sites see occupancy decreases while others see increases (Figure 16). The magnitude of increase or decrease also appears to have little relationship with the magnitude of the price increase. Table 4 in Appendix F shows the Baseline and Q6 price changes for the high-demand sites.

Because public awareness and adoption of parking tools were limited—and compliance remained moderate—the observed occupancy decreases are unlikely to result solely from pilot interventions. It appears that most changes reflect external factors rather than informed responses to price adjustments.

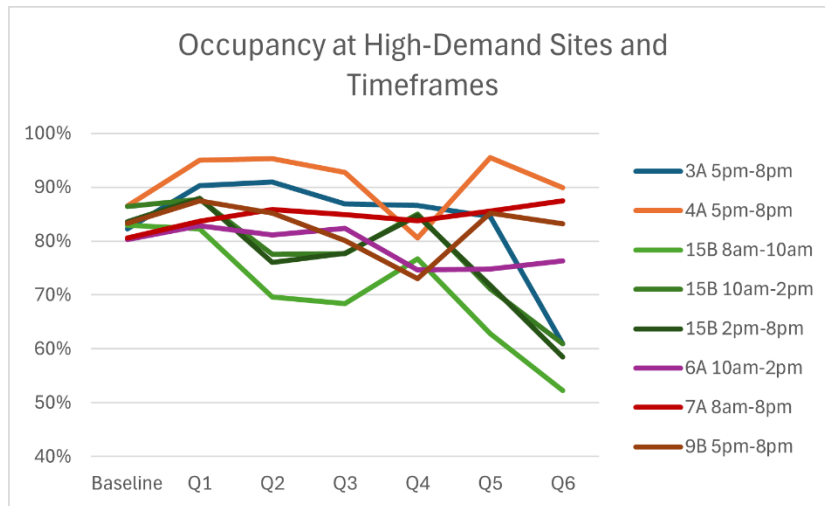


Figure 16: Occupancy at High-Demand (>80% Occupancy during Baseline Period) Sites and Timeframes

**Additional Notes:**

- If parking patterns could be explained in part by seasonality, the most appropriate evaluation period to compare to Q6 (June 9, 2025 - Aug 31, 2025) would be Q2 (June 24, 2024 – September 22, 2024).
  - Some sites saw precipitous drops in occupancy in Q6, including 3A, and 15B. It is unlikely, given the minimal price changes between Q5 and Q6, that this behavior is attributable in whole or significant part to the evaluation (See **Table 4, Appendix F**). Large swings in previous quarters have been attributed to faulty sensor data, so the decrease in occupancy observed may not be indicative of success towards Goal 1.
2. *More people park on block faces where demand is low today.*

---

*The purpose of this goal is to quantify the distribution of parking demand from major corridors to secondary locations that have low occupancy today.*

---

**Key Finding:**

Similar to the upper threshold of 80% occupancy that Arlington County used to determine where to increase pricing, a lower threshold of 40% was used to set lower pricing. This threshold was used to identify study sites with low-demand timeframes. This evaluation identified study sites with a baseline occupancy of 50% or below as a low-demand site.

Overall, low-demand sites saw a general trend of increasing occupancy over the evaluation period, suggesting results were in line with Goal 2 (**Figure 15**). As a group, these sites had no parking

price increases; some even received slight price decreases. However, when examining individual sites, some sites see occupancy decreases while others see increases (**Figure 17**). The magnitude of increase or decrease also appears to have little relationship with the event of a price decrease.

**Table 5** shows the Baseline and Q6 price changes for low-demand sites.

Given the findings regarding public awareness of available parking information, public adoption of parking information tools, driver price sensitivity, trends in active and repeat users, and payment compliance, it is difficult to attribute the overall increased occupancy trend at these sites, as it seems unlikely that results are driven by informed decisions about parking pricing.

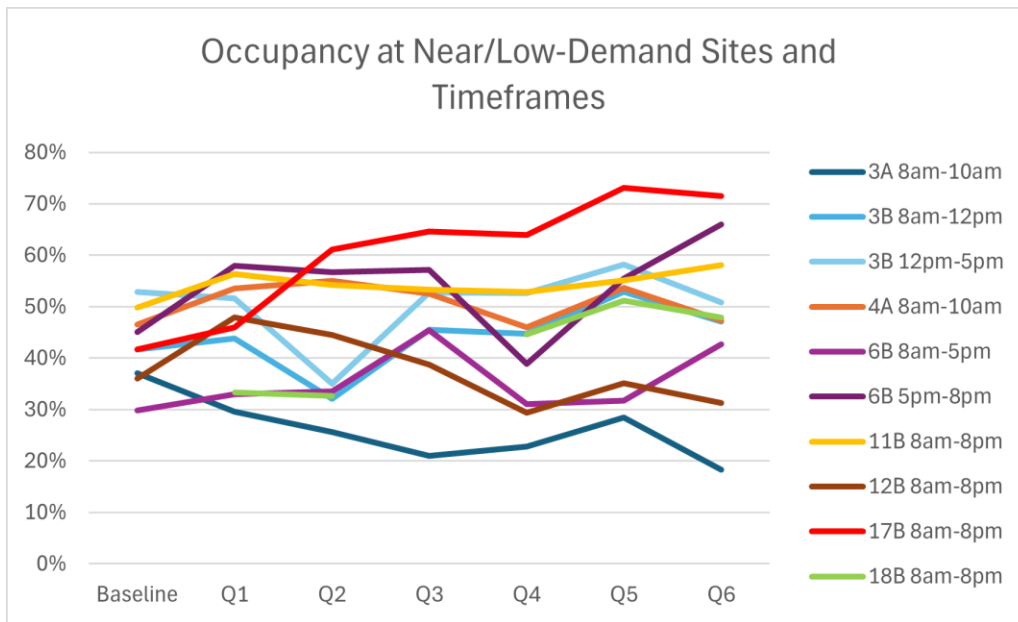


Figure 17: Occupancy at Low-Demand Sites and Timeframes

**Additional Notes:**

- If parking patterns could be explained in part by seasonality, the most appropriate evaluation period to compare to Q6 (June 9, 2025 - Aug 31, 2025) would be Q2 (June 24, 2024 – September 22, 2024).
- Site 18B did not have Occupancy data for Q0 (Baseline) or Q3. Consequently, there is no Q0 to Q6 Occupancy Change (see **Table 5**, [Appendix F](#)).
- The spread of occupancy across the sites at Q6 is greater than the spread of occupancy across the sites during the baseline Period. Because the majority of these sites did not see price interventions, this suggests perhaps that driver behavior at each study site has *site-specific influences*. That is, driver parking behavior observed across this evaluation may vary greatly depending on destination qualities at each site. For example, sites along dense, mixed-use corridors may see drivers behave differently than at sites adjacent to parks, even if both sites exhibit low demand.

- 
- Fewer instances of double parking occur, thus freeing up travel lanes for bicycles and automobiles and reducing the number of conflicts between drivers and other road users.*

---

*The purpose of this goal is to measure the instances of double parking at the sites selected and determine if there is a correlation between changes in parking prices and double parking.*

---

**Key Finding:**

The algorithm for identifying double-parking data was unable to accurately identify double-parking instances. Issues encountered in the double-parking data included false positives—vehicles queued in traffic that were mistakenly counted as double-parking. The data was not found sufficiently reliable to re-evaluate findings for Goal 3.

- Drivers spend less time looking for on-street parking.*

---

*The purpose of this goal is to quantify the time spent looking for on-street parking before parking price changes and after.*

---

**Key Finding:**

Given the numerous external factors that may influence congestion and delay, and given the low rates of awareness of the pilot and usage of the apps and tools, it is unlikely that parking behavior has impacted congestion and delay at the corridor-wide level.

Previously, data from the RITIS Bottleneck Ranking tool was used to conduct congestion and delay analysis. However, over the course of the evaluation, it was found that parking behavior change occurs at such a granular level that it is likely not observable in congestion data: the RITIS Bottleneck Ranking tool only considers congestion events that meet a defined minimum threshold, so the modest shifts in occupancy seen across the pilot would not impact the levels of congestion and delay reported in RITIS Bottleneck Ranking data.

- Drivers perceive that they spend less time looking for on-street parking.*

---

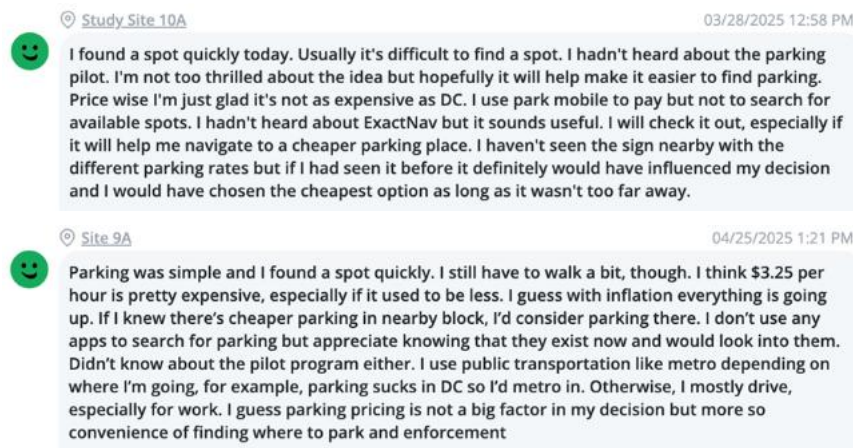
*Related to Goal 4, the purpose of this goal is to understand how long drivers **perceive** they spend looking for parking at each of the sites selected.*

---

**Key Finding:**

The impact of the pilot on Goal 5 is unclear. Any indication of the impact of the pilot may be diluted by the overall lack of awareness shown within comments provided through feedback channels, such as HappyOrNot. While users have recognized price changes, they appear to be unaware of the purpose of the pilot. In general, users were unaware that lower-priced parking areas were available and that there were parking information tools to support their decision-making. It was not apparent that the pilot effectively improved the driver parking experience throughout the evaluation.

Despite the lack of apparent impact, street intercepts offer evidence of the pilot’s potential: when users were introduced to parking information tools during these street intercepts, they reported an openness to them (**Figure 18**). The growing user base of the County’s parking information tools presents an opportunity to more substantially tie together user satisfaction with parking price changes.



*Figure 18: Strong Satisfaction Field Intercept Comments*

6. *Members of the public perceive that they have better on-street parking information.*

*The purpose of this goal is to understand how drivers perceive the availability of on-street parking information.*

**Key Findings:**

On-street parking information was provided through a variety of channels throughout the course of the pilot. Price changes and parking information tools were available on the pilot website and the eXactnav mobile app and were promoted through public engagement and awareness efforts throughout the pilot.

It is difficult to determine whether parking information made available through the pilot website and apps changed parking behavior. The lack of awareness of the County’s parking information tools is supported by survey responses that show less than 1% of both satisfied and unsatisfied respondents consider trip planning as the primary component of their current parking experience (**Figure 19** and **Figure 20**). Despite this, drivers continually responded with some level of interest in considering the adoption of parking information tools when introduced to them by street intercepts throughout the evaluation.



Figure 19: Parking Experience Survey Results for Satisfied Users in Quarter 5 (Highlights)



Figure 20: Parking Experience Survey Results for Unsatisfied Users in Quarter 5 (Pain Points)

Over the life of the project, there was minimal response to County public engagement efforts, including low attendance at public meetings and low interaction with social media posts. The gap in public awareness for both the County’s parking information tools and the intent of the pilot to encourage usage of less occupied locations by offering lower prices was not sufficiently bridged over the course of the pilot. This may present the area of greatest potential for the pilot to change parking behavior. More street-based engagement and a focus group with frequent parkers in high-demand sites are recommended to research incentives to change parking behavior and to develop more effective communication tactics.

7. *Vehicle Miles Traveled (VMT) resulting from on-street parking searches or “cruising” are reduced in the areas within the system.*

---

*This goal quantifies the reduction in on-street parking searches by calculating both the Vehicle Miles Traveled (VMT) and the Average Vehicle Hours of Delay (AADT) at the sites selected.*

---

**Key Findings:**

There was no reliable data source for effectively evaluating the success of Goal 7. Over the course of the evaluation, there was an attempt to utilize INRIX VMT and AADT information with adjustment factors. This data source did not offer volume data at the granularity required for the purposes of this evaluation. Without a sufficient data source, this evaluation was not able to directly evaluate this goal. Circuity data also became unavailable after project commencement, making it unavailable for the pilot.

8. *Mobile emissions from vehicles are reduced in the system’s areas as a result of reduced vehicle miles traveled.*

---

*The purpose of this goal is to measure the reduction of greenhouse gas emissions from vehicles due to the reduction of congestion and delay at the sites selected.*

---

**Key Findings:**

Because there were no data sources that provided congestion and delay data at the granularity required for the analysis needed to evaluate this goal (**see Goal 4**), this evaluation does not directly evaluate this goal. Emissions data from the United States Environmental Protection Agency (US EPA), Department of Energy, and Journal of the Air & Waste Management Association were previously used to perform calculations on available congestion and delay data. However, because this congestion and delay data does not appear to capture congestion or delays caused by drivers searching for parking in the study area, it is not a reliable data source for this analysis.

It is assumed that other factors must impact delay to a greater degree than parking activity. A longer-term analysis of emissions may show the impact that street parking can have.

The evaluation findings point to clear opportunities for improvement. While the pilot advanced data-driven parking management and provided valuable lessons about user behavior, achieving stronger behavioral outcomes will require more focused engagement, technology refinement, and

policy alignment. The following recommendations outline actionable steps to build on the pilot's foundation and strengthen future deployments.

## Recommendations for Future Deployments

The evaluation of the Performance Parking Pilot revealed several opportunities to strengthen future demand-based parking initiatives to achieve greater effectiveness and public value. The following recommendations outline strategies to improve user awareness, technology integration, pricing structure, enforcement, and evaluation. Collectively, these measures are designed to enhance Arlington County's ability to influence driver behavior, optimize curb utilization, and deliver a more seamless parking experience for residents and visitors.

### Public Engagement and Awareness

Public awareness of the Performance Parking Pilot and the associated parking information tools remained limited throughout the evaluation period. Future deployments should focus on sustained, direct engagement with drivers at the point of decision-making. On-street demonstrations during peak occupancy periods can help drivers understand and adopt available real-time parking tools. Messaging should emphasize the tangible benefits of using these tools—saving time and money—while clearly identifying lower-cost parking options and nearby garage alternatives.

To reduce confusion, the County should consolidate communication around a single, user-friendly parking information platform rather than dispersing efforts across multiple applications. Consistent branding and messaging across signage, meters, social media, and community newsletters will further reinforce public understanding. Clear explanations of hours of operation, pricing principles, and reporting procedures should be accessible across all touchpoints, ensuring that users can easily understand how the system works and how it benefits them.

### Technology and Data Integration

The effectiveness of any performance-based parking system depends on reliable, transparent, and interconnected data systems. The County should strengthen collaboration with vendors and technology partners to ensure timely data access from sensors, meters, and mobile applications. Future data-sharing agreements should explicitly support evaluation needs, including transaction, occupancy, and compliance data.

Focus groups and usability testing should be conducted to assess the clarity and effectiveness of digital signage, mobile interfaces, and website content. Insights from these sessions can guide refinements to improve comprehension within seconds of driver interaction. Integrating real-time data across tools—so that dynamic signage, eXactnav, and ParkMobile display consistent information—will improve user trust and adoption. In addition, partnerships with popular third-party navigation platforms such as Google Maps and Waze could help drivers access parking data through familiar applications that also have driver-friendly dashboard interfaces through Apple Airplay or Android Auto.

Targeted outreach to frequent ParkMobile users represents another opportunity to improve engagement. Within privacy and data-use guidelines, these drivers could receive tailored messages highlighting lower-cost options and explaining the rationale behind pricing adjustments. This approach could help close the awareness gap identified during the pilot and drive more informed parking choices.

### Pricing Strategy and Enforcement

Pricing should be intuitive, predictable, and easy for drivers to understand. Simplifying the number of pricing zones and standardizing hourly rates in one-dollar increments will help drivers remember and compare costs across locations. Visual cues—such as consistent signage or color-coded curb markings—can reinforce price differentials between high- and low-demand areas and make the value proposition more apparent to users.

Dynamic signage should be strategically located near meters and intersections, displaying clear, concise information about price and availability. Messages should be easily understood within a few seconds to assist drivers in making quick, informed decisions. Redundant or outdated signage should be removed to prevent confusion and visual clutter.

Because compliance directly affects the influence of pricing, stronger enforcement is essential. Increased visibility of enforcement personnel and clearer communication of regulations will encourage payment and ensure that price-based strategies affect a larger share of drivers. The County may also consider progressive enforcement models—such as first-time warnings or graduated penalties—to balance fairness with effectiveness and encourage long-term compliance.

### Evaluation and Continuous Improvement

Future implementations should incorporate a robust framework for continuous learning and refinement. A more targeted study of price elasticity would help identify price thresholds that meaningfully influence driver behavior and could guide the calibration of future rate adjustments. The County should also establish quantitative performance targets—for example, specific percentage increases in awareness, compliance, or reductions in occupancy at high-demand sites—to better measure success over time.

Evaluation should remain embedded throughout the project lifecycle, supported by consistent feedback collection through tools such as HappyOrNot and Open Forms. Surveys should be linked to specific locations and pricing phases to yield more actionable insights. Open data APIs should be maintained so that developers and researchers can use County data to develop complementary applications, fostering innovation within the broader transportation ecosystem.

For system optimization tools such as eXactnav, future development requirements should include analytics capabilities, built-in feedback mechanisms, and educational content to guide new users. Continued collaboration with ParkMobile should also focus on implementing user notifications—for instance, alerts about nearby lower-priced parking—to help influence real-time decision-making and improve the overall user experience.

## Summary of Recommendations

In summary, future deployments should move toward a simplified, user-centered system supported by strong outreach, consistent data integration, clear pricing, and proactive enforcement. By combining these improvements with a structured evaluation framework, Arlington County can more effectively shape parking behavior, enhance driver satisfaction, and realize the full potential of demand-based parking management.

A summarized list of recommendations includes:

- Focus on sustained, direct engagement with drivers at the point of decision-making.
- Conduct on-street demonstrations during peak occupancy periods.
- Emphasize the tangible benefits of using real-time parking tools.
- Consolidate communication around a single, user-friendly parking information platform.
- Ensure consistent branding and messaging across all touchpoints.
- Strengthen collaboration with vendors and technology partners for timely data access.
- Ensure real-time synchronization among sensors, meters, and mobile platforms.
- Conduct focus groups and usability testing for digital signage, mobile interfaces, and website content.
- Integrate parking data into mainstream navigation tools like Google Maps and Waze.
- Target outreach to frequent ParkMobile users with tailored messages.
- Simplify pricing tiers and standardize hourly rates in one-dollar increments.
- Use visual cues like curb colors or signage to differentiate rates.
- Strengthen enforcement visibility and consider progressive penalties to boost compliance.
- Adjust hour limits based on demand to better align with parking needs.
- Institutionalize iterative learning through quarterly evaluations and user feedback loops.
- Establish measurable targets for awareness, compliance, and occupancy reductions.
- Expand analytics within apps to include user alerts for cheaper nearby spaces.
- Maintain open data APIs for developers and researchers to foster innovation.
- Consider more proven double-parking technology for future deployments.

## Challenges Encountered in the Evaluation

The evaluation of the Performance Parking Pilot presented several challenges that affected data collection, analysis, and the interpretation of findings. These challenges reflect both the

complexity of the pilot's design and the operational realities of implementing a data-driven parking management program in a dynamic urban environment.

### Data Integration and System Reliability

One of the most persistent challenges involved data integration across multiple platforms and vendors. The evaluation relied on several data streams—including sensor readings, payment transactions, citation records, and survey responses—that were not always aligned in structure or timing. Differences in data definitions, time intervals, and reporting standards complicated efforts to cross-validate key performance metrics such as occupancy, availability, and compliance.

### Limited Access to External and Supplemental Data

The evaluation was constrained by a lack of datasets that could have enhanced the analysis of broader transportation outcomes. Some third-party data providers discontinued or restricted the sharing of congestion, delay, or emissions information during the evaluation period, which prevented direct quantification of potential reductions in vehicle miles traveled (VMT) or greenhouse gas emissions. In addition, many data sets focus on the most heavily traveled routes, such as freeways or major arterials, and do not have sufficient data on local streets, which were the focus of this pilot project. As a result, environmental impacts could only be inferred indirectly rather than measured empirically.

### Challenges with the Use of Cameras and Video Analytics to Measure Double Parking

Measuring double parking was a key objective for Arlington County and was of particular interest to VDOT, as it reduces the effective capacity of travel lanes and contributes to congestion and safety risks. Because the County lacked a method for measuring double parking, the evaluation team proposed using video analytics from roadway cameras to detect and record instances of double parking at selected study sites.

The team's first approach was to leverage Arlington County's existing traffic cameras. County staff granted direct access to camera feeds and agreed to establish preset "home" positions that would return cameras to a fixed view of key block faces when not in active use. Initial study sites were chosen partly based on the availability and visibility of these camera feeds.

In practice, however, the cameras did not reliably return to their preset positions, resulting in inconsistent coverage. Additionally, the camera angles were optimized for intersection monitoring rather than curbside observation, limiting visibility of on-street parking along midblock segments. As a result, the county cameras proved unsuitable for sustained or consistent data collection for double-parking analysis.

To address these limitations, the evaluation team deployed its own fixed cameras mounted on pole structures, providing better midblock coverage. These self-contained systems were powered by solar panels and uploaded images via cellular modems. The cameras provided high-resolution, 360-degree coverage and captured still images at one-second intervals for subsequent analysis.

While these cameras improved visibility and data consistency, several technical issues emerged during deployment. In one instance, a relocated utility pole obstructed a camera's view, requiring it to be relocated. In another case, insufficient sunlight caused downtime, and the camera had to be relocated. Despite these challenges, the new camera system represented a significant improvement in image quality and control compared to the County's existing infrastructure.

Challenges remained, however. The most significant challenge was developing reliable algorithms to identify double-parking events from video data. Accurately distinguishing legally parked vehicles from those in prohibited areas required precise mapping of parking space boundaries. In several cases, camera shifts required recalibration to maintain accuracy. Vehicles stopped in designated "no parking" zones could be flagged as double-parked; however, vehicles paused in travel lanes presented a more complex analytical challenge. Differentiating between vehicles that were double-parked versus those temporarily stopped in traffic proved difficult. Several threshold-based algorithms were tested, and historical data were repeatedly reprocessed as detection methods evolved. For each potential event, image sequences were reviewed manually to validate accuracy and minimize false positives and negatives.

Despite these refinements, the algorithms were unable to identify double-parking events at an acceptable level of accuracy reliably. Frequent misclassification and inconsistent detection rates rendered the data unsuitable for quantitative analysis. Consequently, double-parking metrics were excluded from the final performance evaluation, and this effort was documented as a key lesson learned for future studies.

The experience highlighted both the promise and limitations of using video analytics for behavioral curbside monitoring. While fixed camera systems can provide valuable visual context, automated detection of double-parking activity in complex urban environments remains technically challenging. Future initiatives may benefit from integrating camera analytics with complementary data sources—such as sensor detection or enforcement records—to improve reliability and reduce the need for extensive manual verification.

### Survey and Feedback Constraints

The evaluation's survey instruments, while effective for collecting qualitative feedback, faced practical and technical limitations. While integration with the ParkMobile app yielded a vast amount of user feedback—far more than could have been gathered through users clicking QR codes on parking meters or through street intercepts—the integration occasionally encountered configuration issues that stopped the survey from being pushed for extended periods. In addition, despite best efforts to clarify that the in-app survey was asking about the performance parking pilot and not the ParkMobile app specifically, most users assumed it was a ParkMobile survey and a large percentage of comments related to experiences with the app. Also, while in-person intercepts provided valuable context, they were resource-intensive and limited in scale. Future evaluations would benefit from more automated and continuous feedback mechanisms embedded within existing applications.

---

## Evolving Project Conditions

External conditions frequently shifted during the pilot, complicating longitudinal comparisons. While this was not entirely unexpected, construction activities, roadway modifications, and changes in parking supply or curb design occasionally altered study sites midstream. These adjustments, while operationally necessary, affected the continuity of data and required the reselection of study sites and recalibration of evaluation parameters. In addition, changes in the number of available spaces at certain locations over the course of the pilot required some adjustment of occupancy calculations. The evaluation team adapted by maintaining consistent analytical methods, but some short-term fluctuations in metrics likely reflect these external changes rather than behavioral shifts.

## Summary

Overall, the primary challenges in the evaluation stemmed from fragmented data systems, methodological constraints, and changing field conditions rather than from deficiencies in the underlying concept. Addressing these issues in future projects—through more integrated data infrastructure, standardized evaluation protocols, and adaptable monitoring tools—will improve the accuracy, reliability, and interpretability of performance-based parking assessments.

These evaluation challenges underscore the difficulty of implementing an innovative, data-intensive pilot in an active urban environment. Nevertheless, the experience provided critical insights that informed the County’s understanding of system performance and shaped the lessons summarized in the concluding section.

## Conclusions

The findings from the Performance Parking Pilot demonstrate that while dynamic pricing is a valuable tool for managing curb demand, pricing adjustments alone were not sufficient to meaningfully alter driver behavior or improve overall parking system efficiency. Throughout the evaluation period, occupancy and availability levels remained relatively stable, even at locations that experienced the largest rate increases. This suggests that pricing strategies must be complemented by stronger measures—such as enhanced enforcement, improved user communication, and simplified pricing structures—to achieve the desired behavioral changes.

Limited public awareness and adoption of the County’s real-time parking information tools were consistent challenges throughout the pilot. Many drivers were unaware of the program, misunderstood the purpose of pricing changes, or did not use the available applications to identify lower-cost parking alternatives. As a result, opportunities to shift parking demand from high-occupancy to lower-occupancy areas were largely unrealized. Future initiatives should place greater emphasis on proactive, driver-focused outreach and on clearer, more intuitive interfaces for communicating parking information. These findings emphasize that effective curb management requires not only accurate data but also meaningful public communication. Awareness and comprehension are prerequisites for behavioral change.

---

Payment compliance emerged as a critical barrier to program effectiveness. Because only about half of drivers pay for parking, price signals reached a limited share of users. Stronger enforcement and clearer communication will be essential to improve compliance and make pricing strategies more effective.

Despite these challenges, the pilot generated valuable insights for Arlington County and VDOT. The findings highlight the importance of treating performance-based parking as a comprehensive management strategy, with pricing as one component. Any further work to advance the strategy should reflect the changes recommended to further expand and achieve the program's goals. Future programs should integrate dynamic pricing with user education, real-time data transparency, enforcement visibility, and feedback mechanisms that continually refine the system's performance. Collectively, these lessons illustrate the interconnected nature of pricing, enforcement, and communication in achieving sustainable parking outcomes.

In summary, the Performance Parking Pilot laid the groundwork for a more data-driven and adaptive approach to curb management in Arlington County. By incorporating the lessons learned—simplifying pricing, enhancing outreach, improving compliance, and leveraging technology more effectively—the County can move toward a smarter, more equitable, and more efficient parking system that better supports its mobility, environmental, and economic development goals.

## Appendix A. Definitions

- **Availability:** A measure of how often a parking space is available in specific time increments (according to each data set). Typically referenced in one-hour increments.
- **Avid Core:** Firm leading public outreach for the System Optimization Team.
- **Block Face:** A location referencing system used by the sensor data collection and reporting system, generally consisting of a block between intersections.
- **Cale:** Parking vendor that provides services for some of the parking meters utilized for payment in Arlington.
- **CCTV Cameras:** Streaming video cameras installed at intersections and used by Arlington staff to monitor traffic. They were explored as a method to capture double-parking data but ultimately proved to be unsuited for the task.
- **Circuitry:** The ratio of the actual traveled distance to the shortest possible distance between two points. It is a measure of the efficiency or indirectness of a route taken by vehicles. A higher circuitry value indicates a less direct route that requires drivers to pass by a location several times to find parking, while a lower circuitry value indicates a more direct route (such as finding parking in a desired location the first time around).
- **Compliance:** A ratio of the parking spaces occupied based on sensor-based occupancy compared with the estimated parking spaces paid for based on transaction data and duration of the transaction across a parking zone captured by parking meters and mobile apps.
- **Congestion:** Measured speed as a percent of the free-flow speed. INRIX calculates congestion as the base impact (sum of queue lengths over the duration of a bottleneck, or conditions of reduced speed for an extended period of time)
- **Corridor:** For this project, used to identify the Rosslyn-Ballston or Orange/Silver Line Metro Corridor and the Richmond Highway (Crystal City/Pentagon City) or Blue/Yellow Metro Corridor.
- **CurbIQ:** Web application with real-time parking availability information for drivers, provided as part of the Performance Parking Pilot.
- **Critically High Occupancy:** When the percentage of spaces occupied is greater than 90% for a given area.
- **Delay:** The Transportation Research Board's Highway Capacity Manual defines delay as "The additional travel time experienced by a driver, passenger, or pedestrian." Delay data taken from INRIX calculates delay in vehicle hours traveled (VHT) as raw speed drop weighted by vehicle miles traveled (VMT) factor.

- **Double Parking:** Instances where vehicles stop in the travel lane adjacent to on-street parking spaces.
- **eleven-x™:** Technology vendor that is providing individual sensors to monitor occupancy, develop the pricing change algorithm and provides the eXactnav application.
- **eTIMS:** Platform that offers comprehensive workforce management software solutions and is the existing system used by Arlington.
- **eXactnav:** Mobile app with real-time parking availability information for drivers, provided by eleven-x™
- **HappyOrNot:** The survey platform used by the System Optimization Team to gather public sentiment about the project.
- **INRIX:** A technology company providing real-time traffic information, predictive analytics, and intelligent navigation solutions to help individuals and businesses make informed decisions about their journeys.
- **IPS:** Parking vendor that provides services for most of the parking meters used for payment in Arlington.
- **Kimley-Horn:** Firm leading the System Optimization Team
- **Occupancy:** A measure of the percentage of spaces occupied over a period of time.
- **PPP:** Performance Parking Pilot
- **ParkMobile:** A company that provides a mobile application that allows users to easily find parking spaces, pay for parking, and extend their parking time remotely for patrons in Arlington.
- **Project Area:** All Arlington County parking spaces across both the Rosslyn-Ballston Corridor and the Crystal City/Pentagon City Corridor that are included in the Pilot.
- **QR Codes:** An image that links to a website when captured by a mobile phone. For the System Optimization Analysis, QR codes were displayed on stickers on parking meters at each study site.
- **RHI:** Firm leading public outreach for the Performance Parking Pilot Team.
- **StreetLight Data:** Vendor that collects and analyzes anonymous location data from mobile devices to understand travel patterns, mode choices, and transportation behavior.
- **Study Site:** A selection of twenty locations used by the System Optimization Project to track metrics over time. Each site corresponds to one or more Zones.

- **TMC Segment:** road segments generated by INRIX from traffic information based on the Traffic Message Channel (TMC) system.
- **Turnover:** The frequency with which vehicles arrive and depart spaces.
- **Umojo:** Firm leading data collection and analytics for the System Optimization Team.
- **Vehicle Hours Traveled (VHT):** The total sum of travel time by every vehicle within a system or route. This analysis uses VHT as the unit for traffic delay, which is calculated by

INRIX as raw speed drop weighted by vehicle miles traveled (VMT) factor using XD segments within the Project Area's corridors.

- **Vehicle Miles Traveled (VMT):** The total sum of miles traveled by every vehicle in an area during a specified period.
- **XD segments:** street sections delineated by INRIX segmented at significant intersections.
- **Zone:** Location referencing system used by ParkMobile for payment. Each Zone roughly corresponds to a block face.

## Appendix B. Quarterly Average of Sensor-Based Metrics by Study Site and Quarter (Weekdays, 8am-8pm)

Study Site	Availability							Difference									
	Baseline	Q1	Q2	Q3	Q4	Q5	Q6	Baseline to Q1	Q1 to Q2	Q2 to Q3	Q3 to Q4	Q4 to Q5	Q5 to Q6	Overall (Baseline to Q6)	Seasonal (Baseline to Q4)	Seasonal (Q1 to Q5)	Seasonal (Q2 to Q6)
11A	5.08%	1.06%	1.37%	2.58%	12.66%	8.32%	29.19%	-4.02%	+0.31%	+1.21%	+10.07%	-4.34%	+20.88%	+24.11%	+7.57%	+7.26%	+27.82%
11B	44.57%	38.01%	40.86%	42.16%	46.66%	40.82%	36.33%	-6.56%	+2.85%	+1.29%	+4.51%	-5.85%	-4.49%	-8.24%	+2.09%	+2.80%	-4.54%
2A	13.91%	11.35%	9.90%	10.92%	14.75%	12.08%	13.46%	-2.56%	-1.45%	+1.03%	+3.82%	-2.66%	+1.37%	-0.46%	+0.83%	+0.73%	+3.56%
12B	51.88%	39.62%	42.66%	48.20%	56.86%	52.98%	55.50%	-12.25%	+3.04%	+5.54%	+8.67%	-3.89%	+2.52%	+3.62%	+4.99%	+13.35%	+12.84%
3A	18.98%	14.07%	16.91%	22.51%	22.54%	23.07%	40.96%	-4.91%	+2.83%	+5.60%	+0.03%	+0.53%	+17.90%	+21.98%	+3.55%	+8.99%	+24.06%
3B	38.08%	32.14%	46.54%	34.99%	35.74%	30.92%	31.64%	-5.94%	+14.40%	-11.55%	+0.75%	-4.82%	+0.72%	-6.44%	-2.34%	-1.22%	-14.91%
4A	10.99%	4.98%	4.84%	7.36%	12.36%	5.35%	7.91%	-6.01%	-0.14%	+2.52%	+4.99%	-7.01%	+2.56%	-3.08%	+1.37%	+0.37%	+3.06%
15A	10.73%	3.82%	5.28%	5.76%	8.36%	2.90%	4.16%	-6.91%	+1.46%	+0.48%	+2.60%	-5.46%	+1.26%	-6.57%	-2.37%	-0.92%	-1.12%
15B	3.71%	1.00%	3.26%	4.71%	8.03%	7.78%	15.63%	-2.71%	+2.26%	+1.46%	+3.32%	-0.25%	+7.85%	+11.92%	+4.32%	+6.78%	+12.38%
5B	24.16%	21.24%	21.60%	26.95%	31.67%	30.08%	25.79%	-2.92%	+0.36%	+5.35%	+4.72%	-1.60%	-4.29%	+1.63%	+7.52%	+8.84%	+4.19%
6A	6.84%	3.75%	3.51%	4.36%	11.99%	8.46%	7.46%	-3.09%	-0.24%	+0.85%	+7.63%	-3.52%	-1.01%	+0.62%	+5.15%	+4.71%	+3.95%
6B	62.46%	53.59%	52.87%	46.62%	59.45%	53.76%	42.24%	-8.87%	-0.72%	-6.25%	+12.83%	-5.69%	-11.52%	-20.22%	-3.01%	+0.17%	-10.63%
7A	12.73%	9.44%	7.25%	8.60%	10.32%	9.03%	5.98%	-3.29%	-2.19%	+1.35%	+1.72%	-1.29%	-3.05%	-6.75%	-2.40%	-0.41%	-1.27%
17B	56.87%	54.01%	37.35%	34.40%	36.01%	26.98%	27.20%	-2.86%	-16.66%	-2.95%	+1.61%	-9.03%	+0.22%	-29.67%	-20.86%	-27.03%	-10.15%
18A	31.12%	24.09%	16.76%	19.42%	18.76%	15.52%	13.91%	-7.03%	-7.33%	+2.66%	-0.66%	-3.24%	-1.61%	-17.21%	-12.36%	-8.57%	-2.85%
18B		59.53%	58.07%	63.71%	58.49%	42.55%	43.19%		-1.46%	+5.64%	-5.23%	-15.94%	+0.63%			-16.97%	-14.88%
9A	13.24%	6.67%	6.06%	9.28%	14.24%	11.27%	23.94%	-6.57%	-0.61%	+3.22%	+4.95%	-2.97%	+12.67%	+10.71%	+1.00%	+4.60%	+17.89%
9B	25.06%	20.11%	20.58%	25.67%	26.41%	15.67%	19.19%	-4.94%	+0.46%	+5.09%	+0.74%	-10.74%	+3.52%	-5.87%	+1.35%	-4.45%	-1.39%
10A	34.92%	27.28%	24.66%	26.58%	31.69%	28.11%		-7.64%	-2.62%	+1.92%	+5.11%	-3.57%			-3.24%	+0.83%	
10B	27.82%	27.56%	30.13%	30.75%	39.69%	39.08%	34.38%	-0.26%	+2.57%	+0.62%	+8.94%	-0.61%	-4.70%	+6.57%	+11.88%	+11.53%	+4.25%

Table 1: Availability (%) at each Study Site and Availability Differences across Pricing Periods

Study Site	Occupancy							Difference										
	Baseline	Q1	Q2	Q3	Q4	Q5	Q6	Baseline to Q1	Q1 to Q2	Q2 to Q3	Q3 to Q4	Q4 to Q5	Q5 to Q6	Overall (Baseline to Q6)	Seasonal (Baseline to Q4)	Seasonal (Q1 to Q5)	Seasonal (Q2 to Q6)	
11A	72.79%	85.86%	82.28%	79.65%	75.73%	70.89%	51.36%	+13.07%	-3.58%	-2.63%	-3.92%	-4.84%	-19.53%	-21.43%	+2.94%	-14.97%	-30.92%	
11B	47.12%	52.80%	50.90%	49.72%	49.75%	51.07%	56.08%	+5.67%	-1.90%	-1.19%	+0.04%	+1.32%	+5.01%	+8.95%	+2.63%	-1.73%	+5.18%	
2A	70.48%	73.34%	74.22%	72.93%	68.83%	71.54%	68.46%	+2.86%	+0.88%	-1.29%	-4.09%	+2.71%	-3.08%	-2.02%	-1.64%	-1.80%	-5.76%	
12B	33.18%	46.25%	43.02%	36.30%	26.91%	32.96%	29.66%	+13.07%	-3.23%	-6.72%	-9.39%	+6.05%	-3.29%	-3.52%	-6.27%	-13.29%	-13.36%	
3A	69.83%	72.93%	69.97%	61.63%	62.68%	62.76%	43.44%	+3.10%	-2.96%	-8.35%	+1.05%	+0.08%	-19.32%	-26.39%	-7.15%	-10.17%	-26.53%	
3B	48.97%	53.72%	38.85%	53.24%	50.04%	56.87%	54.17%	+4.75%	-14.87%	+14.39%	-3.20%	+6.83%	-2.70%	+5.20%	+1.07%	+3.15%	+15.32%	
4A	72.79%	82.65%	82.88%	81.27%	69.95%	81.76%	77.25%	+9.86%	+0.23%	-1.61%	-11.32%	+11.81%	-4.51%	+4.46%	-2.84%	-0.89%	-5.63%	
15A	71.25%	74.84%	71.70%	73.44%	78.45%	75.89%	74.73%	+3.60%	-3.14%	+1.74%	+5.01%	-2.56%	-1.16%	+3.49%	+7.20%	+1.05%	+3.03%	
15B	84.33%	86.79%	75.59%	75.62%	82.91%	69.49%	58.05%	+2.46%	-11.20%	+0.03%	+7.30%	-13.43%	-11.44%	-26.28%	-1.42%	-17.30%	-17.55%	
5B	66.95%	69.95%	70.32%	63.39%	57.09%	59.02%	65.19%	+3.00%	+0.37%	-6.93%	-6.29%	+1.92%	+6.17%	-1.77%	-9.86%	-10.93%	-5.13%	
6A	77.12%	81.67%	78.16%	78.07%	70.62%	71.54%	73.71%	+4.55%	-3.51%	-0.09%	-7.46%	+0.92%	+2.17%	-3.41%	-6.50%	-10.13%	-4.45%	
6B	29.63%	37.31%	38.89%	46.37%	32.23%	35.47%	48.33%	+7.68%	+1.58%	+7.48%	-14.15%	+3.24%	+12.86%	+18.70%	+2.60%	-1.84%	+9.44%	
7A	80.27%	82.69%	85.97%	83.87%	82.72%	84.07%	87.27%	+2.43%	+3.28%	-2.10%	-1.15%	+1.35%	+3.20%	+7.01%	+2.46%	+1.38%	+1.30%	
17B	40.28%	43.31%	57.45%	61.11%	60.47%	69.62%	68.46%	+3.03%	+14.14%	+3.66%	-0.64%	+9.15%	-1.15%	+28.18%	+20.19%	+26.31%	+11.01%	
18A	63.11%	69.26%	73.97%	71.45%	78.08%	76.08%	76.41%	+6.15%	+4.70%	-2.52%	+6.63%	-1.99%	+0.33%	+13.30%	+14.97%	+6.82%	+2.44%	
18B		32.12%	32.20%		42.91%	47.94%	47.70%		+0.08%			+5.02%	-0.23%			+15.82%	+15.51%	
9A	60.66%	74.07%	71.76%	69.23%	64.33%	72.54%	52.29%	+13.42%	-2.31%	-2.53%	-4.90%	+8.21%	-20.25%	-8.37%	+3.68%	-1.53%	-19.47%	
9B	61.59%	65.89%	64.27%	59.06%	56.46%	68.35%	65.78%	+4.30%	-1.62%	-5.20%	-2.60%	+11.89%	-2.57%	+4.20%	-5.13%	+2.46%	+1.52%	
10A	55.35%	62.01%	63.03%	61.65%	59.48%	59.67%		+6.66%	+1.02%	-1.39%	-2.17%	+0.18%			+4.13%	-2.35%		
10B	64.50%	63.09%	59.72%	59.30%	52.33%	52.69%	55.76%	-1.41%	-3.36%	-0.42%	-6.97%	+0.36%	+3.07%	-8.74%	-12.16%	-10.40%	-3.97%	

Table 2: Occupancy (%) at each Study Site and Occupancy Differences across Pricing Periods

Study Site	Turnover Rate							Difference									
	Baseline	Q1	Q2	Q3	Q4	Q5	Q6	Baseline to Q1 (% Change)	Q1 to Q2 (% Change)	Q2 to Q3 (% Change)	Q3 to Q4 (% Change)	Q4 to Q5 (% Change)	Q5 to Q6 (% Change)	Overall % Change (Baseline to Q6)	Seasonal % Change (Baseline to Q4)	Seasonal % Change (Q1 to Q5)	Seasonal % Change (Q2 to Q6)
11A	3.17	2.93	2.94	2.81	2.59	2.04	1.66	-7.57%	+0.60%	-4.40%	-7.97%	-21.34%	-18.60%	-47.62%	-18.19%	-30.38%	-43.67%
11B	0.70	0.74	0.69	0.64	0.58	0.64	0.61	+5.52%	-5.97%	-7.14%	-9.47%	+9.43%	-4.25%	-12.60%	-16.59%	-13.50%	-11.91%
2A	1.95	2.00	2.16	2.10	1.95	2.25	2.14	+2.22%	+8.13%	-2.86%	-7.04%	+15.16%	-4.61%	+9.64%	-0.19%	+12.44%	-0.81%
12B	0.88	0.99	0.97	0.91	0.79	0.75	0.74	+12.56%	-1.81%	-6.24%	-12.77%	-4.97%	-1.83%	-15.68%	-9.61%	-23.69%	-23.70%
3A	1.12	1.35	1.36	1.38	1.30	1.15	0.93	+20.98%	+0.96%	+1.13%	-5.86%	-11.57%	-18.70%	-16.40%	+16.29%	-15.00%	-31.55%
3B	1.10	1.30	1.23	1.02	0.97	1.10	1.29	+18.33%	-5.23%	-17.22%	-4.81%	+12.74%	+17.51%	+17.08%	-11.62%	-15.80%	+4.40%
4A	2.23	2.24	2.33	2.03	1.97	2.10	2.13	+0.49%	+3.84%	-12.72%	-3.28%	+6.65%	+1.49%	-4.65%	-11.91%	-6.51%	-8.63%
15A	2.01	2.63	2.61	2.53	2.43	2.57	2.48	+30.85%	-0.74%	-2.93%	-4.07%	+5.87%	-3.39%	+23.71%	+20.95%	-2.14%	-4.76%
15B	3.02	3.79	3.73	3.37	3.59	3.26	2.95	+25.60%	-1.63%	-9.59%	+6.45%	-9.35%	-9.42%	-2.37%	+18.91%	-14.18%	-20.98%
5B	0.78	0.90	0.89	0.84	0.81	0.86	0.80	+15.99%	-1.62%	-5.16%	-4.56%	+6.91%	-6.69%	+3.03%	+3.29%	-4.80%	-9.71%
6A	2.07	2.29	2.48	2.41	1.80	2.00	1.93	+10.77%	+8.16%	-2.55%	-25.31%	+10.79%	-3.28%	-6.57%	-12.80%	-12.78%	-22.01%
6B	0.59	0.79	0.75	0.63	0.46	0.78	0.84	+33.07%	-4.91%	-15.99%	-27.06%	+70.23%	+7.40%	+41.78%	-22.45%	-0.80%	+12.04%
7A	0.66	0.76	0.71	0.77	0.65	0.81	0.77	+14.71%	-6.87%	+9.31%	-15.47%	+24.09%	-4.50%	+16.99%	-1.29%	+6.79%	+9.51%
17B	0.23	0.29	0.41	0.37	0.32	0.34	0.35	+26.28%	+38.09%	-10.20%	-12.89%	+6.20%	+3.74%	+50.28%	+36.40%	+14.72%	-13.82%
18A	0.46	0.64	0.81	0.75	0.69	0.72	0.81	+37.58%	+26.93%	-7.67%	-7.81%	+4.32%	+13.00%	+75.22%	+48.64%	+12.71%	+0.33%
18B	0.71	0.67	0.61	0.75	0.73			-5.47%				+23.48%	-2.60%			+5.83%	+9.04%
9A	2.82	3.11	3.15	2.79	2.17	2.38	2.19	+10.28%	+1.30%	-11.42%	-22.08%	+9.58%	-8.12%	-22.37%	-22.90%	-23.38%	-30.51%
9B	1.30	1.46	1.48	1.40	1.19	1.44	1.41	+12.87%	+1.27%	-5.52%	-15.30%	+21.65%	-2.65%	+8.32%	-8.53%	-1.42%	-5.24%
10A	0.78	0.94	0.99	0.95	0.81	0.99		+20.86%	+5.25%	-4.32%	-14.88%	+23.03%			+3.60%	+5.46%	
10B	0.68	0.83	0.96	0.87	0.69	0.72	0.80	+21.47%	+15.01%	-9.26%	-20.55%	+5.18%	+10.34%	+16.88%	+0.72%	-12.79%	-16.33%

Table 3: Turnover Rate at each Study Site and Turnover Rate Differences across Pricing Periods

## Appendix C. List of County Outreach Activities

### Events

DATE	EVENT
1/5/2023	Internal: AED Project Intro and stakeholder brainstorm
1/9/2023	Internal: Stakeholder Group (ISG) Meeting #1
2/2/2023	Transportation Commission Meeting #1
2/6/2023	Rosslyn BID Staff Intro Call
2/7/2023	Chamber Staff Introduction Call
2/7/2023	Latino Economic Development Center Call
2/8/2023	Arlington Community Federal Credit Union Call
2/14/2023	Internal: Arlington Transportation Partners Coordination Brainstorm
2/21/2023	Disability Advisory Commission Meeting #1
2/22/2023	Ballston BID Meeting
2/23/2023	VIRTUAL PUBLIC MEETING
2/24/2023	Internal: ACCS leadership project orientation
3/2/2023	Internal: Police PSA (public service aides) education session
3/13/2023	Internal: Stakeholder Group (ISG) Meeting #2
3/22/2023	NLBID Roundtable Featured Project
3/27/2023	CC/PC Transportation Open House
4/10/2023	Planning Commission Meeting #1
5/24/2023	Information Technology Advisory Commission Meeting #1
6/21/2023	Chamber Government Affairs Subcommittee Meeting #1
6/21/2023	Internal: CPHD Monthly Staff Meeting
7/10/2023	Internal: Stakeholder Group Meeting #3

<b>8/8/2023</b>	DES Leadership Briefing
<b>9/28/2023</b>	ITS DC Conference 2023 Presentation to Industry on PPP Project
<b>10/12/2023</b>	NLBID Transportation Subcommittee Meeting #1
<b>10/25/2023</b>	Information Technology Advisory Committee Meeting #2
<b>10/26/2023</b>	Transportation Commission Meeting #2
<b>10/30/2023</b>	Planning Commission Meeting #2
<b>11/3/2023</b>	Rosslyn BID Staff Meeting #2
<b>11/8/2023</b>	Recorded Presentation Released
<b>11/21/2023</b>	Disability Advisory Commission Meeting #2
<b>11/29/2023</b>	Ballston BID Meeting #2
<b>12/6/2023</b>	Open House 1 - Navy League Building
<b>2/5/2024</b>	Internal: Performance Parking Internal Stakeholders Update #5
<b>2/7/2024</b>	Open House 2 - 251 S 18th St, Crystal City
<b>2/8/2024</b>	Transportation Commission Meeting #3
<b>2/14/2024</b>	Ballston BID Property Manager's Luncheon Presentation #1
<b>2/21/2024</b>	Chamber Government Affairs Subcommittee Meeting #2
<b>2/22/2024</b>	NLBID 23rd St Subcommittee Meeting
<b>4/10/2024</b>	Clarendon Alliance Exec Director Introduction Call
<b>6/17/2024</b>	Commission on Aging Meeting #1
<b>7/29/2024</b>	Internal: Performance Parking Internal Stakeholders Update #6
<b>8/21/2024</b>	Ballston Property Manager's Luncheon Presentation #2
<b>9/10/2024</b>	55+ Program Presentation: "Performance Parking 101"
<b>9/26/2024</b>	ITS DC Conference 2024 Presentation to Industry on PPP Project
<b>11/16/2024</b>	Code the Curb Hackathon
<b>2/10/2025</b>	Internal: Performance Parking Internal Stakeholders Update #7
<b>2/17/2025</b>	Disability Advisory Commission Meeting #3

<b>2/19/2025</b>	Chamber Government Affairs Subcommittee Meeting #3
<b>3/13/2025</b>	Transportation Commission Meeting #4
<b>3/26/2025</b>	Information Technology Advisory Committee Meeting #3
<b>4/21/2025</b>	Commission on Aging Meeting #2
<b>4/24/2025</b>	Ballston BID Property Manager's Luncheon Presentation #3

### Pop-Ups

DATE	POP-UP
<b>6/22/2023</b>	Ballston Farmers Market
<b>6/28/2023</b>	Rosslyn Farmers Market
<b>6/29/2023</b>	Jazz @ MET NL BID
<b>7/8/2024</b>	Courthouse Farmers Market
<b>9/28/2024</b>	Clarendon Day
<b>5/15/2025</b>	Clarendon Music by the Metro
<b>5/17/2025</b>	ArlingtonPalooza
<b>AUGUST 13 - 17, 2025</b>	County Fair

### Focus Groups

DATE	FOCUS GROUP LOCATION
<b>7/12/2024</b>	Freddie's Beach Bar and Grill
<b>7/15/2024</b>	Continental Bar and Grill
DATE(S)	Other Activities
<b>MARCH 28 - AUGUST 8, 2023</b>	Door-to-door outreach, business emails, and phone calls - sensor installation

<b>MARCH 28 - AUGUST 29, 2023</b>	Signage: Meter signs - 1 (multimeters)
<b>JAN 19-FEB 7, 2024</b>	Ads: Social media boosted post - open house*
<b>1/29/2024</b>	Ads: ArlNow eBlast 1
<b>3/4/2024</b>	Emails to announce price changes - 1
<b>EARLY MARCH 2024</b>	Door-to-door outreach - price changes - 1
<b>EARLY MARCH 2024</b>	Signage: Meter signs - 2 (multimeters, updated designs - price/tools)
<b>MAY - EARLY JUNE 2024</b>	Signage: Meter signs - 3 (single meters)
<b>MID JUNE 2024</b>	Door-to-door outreach - price changes - 2
<b>6/14/2024</b>	Emails to announce price changes - 2
<b>9/16/2024</b>	Emails to announce price changes - 3
<b>MID OCTOBER 2024</b>	Signage: Intersection signs - digital info screens
<b>10/25/2024</b>	Social media: reel*
<b>12/2/2024</b>	Emails to announce price changes - 4
<b>JAN 31-MARCH 28, 2025</b>	Ads: Social media boosted post - tools*
<b>2/7/2025</b>	Mailer: ADA survey
<b>2/26/2025</b>	Signage: Intersection signs - high price zone - 1 (Ballston)
<b>3/3/2025</b>	Emails to announce price changes - 5
<b>LATE MARCH 2025</b>	Signage: Intersection signs - high price zone - 2 (Ballston, Clarendon, Courthouse, Rosslyn, Pentagon City, Crystal City)
<b>3/24/2025</b>	Mailer: large-scale postcard
<b>MAY 2025 - ?</b>	Ads: Red Top cab displays
<b>MAY 8, 10, 12, 2025</b>	Flyers: Windshields in Ballston
<b>6/2/2025</b>	Emails to announce price changes - 6
<b>JUNE 19-24, 2025</b>	Signage: Sidewalk stickers
<b>6/30/2025</b>	Ads: ArlNow eBlast 2

## Appendix D. Hourly Sensor-based Metrics by Study Site and Quarter

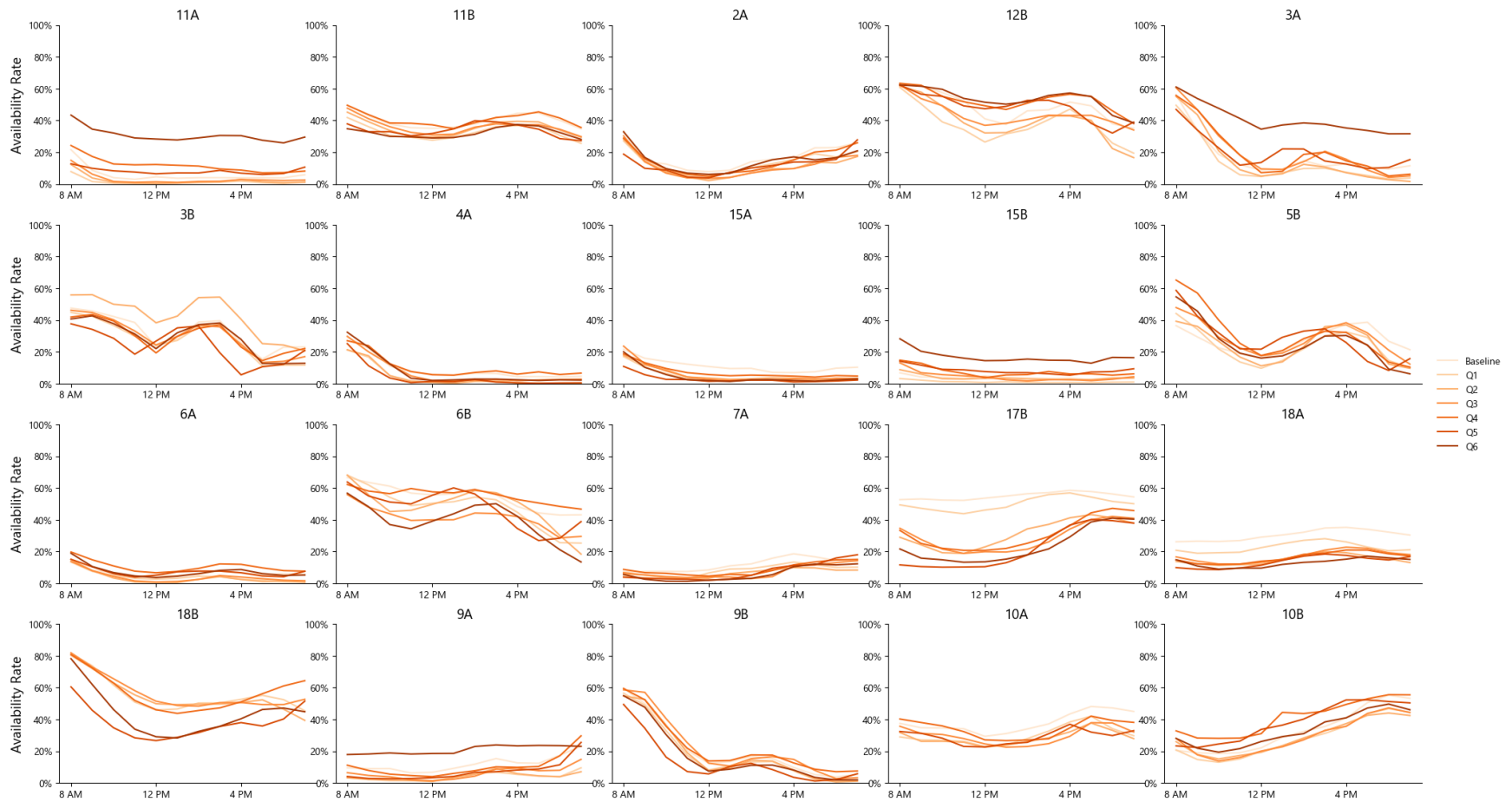


Figure 21: Hourly Availability (%) each Pricing Period by Study Site

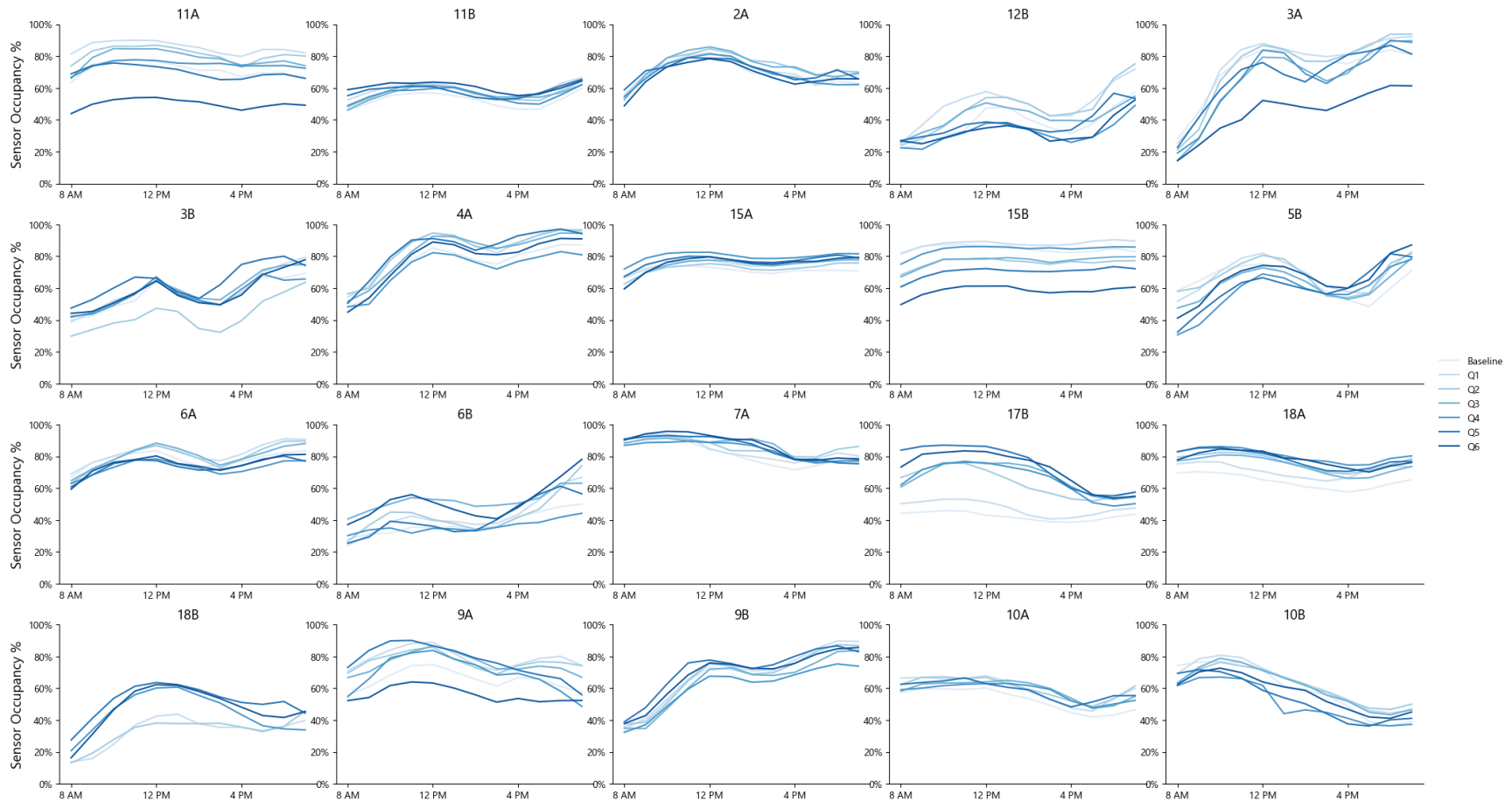


Figure 22: Hourly Occupancy (%) each Pricing Period by Study Site

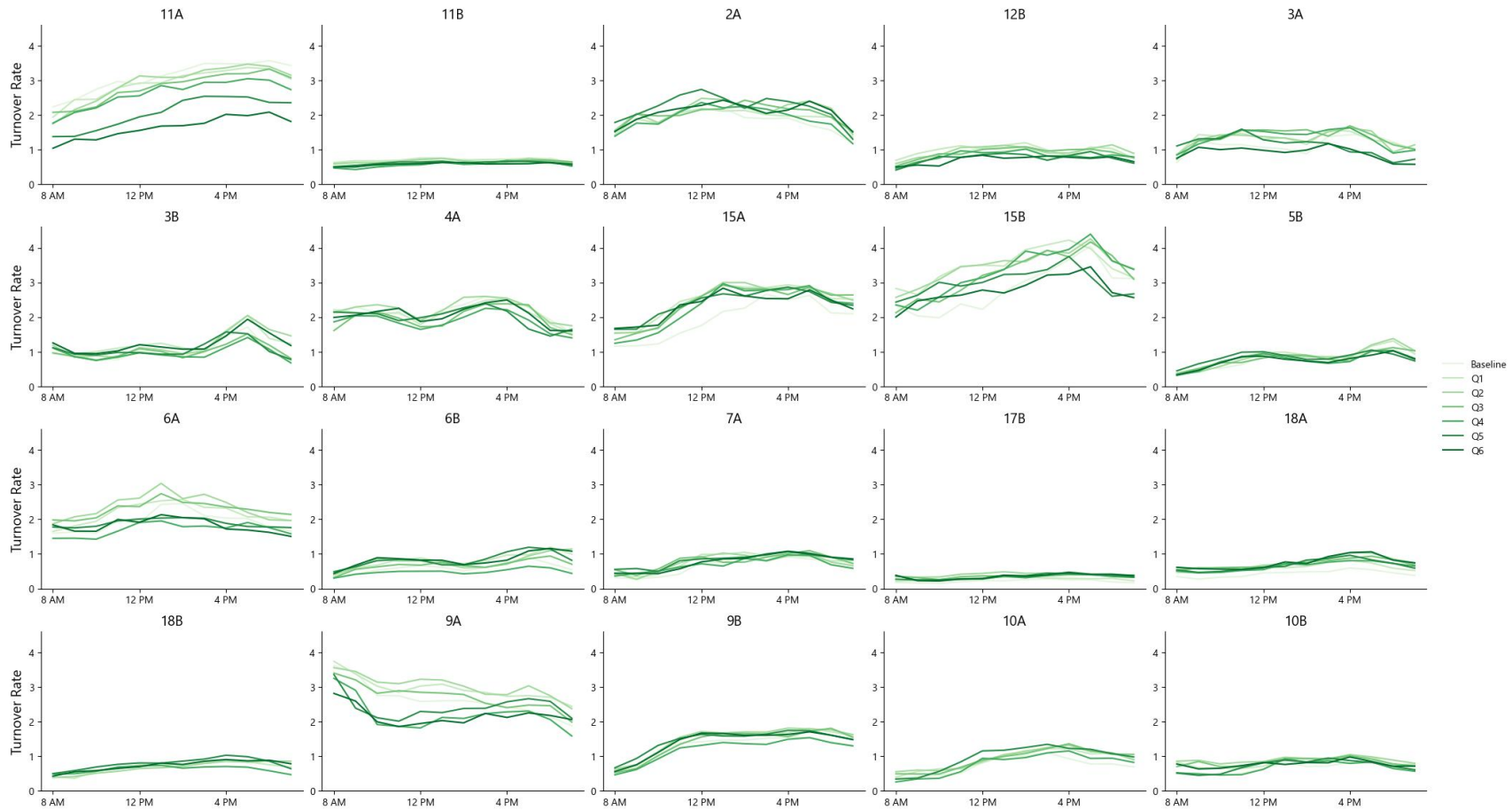


Figure 23: Hourly Turnover Rate each Pricing Period by Study Site



Figure 24: Hourly Compliance (%) each Pricing Period by Study Site

## Appendix E: Quarterly Daily Pricing Schedule by Study Site



Figure 25: Baseline Period Hourly Pricing Schedule by Study Site



Figure 26: Quarter 1 Hourly Pricing Schedule by Study Site



Figure 27: Quarter 2 Hourly Pricing Schedule by Study Site



Figure 28: Quarter 3 Hourly Pricing Schedule by Study Site



Figure 29: Quarter 4 Hourly Pricing Schedule by Study Site

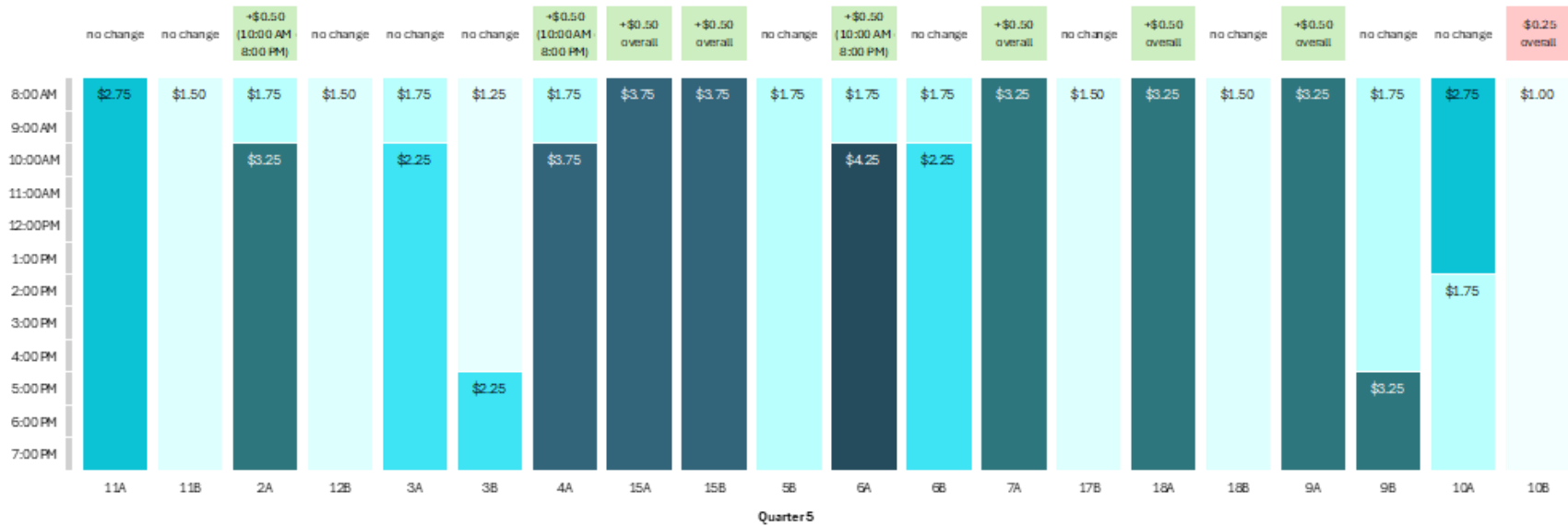


Figure 30: Quarter 5 Hourly Pricing Schedule by Study Site



Figure 31: Quarter 6 Hourly Pricing Schedule by Study Site

## Appendix F. Occupancy Tables for High- and Low-Demand Sites and Timeframes

Study Site	Timeframe	Q0 Price	Q6 Price	Q0 Occ.	Q1 Occ	Q2 Occ	Q3 Occ	Q4 Occ	Q5 Occ	Q6 Occ	Q0 to Q6 Occupancy Change	Q2 to Q6 Occupancy Change
11A	8am-10am	\$1.75	\$3.25	71.14%	86.97%	81.96%	74.47%	73.14%	74.38%	48.91%	-22.23%	-33.05%
11A	10am-2pm	\$1.75	\$3.25	76.58%	89.86%	87.39%	84.76%	78.09%	75.01%	54.23%	-22.35%	-33.16%
11A	2pm-8pm	\$1.75	\$3.25	69.05%	82.02%	78.89%	76.65%	74.43%	66.85%	48.88%	-20.17%	-30.02%
2A	10am-8pm	\$1.75	\$3.75	69.56%	73.49%	76.58%	75.85%	70.91%	72.59%	68.88%	-0.68%	-7.70%
3A	10am-2pm	\$1.75	\$2.25	76.62%	80.32%	75.74%	65.66%	67.94%	65.79%	42.48%	-34.14%	-33.26%
3A	2pm-5pm	\$1.75	\$2.25	75.42%	79.99%	75.23%	64.54%	65.23%	71.33%	47.51%	-27.92%	-27.72%
3A	5pm-8pm	\$1.75	\$2.75	82.27%	90.32%	90.96%	86.93%	86.58%	84.49%	60.96%	-21.31%	-30.00%
4A	10am-5pm	\$1.75	\$4.25	76.56%	86.72%	86.11%	83.78%	73.71%	86.48%	80.20%	+3.64%	-5.91%
4A	5pm-8pm	\$1.75	\$4.25	86.54%	94.98%	95.30%	92.74%	80.61%	95.49%	89.92%	+3.38%	-5.39%
15A	8am-10am	\$1.75	\$4.25	69.78%	68.57%	65.29%	64.52%	74.48%	69.60%	63.36%	-6.43%	-1.94%
15A	10am-2pm	\$1.75	\$4.25	72.82%	76.40%	73.59%	75.57%	81.22%	78.25%	77.67%	+4.85%	+4.07%
15A	2pm-8pm	\$1.75	\$4.25	70.65%	75.95%	72.89%	75.28%	79.37%	77.86%	76.96%	+6.31%	+4.06%
15B	8am-10am	\$1.75	\$3.75	82.91%	82.27%	69.61%	68.44%	76.72%	62.78%	52.31%	-30.60%	-17.30%
15B	10am-2pm	\$1.75	\$3.75	86.39%	87.77%	77.54%	77.61%	85.03%	71.09%	60.91%	-25.48%	-16.63%
15B	2pm-8pm	\$1.75	\$3.75	83.55%	87.89%	76.06%	77.71%	84.69%	71.81%	58.46%	-25.09%	-17.59%
6A	10am-2pm	\$1.75	\$4.75	80.26%	82.87%	81.13%	82.40%	74.67%	74.80%	76.31%	-3.95%	-4.82%
6A	2pm-8pm	\$1.75	\$4.75	78.37%	83.80%	80.97%	80.41%	71.86%	74.51%	75.79%	-2.58%	-5.19%
7A	8am-8pm	\$1.50	\$3.75	80.62%	83.71%	85.90%	84.95%	83.75%	85.59%	87.47%	+6.85%	+1.57%
9B	5pm-8pm	\$1.75	\$3.25	83.27%	87.47%	85.19%	80.11%	72.99%	85.19%	83.18%	-0.09%	-2.01%

**Table 4:** High-demand Study Sites and Timeframes Occupancy for each Pricing Period

Study sites and timeframes with Baseline Period occupancy >80% are highlighted in light blue. Prices for Baseline (Q0) and Q6 are also shown. The right-most columns display the change in occupancy from Q0 to Q6 (the start to the end of the evaluation) and from Q2 to Q6 (seasonality considerations: these two pricing periods capture data from similar parts of the year). Increases in occupancy are highlighted in red, while decreases are highlighted in green.

Study Site	Timeframe	Q0 Price	Q6 Price	Q0 Occ.	Q1 Occ	Q2 Occ	Q3 Occ	Q4 Occ	Q5 Occ	Q6 Occ	Q0 to Q6 Occupancy Change	Q2 to Q6 Occupancy Change
3A	8am-10am	\$ 1.75	\$ 1.75	37.11%	29.57%	25.63%	21.02%	22.81%	28.47%	18.34%	-18.77%	-7.29%
3B	8am-12pm	\$ 1.75	\$ 1.25	41.71%	43.84%	32.08%	45.55%	44.76%	52.88%	47.12%	+5.40%	+15.04%
3B	12pm-5pm	\$ 1.75	\$ 1.25	52.87%	51.60%	35.00%	52.77%	52.59%	58.15%	50.80%	-2.07%	+15.80%
4A	8am-10am	\$ 1.75	\$ 1.75	46.57%	53.52%	55.01%	52.54%	45.99%	53.68%	47.29%	+0.72%	-7.72%
6B	8am-5pm	\$ 1.75	\$ 1.50	29.82%	32.94%	33.52%	45.47%	31.11%	31.76%	42.70%	+12.87%	+9.18%
6B	5pm-8pm	\$ 1.75	\$ 2.00	45.08%	57.99%	56.72%	57.15%	38.89%	55.49%	66.04%	+20.96%	+9.32%
11B	8am-8pm	\$ 1.50	\$ 1.50	49.84%	56.40%	54.26%	53.36%	52.87%	55.18%	58.13%	+8.30%	+3.87%
12B	8am-8pm	\$ 1.75	\$ 1.50	36.00%	47.89%	44.55%	38.77%	29.33%	35.09%	31.33%	-4.67%	-13.21%
17B	8am-8pm	\$ 1.50	\$ 1.50	41.66%	45.96%	61.08%	64.61%	63.97%	73.07%	71.45%	+29.79%	+10.38%
18B	8am-8pm	\$ 1.50	\$ 1.50		33.26%	32.69%		44.62%	51.13%	47.92%		+15.22%

*Table 5: Low-demand Study Sites and Timeframes Occupancy for each Pricing Period.*

*Study sites with baseline Period occupancy <40% are highlighted in light blue. Prices for Baseline (Q0) and Q6 are also shown. The right-most columns display the change in occupancy from Q0 to Q6 (the start to the end of the evaluation) and from Q2 to Q6 (seasonality considerations: these two pricing periods capture data from similar parts of the year). Decreases in occupancy are highlighted in red, while increases are highlighted in green.*