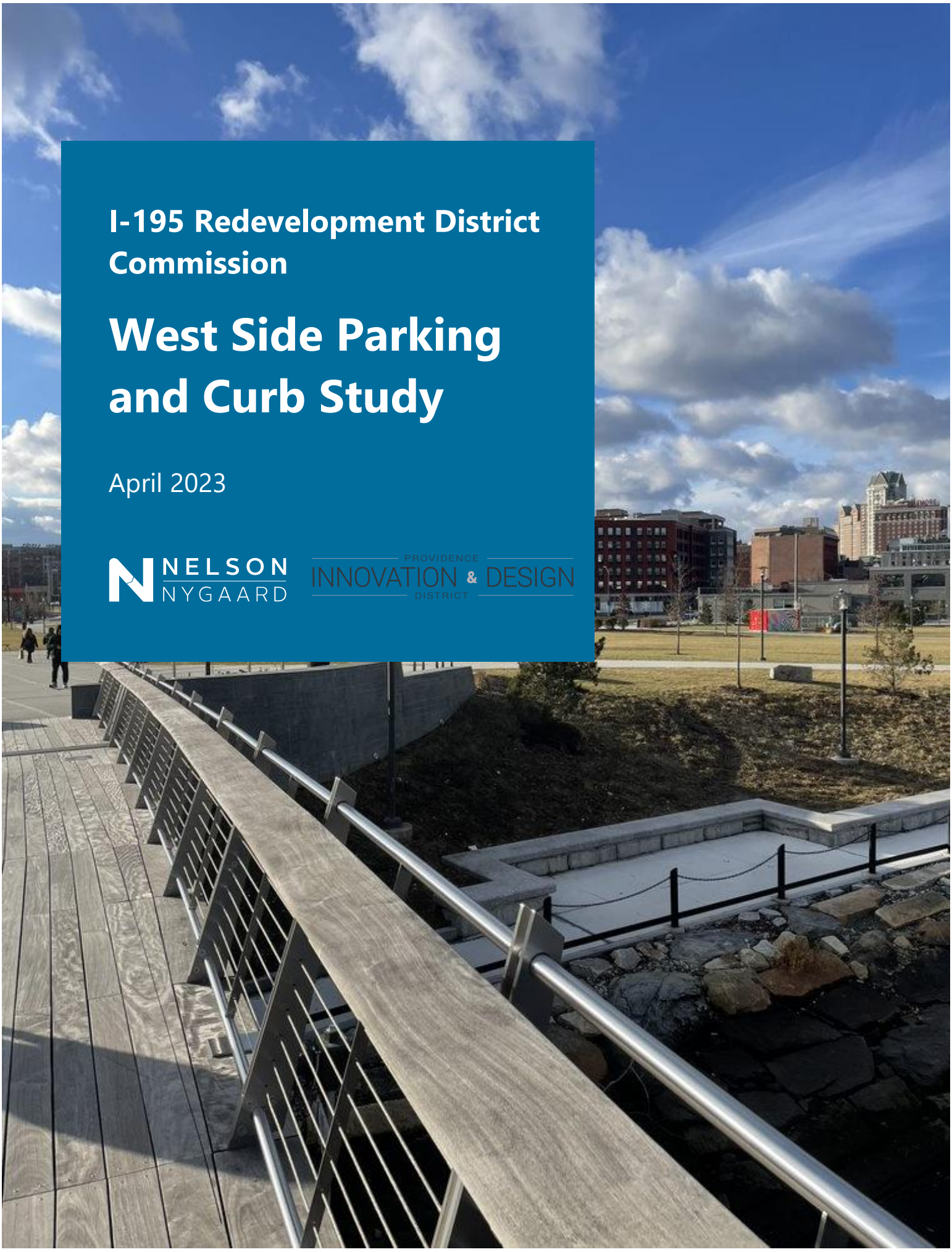

I-195 Redevelopment District Commission

West Side Parking and Curb Study

April 2023

NELSON NYGAARD

PROVIDENCE INNOVATION & DESIGN DISTRICT

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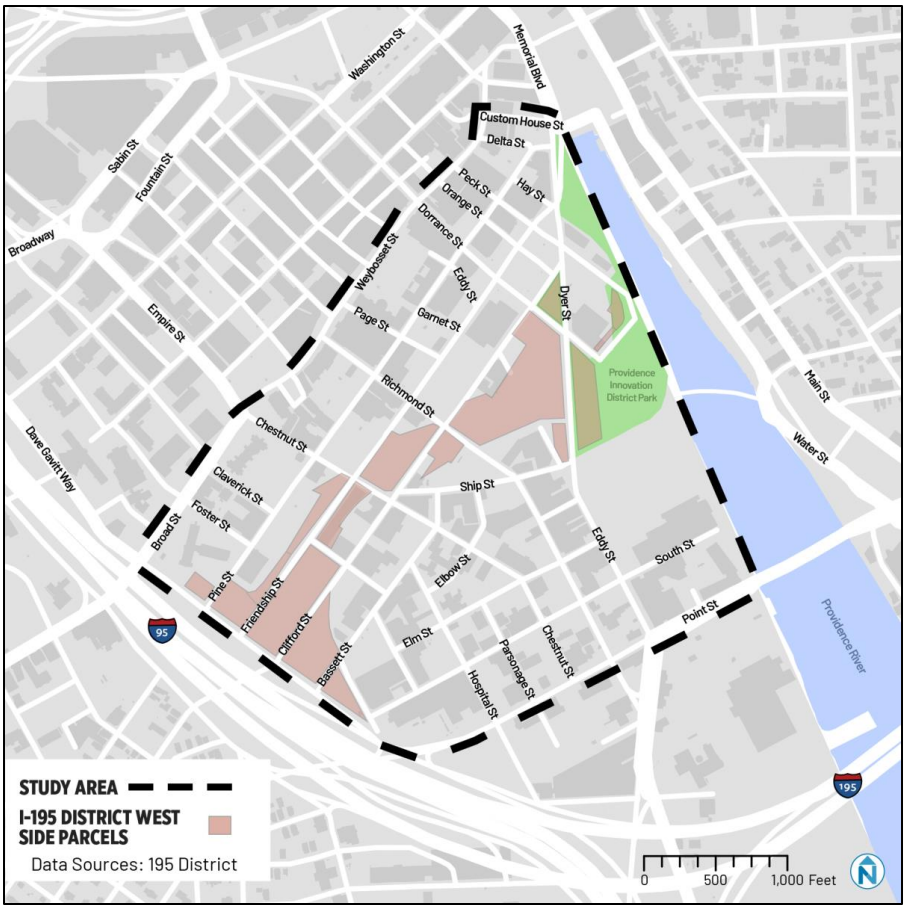
EXECUTIVE SUMMARY

This West Side Parking and Curb Study completed for the I-195 Redevelopment District (I-195 District) finds that existing parking demand can be easily accommodated within existing parking facilities in the study area, which are currently far below their maximum capacities. Future demand can be met through active parking and curbside management and smart implementation of additional parking facilities constructed alongside new developments.

Study Area

The I-195 Redevelopment District West Side Parking and Curb Study includes the area indicated in Figure 1. This area includes primarily office and commercial oriented streets with a variety of parking and curb regulations. This study area was selected to include streets within an easy walking distance of I-195 District West Side parcels that will function as part of the neighborhood curb and parking ecosystem as development continues.

Figure 1 I-195 Redevelopment District West Side Parking and Curb Study – Study Area



Key Findings

Parking and Curb Inventory

8,488 off-street parking spaces exist in the study area. **3,922 (46%) of these spaces are in publicly accessible lots or garages.**

- Off-street parking occupies 23% of the land within the study area.
- Most of the curb (60%) is designated as 'No Parking.' Certain segments of this curb space may have the potential to become loading zones pickup/drop-off areas or transit priority lanes.
- 88% of the area's 840 on-street parking spaces are metered.
- There are a few notable street segments that are unregulated. Adding meters could benefit these areas the future when parking demand increases.

Parking and Curb Utilization

Parking in the study area is only 33% full during peak periods. On-street parking is 68% full during midday peak period, but off-street parking is only 30% full. During peak midday hours there are 266 on-street parking spaces, 2,640 publicly accessible off-street spaces, and 3,319 private off-street parking spaces available.

Future Parking Demand

Parking demand generated by the forecasted development program for the study area should be accommodated through a **combination of existing, underutilized off-street parking resources and new shared parking facilities** to be constructed by future developers, as well as strategies highlighted in the Recommendations section.

- The calibrated future parking demand model indicates a weekday peak parking demand of 3,186 spaces for the forecasted development program. This peak will occur during the midday period from roughly 12 PM – 2 PM.
- 1,602 new parking spaces are expected to be constructed as part of the forecasted development program. This estimate includes a ~500 spaces shared parking garage on or near Parcel 35.
- The 1,584 excess vehicles not accommodated by new parking supply (3,186 peak parking demand minus 1,602 new parking spaces) can be accommodated by existing excess publicly available off-street parking spaces in the neighborhood.
    - In order to remain conservative, we assume that only 66% (1,918) of the existing, unoccupied, publicly accessible spaces will be available to support

the forecasted development program. These 1,918 spaces can easily support the 1,584 excess vehicles.

Public Outreach

Outreach participants and survey respondents expressed concern about lack of safe walking and biking facilities, lack of designated on-street parking for residents, limited loading zones, limited pickup and drop off areas for Uber/Lyft and delivery services, and lack of frequent transit service in the study area.

Recommendations

This study identified the following strategies to improve street and curb operations in the area while managing future parking demand. These strategies represent a collaborative effort between the I-195 District, incoming developers, and the City of Providence. Strategies presented below were developed in the context of development projections prepared for this report – the need to implement each strategy should be determined by the actual scale and character of future development projects.

Key Recommendations

New Parking Resources

- **Add a new ~500 space shared parking garage on Parcel 35 (or nearby).** This facility would support the office and lab uses in the area during work hours while supporting residential and commercial demand from the district as whole during other hours. This is just one potential parking facility configuration that would create the desired shared parking ecosystem – the specific location, configuration, and size of any new parking resource should be dictated by long-term projections and the needs of the specific development in question.

Demand Management Toolset

- **Improve Wayfinding to Parking Garages.** Increasing the utilization of existing off-street parking facilities, especially those that are publicly accessible such as the Clifford Street Garage or the South Street Landing (SSL) Garage, is an important strategy to alleviate on-street parking constraints and reduce the perception of a lack of parking in the study area.
- **Improve Safety and Comfort at Parking Garages.** Safety concerns can dissuade potential users from parking in a garage. Garage operators should work to provide a

safe and comfortable environment, including using on-site security or operational staff and lighting.

- **Expand Garage Access.** Time-of-day restrictions and non-market rate (i.e. too expensive) pricing of parking can dissuade public use of underutilized garages. Garage owners and operators should acknowledge a variety of customers and offer overnight parking, all-day parking with discounted rates for service industry workers, and other programs targeted to a broad user base.
- **Require Shared Parking.** To achieve the parking scenarios documented here, the I-195 District must require developers to offer shared parking arrangements that open facilities to the public / other local users.
- **Require Unbundled Parking.** Unbundling means separating the cost of parking from the cost of rent or purchase price. It is one of the simplest methods to reduce overall car trips, reduce traffic congestion, and reduce the cost of development.

Curbside Management Toolset

- **Add Pickup/Dropoff Areas.** Additional designated passenger pickup/drop-off areas can improve safety and efficiency for all road users. This is an important strategy as the demand for delivery and rideshare app services is expected to increase.
- **Add Loading Zones.** Additional loading zones for both commercial and passenger loading will support local businesses and improve street operations and safety.
- **Extend Meter Times and Simplify Regulations.** Activity in the area continues beyond 6 PM into the evening. Meters should reflect this. Regulations can be simplified to improve the user experience for customers.
- **Add Meters to Unregulated Streets.** Some highly utilized streets such as segments of Peck Street and Dorrance Street do not have meters. Adding meters to these streets will help to moderate demand and control turnover.
- **Increase Enforcement.** Existing enforcement is insufficient to ensure compliance with curb regulations. Additional enforcement can reduce operational and safety issues and ensure the success of other curb strategies.

INTRODUCTION

This study explores the existing parking and curb use in the I-195 Redevelopment District's West Side area and offers recommendations and solutions to ensure that future curb management benefits all travelers, regardless of how they move to, from, or within the area. It incorporates community feedback as well as on-the-ground data collection and analysis to identify challenges and opportunities related to existing curb management in the study area as well as future needs. This study includes:

- A comprehensive inventory of existing on-street and off-street parking spaces in the vicinity of the I-195 Redevelopment District's West Side parcels.
- A parking occupancy study that identifies peak parking utilization in the area for a weekday.
- A summary of public feedback received through multiple engagement channels.
- Key challenges and opportunities related to parking and curb management.
- A projection of future parking needs for expected development projects on West Side parcels.
- Recommendations to address parking and curb needs in the future, to be addressed by a variety of stakeholders, including the I-195 Redevelopment District and the City of Providence.

Study Area and Process

Study Area

The I-195 Redevelopment District West Side Parking and Curb Study includes the area indicated in Figure 2. This area includes primarily office and commercial oriented streets with a variety of parking and curb regulations. Curb users in the area include business operators and their employees, commuters, visitors and customers, and affiliates of local institutions including Brown University and Johnson and Wales University. Streets in the study area include Dyer Street, Weybosset Street, and Point Street, all of which may be considered primary streets in Providence.

This study area was selected to include streets within an easy walking distance of I-195 District West Side parcels that will function as part of the neighborhood curb and parking ecosystem as development continues.

Figure 2 I-195 Redevelopment District West Side Parking and Curb Study – Study Area

Multimodal Access in the Study Area

The study area is served by multimodal transportation infrastructure including pedestrian, bicycle, and public transit facilities and services. This infrastructure will play a key role in moderating future parking demand and allows developers to plan for parking ratios that are oriented toward an urban, multimodal environment.

Bicycle facilities are featured on Chestnut Street (see Figure 3), Richmond Street, and Clifford Street in the study area. All these streets offer segments with a separated two-way cycle track, providing a safe and efficient facility to support bicyclists traveling within or through the study area.

Sidewalks and other pedestrian facilities are ubiquitous in the study area. Almost all streets in the study area include sidewalks, although some do not meet accessibility standards. Sidewalks are present along the west side of the Providence River and throughout the abutting green space. The Michael S. Van Leesten Memorial Pedestrian Bridge provides an important pedestrian and bike connection between the east and west sides of the District (see Figure 4).

Figure 3 Multimodal Infrastructure on Chestnut Street

Figure 4 Michael S. Van Leesten Memorial Pedestrian Bridge

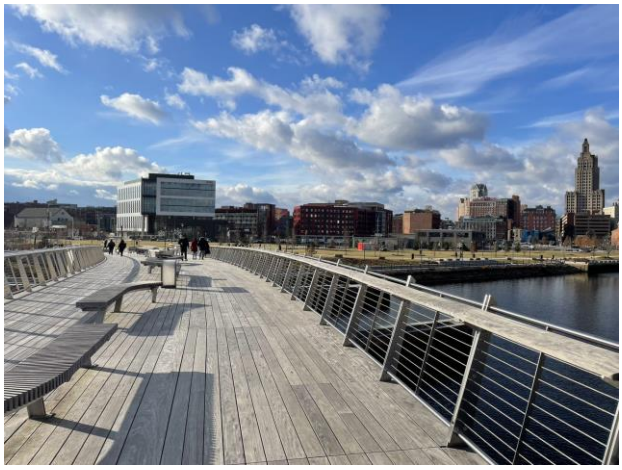
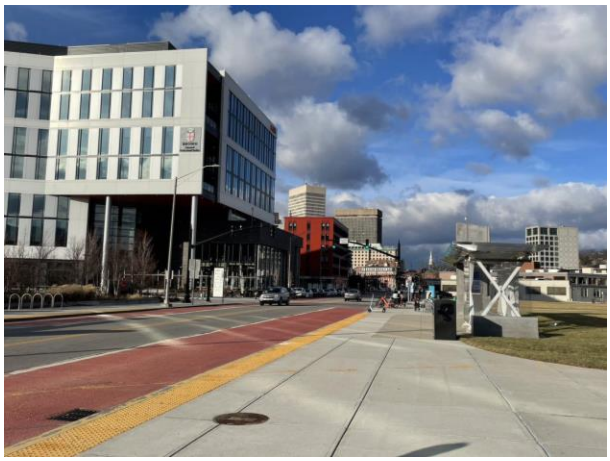


Figure 5 Dyer Street facing North



Public transportation services also operate in the area, including dedicated bus-only lanes on Dyer Street (see Figure 1, Figure 5, and Figure 6) and Dorrance Street. Rhode Island Public Transit Authority's (RIPTA) Downtown Transit Connector (DTC) provides a spine of high frequency (every five minutes) transit service through the study area between along Dorrance, Dyer, and Eddy Streets through overlapping service from multiple routes. This service connects the study area to Providence Station to the north and the hospital district to the south. RIPTA Routes R, 1, 3, 4, 6, 20, 22, 51, 54, 58, 62, 72, 92 provide access to and from the study area from the following locations:

- Kennedy Plaza
- Providence Station
- Lower South Providence
- Roger Williams Park Zoo
- North Providence
- TF Green Airport
- Smithfield
- Pawtucket
- Cranston
- Warwick
- Lincoln
- Woonsocket

Figure 6 RIPTA Route 92 Northbound in Bus Only Lane on Eddy Street (part of the DTC)

Impacts from COVID-19 have changed how people travel. Transit ridership dropped during the pandemic but continues to recover over time.

Project Process

This project included five major tasks as described below.

1. Confirm the existing curb and parking inventory.

The first task included a comprehensive review of on-street and off-street parking and curb facilities and regulations in the study area. Project team members reviewed current aerial imagery and conducted field data collection to understand the supply of parking spaces in the area, how those spaces are regulated, and what specific non-parking curb uses and needs exist. Inventory data was primarily collected in the field during September 2022.

2. Evaluate the existing demand for parking and curb access.

In order to understand the existing demand for parking and curb access in the study area, the project team conducted parking occupancy counts using on-the-ground data collection methods and through coordination with local parking facility managers. Field teams walked all streets in the study area during peak parking period to understand the extent that parking spaces are being utilized. On-site parking occupancy counts were collected during the following time:

- Thursday, September 29, 2022, from 10 AM – 12 PM
  - This date was selected to provide a weekday peak parking occupancy count that reflected local schools being in session during the Fall peak period.

3. Conduct outreach to the public and understand key curb and parking issues.

This study acknowledges that a wide variety of parking, curb, and transportation needs exist within the study area. In order to better understand these needs, the project team conducted two key engagement activities to direct the outcomes of this work. Findings from these events are documented in the Public Outreach chapter of this report.

- A listening session conducted on October 27, 2022, at the District Hall's Venture Café in Providence.
  - This meeting was publicized by the I-195 Redevelopment District and was intended for a general audience. Attendees included local residents, business owners, institutional and government representatives, and advocates.
- The I-195 Redevelopment District West Side Parking Survey was released on December 12, 2022 and closed December 27, 2022.
  - This survey was distributed to tenants of CIC Providence via the monthly newsletter, linked on the I-195 District Community Updates webpage, and distributed via the I-195 District newsletter.
  - Flyers were placed throughout the CIC space for further advertisement.

- Respondents included CIC Providence tenants as well as the general public with the goal of gathering community feedback and understanding the needs of local residents, workers, and visitors.

4. Model future district parking demand.

Following analysis of existing parking supply and demand data, the project team developed future parking demand projections based on expected and speculative future buildout of West Side I-195 District redevelopment parcels. Future parking demands were estimated using conservative future development programs and parking generation rates reflective of both national standards and local market trends. Conservative development programs are those that are likely to generate more parking demand.

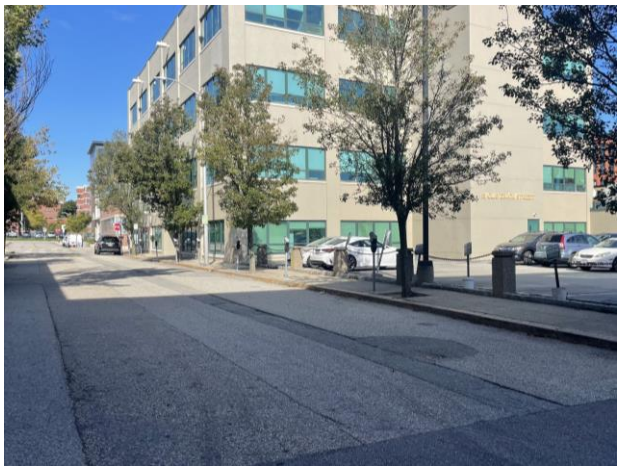
5. Recommend parking and curb management and transportation demand management strategies.

Following completion of all analysis tasks, the project team developed a set of recommendations to ensure that future parking and curb needs in the I-195 District's West Side can be successfully met while achieving the wide variety of goals expressed by the community.

Key Parking and Curb Management Concepts

The challenges, opportunities, and potential solutions identified by this study are rooted in a holistic understanding of curb, parking, and transportation needs in the study area and Providence as a whole. The project team conducted a comprehensive review of all the ways that people travel within the study area, and how those ways may change in the future. The team also considered the relationship between curb management and a range of community goals and objectives, which extends beyond providing ample parking.

Figure 7 Open Metered Parking Spaces on Claverick Street



Curb Management and Community Goals

Curb management directly impacts many facets of every community in Providence, and the West Side is no exception. Doing a great job at curb and parking management is an opportunity to:

- Support local business health.
- Create development potential.
- Improve the pedestrian environment.
- Improve bicycling and micromobility accommodations.
- Improve transit reliability.
- Make efficient use of municipal resources.
- Ensure that traffic operations do not create inefficient or unsafe conditions.
- Improve signage and wayfinding.

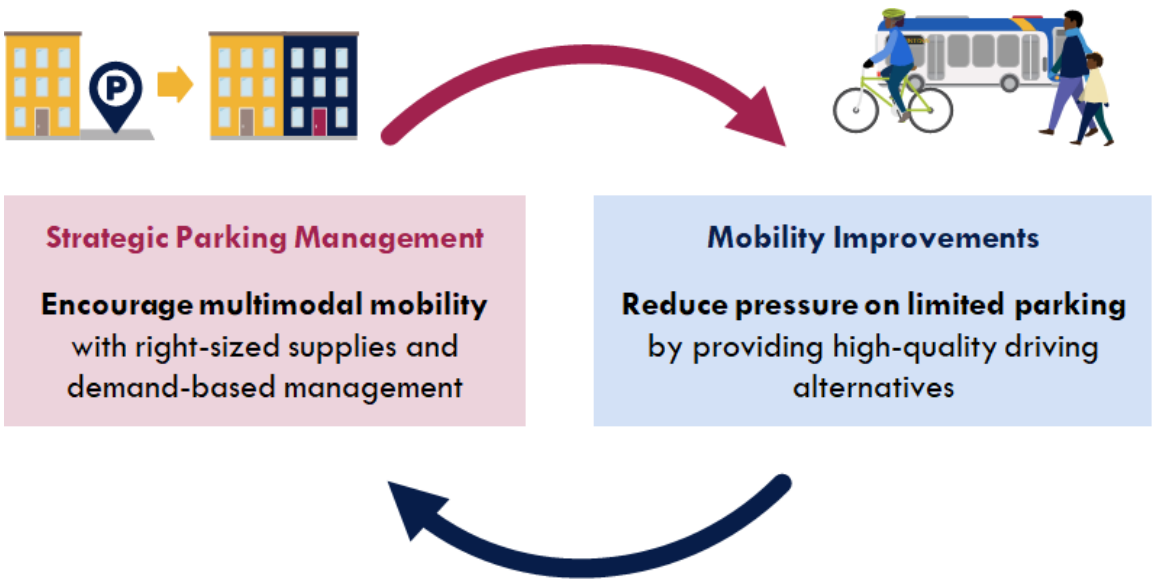
Balancing these goals is a key part of successful curb management around the I-195 Redevelopment District parcels. This study makes a concerted effort to bring these objectives into balance, consider the needs of all stakeholders, and plan for a future that meets the needs of everyone in the District.

Curb Management and Mobility Improvements

A virtuous cycle exists between curb management and investment in mobility improvements such as bicycle, pedestrian, and transit facilities. Effective curb management can maximize the efficiency of parking spaces, avoiding underutilization and oversupply of parking (see Figure 8). This frees curb space which can be invested in non-parking mobility improvements. These improvements further reduce demand for parking by increasing the comfort, safety, and feasibility of non-driving travel. This, in turn, continues to reduce the amount of space needed for parking, freeing up even more space for investment in other transportation improvements.

This study acknowledges this cycle and proposes solutions which will maximize the use of available curb space and remain supportive of future mobility investments in the neighborhood.

Figure 8 Strategic Parking Management and Mobility Improvements – A Virtuous Cycle



Multimodal Transportation in Providence

People in Providence get around in different ways and increasingly have things come to them. This study acknowledges the need to accommodate a diverse array of transportation and non-transportation uses at the curbside. These include:

- Parking for personal vehicles
- Loading for commercial vehicles
- Short term pickup / drop-off for passengers, food, and goods
- Access for individuals with disabilities
- Bicycle facilities and storage
- Transit stops and amenities
- Pedestrian amenities
- Outdoor dining, retail, and parklet space

PUBLIC OUTREACH

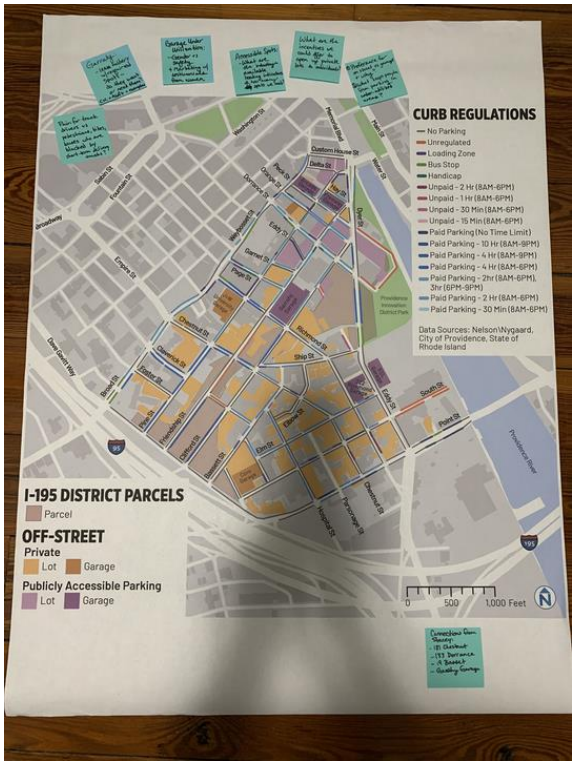
The I-195 Redevelopment District West Side Parking and Curb Study included two key engagement activities. Findings from these events are documented in this chapter.

Listening Session

The I-195 Redevelopment District hosted a listening session on October 27, 2022, at District Hall's Venture Cafe in Providence. This meeting was intended to inform the public about the parking study and to hear thoughts and concerns from attendees. The session included:

- a presentation led by representatives of the I-195 Redevelopment District providing an overview of the ongoing parking study and initial findings
- a mapping exercise where attendees could review poster-sized maps depicting parking regulations in the study area and use post-it notes to add comments to the maps (see Figure 9)

Figure 9 Listening Session Poster and Comments



The listening session had 13 attendees who were a mix of residents, business owners, institutional and government representatives, visitors, and advocates in the area. Some of the recurring comments and concerns included:

- Concern that there is a lack of dedicated space for delivery vehicles and rideshare app pickups and drop offs.
- Concern that there is a general lack of ADA accessible on-street parking in the study area.
- The Clifford Street Garage should undertake tactics to better accommodate the needs of residents and visitors. For example, it would be helpful to offer a lower evening rate for those that work for the city's nighttime economy, as well as for those visiting the city for large evening events.

- It can be challenging and dangerous for pedestrians, bicyclists, and buses to travel when segments of the street are frequently blocked by short-term delivery trucks.
- Consider the reasons why people prefer to park on-street versus off-street in highly underutilized facilities. There may be incentives to offer to the private lot owners to open their private lots to individuals seeking off-street parking.

A full list of comments from the listening session can be found in the appendix.

I-195 District West Side Parking Survey

The West Side Parking Survey was developed for community members, workers, and visitors to share thoughts on parking and curbside use in the study area. The survey was released to tenants of CIC Providence as well as the general public via the I-195 Redevelopment District newsletter and the CIC newsletter. It was opened on December 12, 2022, and closed December 27, 2022. The survey received 227 respondents.

Key findings from the survey include:

- Most respondents (54%) drive alone as their primary mode when traveling to the study area. 40% of respondents bike to, from, or within the study area at least a few times per month.
- Most respondents (51%) park a block or less from their final destination when parking in the study area.
- 47% of respondents who drive to the study area say they find parking in 3 minutes or less.
  - 72% say they find parking in 5 minutes or less.
  - 89% say they find parking in 10 minutes or less.
- Most respondents (61%) park in an on-street space when driving to the study area. Only 36% of respondents park in an off-street parking facility.
- Respondents ranked ‘expanded walking facilities’ as their highest priority for curbside street uses. Other curbside priorities that are important to respondents include: public transportation; bike/scooter facilities and parking; parklets, retail, and outdoor recreational space; and access for people with disabilities.

Full results from each survey question are documented in an appendix to this report.

PARKING AND CURB INVENTORY FINDINGS

The following sections explore parking and curbside data gathered during a weekday, commuter peak period. These sections refer to parking lots and garages in the study area as 'Private' or 'Publicly Accessible.' 'Private' parking lots and garages are owned by a private entity and are not open to the general public, but may offer leased spaces to various entities in the area. 'Publicly Accessible' parking lots and garages are open to the general public, but are typically restricted by fees and time limits.

A comprehensive parking and curb inventory was conducted using on-the-ground data collection during September 2022. Just over 800 on-street spaces exist in the study area, along with nearly 8,500 off-street parking spaces, 3,922 of which are publicly accessible. Figure 10 and Tables 1 through 3 display the regulations for all curbs in the study area where parking or stopping is allowed, as well as the off-street parking facilities and their distinction as a publicly accessible or private facility.

Key findings from the parking and curb inventory are:

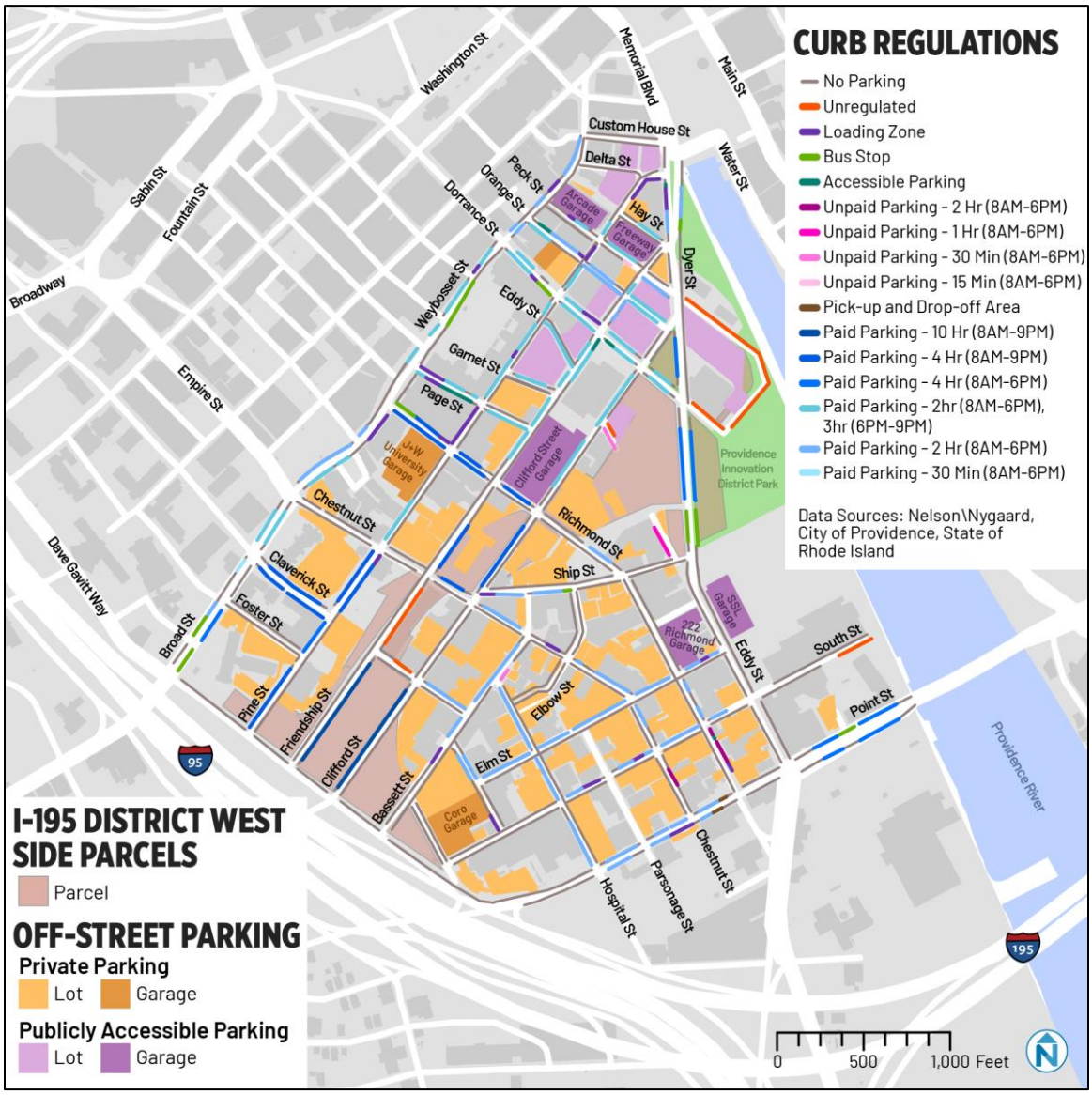
- There is a large amount of publicly accessible off-street parking in both garages and lots in the study area. It is important to recognize that parking is not currently lacking in the study area – this study explores strategies to better promote and make use of this off-street parking space, especially for those who feel that parking is challenging in the area.
- Many distinct on-street regulations exist within a small area – this can lead to confusion among those who may not visit the area frequently. Metered and unmetered areas have varying time limits within a small range, adding to confusion, and there is limited wayfinding. 88% of the area's 840 on-street parking spaces are metered.
- 23% of the land in the study area is occupied by off-street parking lots and garages. 17% of the entire study area consists of private off-street lots and garages that are not accessible to the public.
- Approximately 60% of curb space in the study area is designated as 'No Parking' zones. Some of these segments may be considered for alternative use, such as loading zones or areas dedicated to delivery or rideshare app vehicles.
- Multiple parking violations were observed during on-site data collection, primarily with cars parked in 'No Parking' zones or unpaid meters. This suggests an opportunity to improve parking enforcement in the study area.

- There are 0.82 jobs per parking space[1] and 0.17 residents per parking space[2] in the study area. Given the fact that many workers do not work in-person every day, this indicates a large oversupply of parking in the area under existing conditions.
- No resident parking permit program is currently in place in the area, meaning that residents have little ability to make use of on-street parking for themselves or visitors.

[1] US Census Bureau, Geography Division (2019)

[2] US Census Bureau, Geography Division (2020)

Figure 10 Parking and Curb Inventory Map (as of September 2022)



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[3] The regulations shown in the map reflect the conditions at the time of the data collection period. Regulations on some segments may have changed since the data was collected.

Table 1 On-Street Parking Inventory in the Study Area

Regulation	Sum of Spaces	Percent of Total
Paid Parking - 2 Hr (8AM-6PM)	246	29%
Paid Parking - 2 Hr (8AM-6PM), 3 Hr (6PM-9PM)	218	26%
Paid Parking - 4 Hr (8AM-9PM)	143	17%
Paid Parking - 4 Hr (8AM-6PM)	83	10%
Unregulated	57	7%
Paid Parking - 10 Hr (8AM-9PM)	46	5%
Accessible Parking	17	2%
Unpaid - 1 Hr (8AM-6PM)	10	1%
Unpaid - 2 Hr (8AM-6PM)	7	<1%
Unpaid - 30 Min (8AM-6PM)	6	<1%
Pick-up and Drop-off Area	3	<1%
Paid Parking - 30 Min (8AM-6PM)	3	<1%
Unpaid – 15 Min (8AM-6PM)	1	<1%
Grand Total	**840**	**100%**

Table 2 Off-Street Parking Inventory in the Study Area

Regulation	Sum of Spaces	Percent of Total
Private	4,566	54%
Publicly Accessible	3,922	46%
Grand Total	**8,488**	**100%**

Table 3 Off-Street Facility Types in the Study Area

Type of Facility	Sum of Spaces	Percent of Total
Parking Garage	5,175	61%
Parking Lot	3,313	39%
Grand Total	**8,488**	**100%**

PARKING AND CURB UTILIZATION FINDINGS

Parking and curb occupancy data was collected on a peak weekday midday period when universities were in session (in September 2022). The weather was clear during the collection period. The parking utilization data shared below indicates the extent to which a parking surplus currently exists in the study area (see Tables 4 through 8). The maps below show how full each on-street segment or off-street lot or garage in the study area was during the time it was observed.

Parking is generally considered challenging when it exceeds a 95% occupancy level. An 85% - 95% occupancy level indicates parking that is highly utilized but still has spaces available. A 70% - 85% occupancy level indicates an efficient use of parking that still ensures users can easily find an available space. Occupancy levels below 70% indicate parking is underutilized –incentives, improved wayfinding, or changes to regulations on these blocks or lots may be recommended if more parking has been identified as a need by community members despite a low overall neighborhood utilization.

Figure 11 Empty Parking Lot on Chestnut Street

Key findings from the parking and curb utilization analysis are:

- Overall parking (including on-street and off-street spaces) was only 33% full during the collection period. The reason for underutilized parking in the study area may be attributed to several causes:
  - A large portion of the off-street parking spaces are leased to employees in the area, and many employees have begun working from home regularly following the COVID-19 pandemic (see survey results in the appendix).
  - Owners of off-street parking facilities may be awaiting redevelopment of these lots without seeking to maximize their short-term profitability. This means they may not be engaged in pricing, marketing, and management activities which could encourage greater utilization such as substantial permit oversells or discounted daily rates.

- On-street spaces were more highly utilized than off-street spaces during the collection period.
  - On-street parking was 68% occupied.
  - Off-street parking was 30% occupied.
- 4-hour meters (8am-6pm) were the most utilized on-street spaces (86% full) during the collection period, primarily due to their proximity to key destinations.
  - Streets and street segments throughout the northern half of the study area had the highest utilization, especially those around local destinations such as Johnson and Wales University, the Garrahy Judicial Complex, and along Broad Street.
- 30-minute parking, both metered and unpaid, were the most underutilized on-street spaces during the collection period (33% full).
  - Metered spaces along Hospital Street and the surrounding side streets were also underutilized.
- 266 publicly accessible on-street spaces were available during midday peak hours.
- Of all publicly accessible off-street parking, only 33% was occupied during the collection period.
- Large garages in the study area were widely underutilized. Only 38% of all spaces in large garages (garages with over 300 spaces) were occupied. 3,176 parking spaces in large garages were available, 2,030 of which were in publicly accessible parking garages.
  - Clifford Street Garage, a publicly accessible facility, was 29% occupied with 886 spaces open.
  - Arcade Garage, a publicly accessible facility, was 37% occupied with 337 spaces open.
  - 222 Richmond Garage, a publicly accessible facility, was 44% occupied with 197 spaces open.
  - The South Street Landing Garage, a publicly accessible facility, was 51% occupied with 364 spaces open.

Figure 12 shows parking occupancy by block and lot on a typical Thursday from 10 AM – 12 PM. On-street parking was well utilized on large segments of Weybosset Street, Dorrance Street, Friendship Street, Pine Street, and Claverick Street, but these streets also had segments that were underutilized. Some blocks of on-street parking in the southern portion of the study area were underutilized. Off-street parking was more widely underutilized. Over 98% of all off-street facilities in the study area were underutilized (<70% full) during the collection period.

Figure 12 Parking Occupancy, Weekday, 12 PM – 2 PM

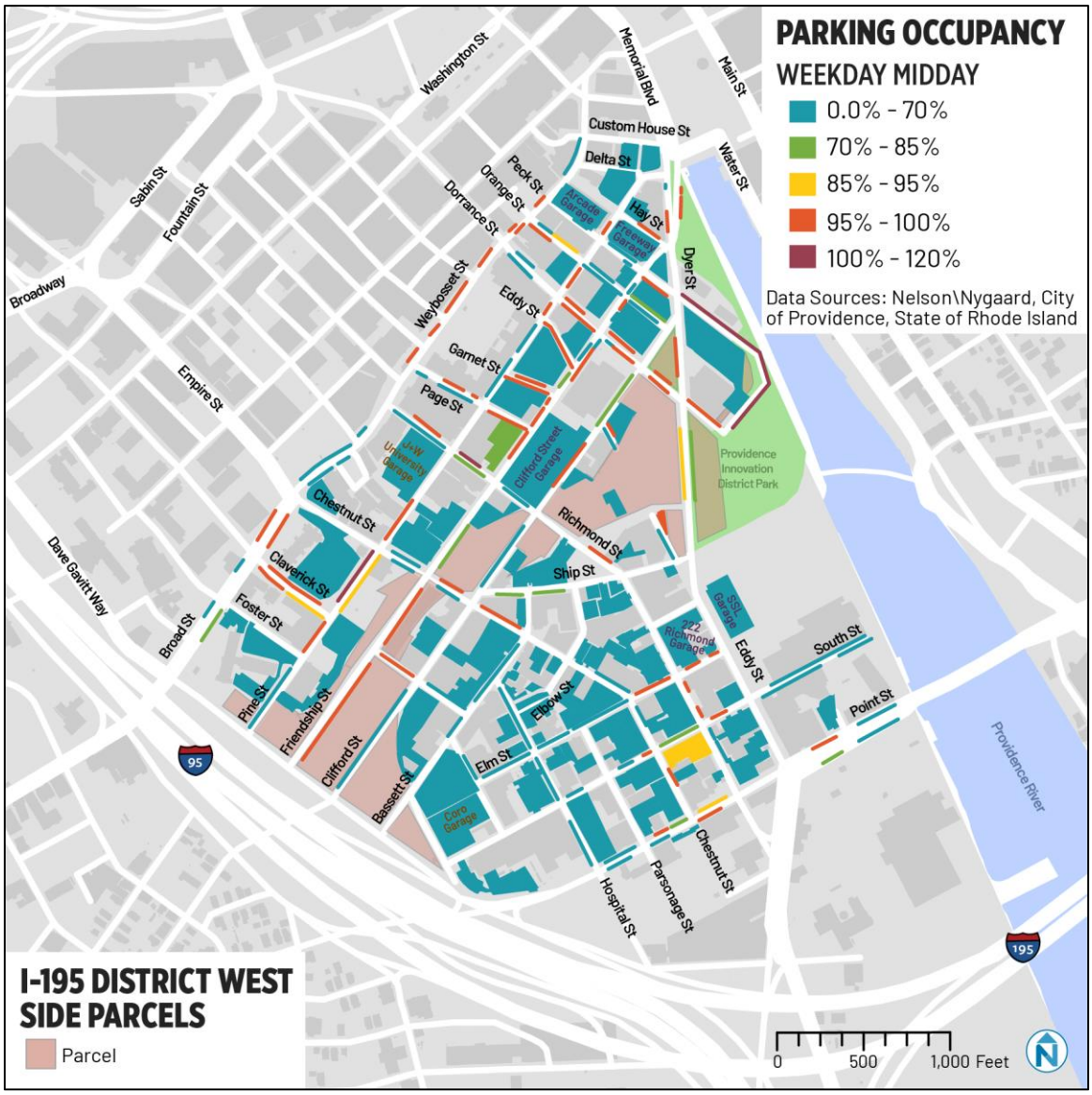


Table 4 On-Street Parking Occupancy by Regulation

Regulation	Sum of Spaces	Percent of Total	Spaces Occupied	Percent Occupied
Paid Parking - 4 Hr (8AM-6PM)	83	10%	71	86%
Paid Parking - 2 Hr (8AM-6PM), 3 Hr (6PM-9PM)	218	26%	178	82%
Paid Parking - 4 Hr (8AM-9PM)	143	17%	103	72%
Unregulated	57	7%	41	72%
Pick-up and Drop-off Area	3	<1%	2	67%
Paid Parking - 10 Hr (8AM-9PM)	46	5%	28	61%
Unpaid - 1 Hr (8AM-6PM)	10	1%	6	60%
Unpaid - 2 Hr (8AM-6PM)	7	<1%	4	57%
Paid Parking - 2 Hr (8AM-6PM)	246	29%	132	54%
Accessible Parking	17	2%	6	35%
Unpaid - 30 Min (8AM-6PM)	6	<1%	2	33%
Paid Parking - 30 Min (8AM-6PM)	3	<1%	1	33%
Unpaid – 15 Min (8AM-6PM)	1	<1%	0	0%
Grand Total	**840**	**100%**	**574**	**68%**

Table 5 Off-Street Parking Occupancy

Regulation	Sum of Spaces	Percent of Total	Spaces Occupied	Percent Occupied
Publicly Accessible	3,922	46%	1,282	33%
Private	4,566	54%	1,247	27%
Grand Total	**8,488**	**100%**	**2,529**	**30%**

Table 6 Total Parking Occupancy

Regulation	Sum of Spaces	Percent of Total	Spaces Occupied	Percent Occupied
On-Street Total	840	9%	574	68%
Off-Street Total	8,488	91%	2,529	30%
Grand Total	**9,328**	**100%**	**3,103**	**33%**

Table 7 Parking Occupancy by Type of Off-Street Facility

Type of Facility	Sum of Spaces	Percent of Total	Spaces Occupied	Percent Occupied
Parking Garage	5,175	61%	1934	37%
Parking Lot	3,313	39%	595	18%
Grand Total	**8,488**	**100%**	**2529**	**30%**

Table 8 Large Off-Street Garage Parking Occupancy

Parking Garage	Regulation	Sum of Spaces	Percent of Total	Spaces Occupied	Percent Occupied
South Street Landing (SSL) Garage	Publicly Accessible	744	9%	380	51%
Johnson and Wales University Garage	Private	945	11%	463	49%
222 Richmond Garage	Publicly Accessible	351	4%	154	44%
Arcade Garage	Publicly Accessible	600	7%	223	37%
Freeway Garage	Publicly Accessible	300	4%	94	31%
Clifford Street Garage	Publicly Accessible	1250	15%	364	29%
Coro Garage	Private	920	11%	256	28%
Grand Total		**5110**	**60%**	**1934**	**38%**

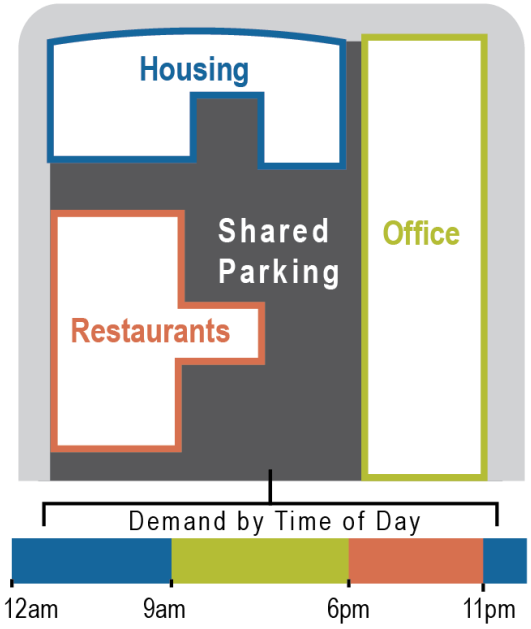
FUTURE DEVELOPMENT PARKING DEMAND

Following the analysis of existing parking supply and demand, the project team projected future parking demand based on expected and speculative future development on I-195 District parcels on the West Side.

Parking Demand Modeling Process

Understanding the relationship between land use patterns and parking demand is critical. The West Side of the I-195 Redevelopment District will function as a mixed-use parking district with a unique user behavior profile. Parking users in this area will generate demand for a variety of parking types, including short-term and long-term commercial and residential parking. Traditional development expectations often assume that parking will be provided for each separate use on site, with little or no consideration of shared parking or access among different uses. This may be applicable to suburban sites with isolated single land uses oriented primarily around automobile access but is not appropriate in a mixed-use environment like the I-195 Redevelopment District in which a more urban and walkable environment is envisioned. The I-195 Redevelopment District will continue to mix a number of land uses, each with different demand profiles across the course of the day and located in close proximity to each other. This will support efficient sharing of local parking resources (see Figure 13).

Figure 13 Parking Demand Temporal Distribution



In a proven principle often referred to as **"staggered peaks,"** the actual demand for parking varies by use throughout the hours of a day and days of a week: office space generates parking demand during traditional weekday business hours; parking for residential housing is often highest overnight as many residents use their cars during the day; and the parking demand generated by bars and restaurants is highest during mealtimes and in the evening. If parking is shared between multiple uses, the aggregated parking demand by time of day is less than the total that would be programmed separately for each use.

A second principle of shared parking in a mixed-use area is often referred to as **"internal capture,"** which manifests in several ways:

- A single parking space that normally serves one land use at a time may serve another land use at the same time simply by the virtue of someone walking to a second destination after parking at their first destination.
- A resident of a development can meet a travel need within the development, or at a nearby development, without the use of a car that would otherwise consume a parking space.

In the example shown in Figure 14, an individual may park in the garage, attend class in the morning, walk to a pizza shop in a mixed-use building for lunch, and pick up clothing at a dry cleaner before leaving the area. This eliminates demand for one parking space at the pizza shop and one parking space at the dry cleaner. Mixed-use areas naturally promote this type of shared parking which eliminates the need for many redundant parking spaces.

Figure 14 Reduced Parking Demand in Park Once Districts

Mixed-use areas typically experience reductions compared to traditional parking demand assumptions because of both staggered peaks and internal capture, depending on how uses are mixed together and what the walking environment is like between them. For example, the following groups may make use of only a single parking space where parking generation tables require two spaces:

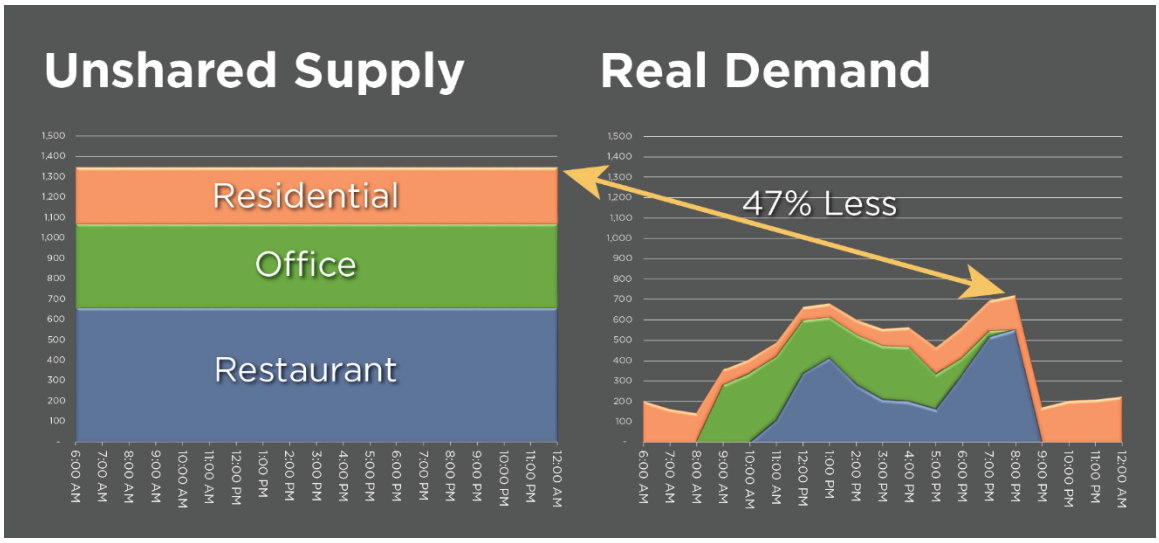
- Office workers who patronize nearby restaurants at lunchtime
- Hotel guests who attend nearby cultural events
- Residents who own vehicles yet walk to services or to their jobs

The proposed parking demand forecast methodology is different from traditional parking generation due to the consideration of staggered peaks and internal capture principles. Most often, parking generation analyses rely on the Institute of Transportation Engineers' (ITE) periodic report titled Parking Generation, which is the prevailing national standard in determining expected parking demand for a development or set of land uses. ITE standards are based on parking demand studies submitted to ITE by a variety of parties, including public agencies, developers, and consulting firms. These studies are often based on peak hour demands of suburban sites with isolated, single land uses that provide free parking.[4] To calculate the estimated parking demand generated by a development, an analyst multiplies a peak parking demand factor for each land use type by the physical size of each use type and assumes that the peak amount of parking is required all day every day and exclusively for that use (Figure 15).

The most recent parking generation manual available is the 5th edition (2018) and is used as a comparative starting point to determine baseline assumptions. However, as described previously, to model a mixed-use environment, Nelson\Nygaard has created an adapted parking model with inputs from the Urban Land Institute's (ULI) Shared Parking Manual (2nd Edition, 2005) and study area-specific land use and parking data to reflect actual staggered peaks and internal capture behavior. Both the ITE and ULI manuals report demand by time of day for most land uses. By layering this information with peak parking ratios, an analyst can determine a more realistic peak parking demand for land uses in a given area.

[4] Institute of Transportation Engineers, Parking Generation 4th Edition, 2010, page 2

Figure 15 Traditional Expected Parking Demand vs. Real Demand Profile



The systematic modeling process is as follows:

1. **Land Use Program**: Categorize and aggregate proposed development land uses to determine the built square footage that attracts parking demand.
2. **Model Parking Demand**: Apply a parking model derived from the ULI Shared Parking Manual to show the expected parking demand throughout the course of an average weekday, adjusted for staggered peaks.
3. **Identify Context Variables**: Begin model calibration by assessing factors related to site-specific programming that impacts travel demand (e.g., events, the likelihood of trip-chaining), transit access, resident vehicle ownership, potential transportation demand management (TDM) programs, and local fluctuations in parking demand.
4. **Model Parking Demand with Adjustments**: Apply an adjusted parking model that accounts for staggered peaks as well as internal capture, TDM programs, local demand adjustments, and other factors.
5. **Create Demand Management Toolset**: Identify a set of TDM strategies and other adjustments necessary to accommodate the expected parking demand / desired parking ratios within the desired site supply.

Key Model Assumptions

Projected Development Program

The development program below was used to model future parking demand for the West Side of the I-195 Redevelopment District (see Table 9). This development program includes developments that are approved as well as speculative future development. The speculative development program is intended to be conservative to model the greatest potential parking

demand that could be expected under a potential future scenario. Developments which have already been constructed and are now complete are included for reference but not included in the future demand model, as their parking demand has already been captured in the existing conditions analysis.

Parking assumptions for speculative future development include:

- 1 level of basement parking for office/lab use with maximum height allowed up to 160 ft (Parcels: P22-L5, P22/25-L4, P27, P42)
- 3 levels of basement parking for office/lab use with maximum height allowed up to 345 ft (P34, P35)
- 1 level of at-grade parking for residential use with maximum height allowed up to 130 ft (Parcels: P14+15)
- 3 levels of above-grade parking garage for residential use with maximum height allowed up to 345 ft (P37); where a multi-story above-grade garage is not feasible due to lot size limitation, then 1 level of at-grade parking (P41)
- A free standing self-ramping 8-story garage (120' x 165') on Parcel 35 with 496 spaces that would serve as a shared parking resource
- P22-L5 includes 1 Ship St. and Eddy St. right of way
- P22/25-L4 includes 60 Clifford St. and Eddy St. right of way
- Parking facilities on residential development sites smaller than 50 spaces are assumed to be fully reserved, without sharing, and are marked as "residential reserved" spaces in the parking demand model.

Retail uses are not specified in this projected development program as they are difficult to predict in advance. In order to create a conservative assumption, 30% of the expected retail space was allocated to restaurant or food service uses while 70% of the space was allocated to general retail uses.

The final modeled development program includes a mix of residential, office, lab, retail, and restaurant uses that will support the intended mixed-use character of the neighborhood.

Table 9 Projected Future Development, West Side I-195 District Parcels, for Future Parking Model*

Parcel Number	Primary Use	Status	Project Name/ Developer	Parcel SF	Total GSF	Residential	Hotel	Lab	Office	Retail	Parking	
						Units	Rooms	GSF	GSF	GSF	On-Site Parking Spaces	Residential Parking Ratio
P14+15 (incl. part of Brown U. parcel)	*Residential*	**Under Review**	**CV Properties**	13,817	159,300	149				3,540	56	0.16
P22-L5 (incl. 1 Ship St.)	*Lab/Office*	**Projected**		40,235	231,600			231,600			65	N/A
P22/25-L4 (incl. 60 Clifford St.)	*Lab/Office*	**Projected**		58,915	287,680			287,680			83	N/A
P27	*Lab/Office*	**Projected**		22,162	150,940			137,475		3,000	30	N/A
P34	*Office over Lab*	**Projected**		63,821	677,085			281,160	386,925	9,000	228	N/A
P35	*Office over Lab*	**Projected**		93,746	1,212,080			511,140	689,400	11,540	940	N/A
P37	*Residential*	**Projected**		21,408	527,800	600				3,000	114	0.19
P41	*Residential*	**Projected**		12,542	54,885	49				2,000	12	0.24
P25-L3	*Lab*	**Under Review**	**Ancora GRE**	46,816	208,628			208,628		1,468	N/A†	N/A
P42	*Lab*	**Projected**		45,194	345,080			333,170		11,910	106	N/A
Total				418,656	3,855,078	798		1,990,853	1,076,325	45,458	1,634	0.22
P22/25-L1	*Office*	**Complete**	**Point 225**	67,258	196,000				196,000		N/A†	N/A
P22-L2	*Hotel*	**Complete**	**Aloft Hotel**	33,165	101,000		175			5,000	N/A†	N/A
P28	*Residential*	**Complete**	**Emblem 125**	54,540	256,600	248				22,700	24	0.1
P30	*Residential*	**Complete**	**Chestnut Commons**	25,653	111,000	92				5,800	27	0.29
P31+36	*Institution*	**Complete**	**Bowen Center**	71,386	71,000						N/A	N/A

*Land uses listed here were selected to provide the most conservative parking assumptions and do not make any determinations regarding actual future uses.

†These developments have parking agreements with the Clifford Street Garage.

Parking Ratios

Parking ratios for residential units are based on developer expectations for their expected market. Developer proposals for the area indicate expected on-site parking ratios that will not exceed 0.3 spaces per residential unit and, in many cases, fall below that. In order to be conservative, we assume that total parking demand per residential unit could exceed these on-site provisions, and that developers may take advantage of existing underutilized parking resources to accommodate excess demand.

Parking ratios were set as follows according to national standards laid out by the Institute of Transportation Engineers (ITE) and calibration based on these local market trends:

- General Retail: 1.95 spaces / ksf
- Restaurants, Food Hall, Cafes: 9.31 spaces / ksf
- Office and Lab: 1.09 spaces / ksf
- Residential: 0.50 spaces / ksf

It should be noted that this office and lab rate is based on the ITE urban office rate, adjusted down by 33% based on the survey finding that workers in the study area only come in about 3.5 days per week on average (see survey results in the appendix) and accounting for the low utilization observed in existing commercial-oriented garages in the area, and including a 15% captive market effect rate.

Context Adjustments

Parking models must remain sensitive to local context factors including the presence of mixed land uses, multimodal transportation access, and any existing transportation demand management (TDM) programs.

Due to the mixed-use character of the projected development and the existing neighborhood, an internal capture adjustment of 15% was applied to future parking demand for commercial uses. This represents the fact that many users of these commercial spaces live or work in the same neighborhood and will not drive and park to reach these destinations once they are already on site.

In order to remain conservative, no specific adjustment was made to account for multimodal transportation access to the site. However, the project team expects that multimodal transportation will further reduce the expected parking demand and should feature prominently in proposed solutions to manage future demand.

Future parking to be provided on development parcels will feature a mix of management approaches. Some facilities may be reserved for residents, while most will feature a shared parking approach that opens spaces up for visitors to multiple uses and to the public. The

number of parking spaces to be provided on-site for each parcel was modeled after previous developments, other comparable developments in the New England region, the site configuration and constraints, and potential developer proposals.

All new parking facilities, except for small reserved residential parking facilities, are assumed to be shared based on anticipated parking management strategies to be employed at newly constructed parking facilities, including market rate paid parking to be made available to the public at all new facilities.

Future Parking Demand – Key Findings

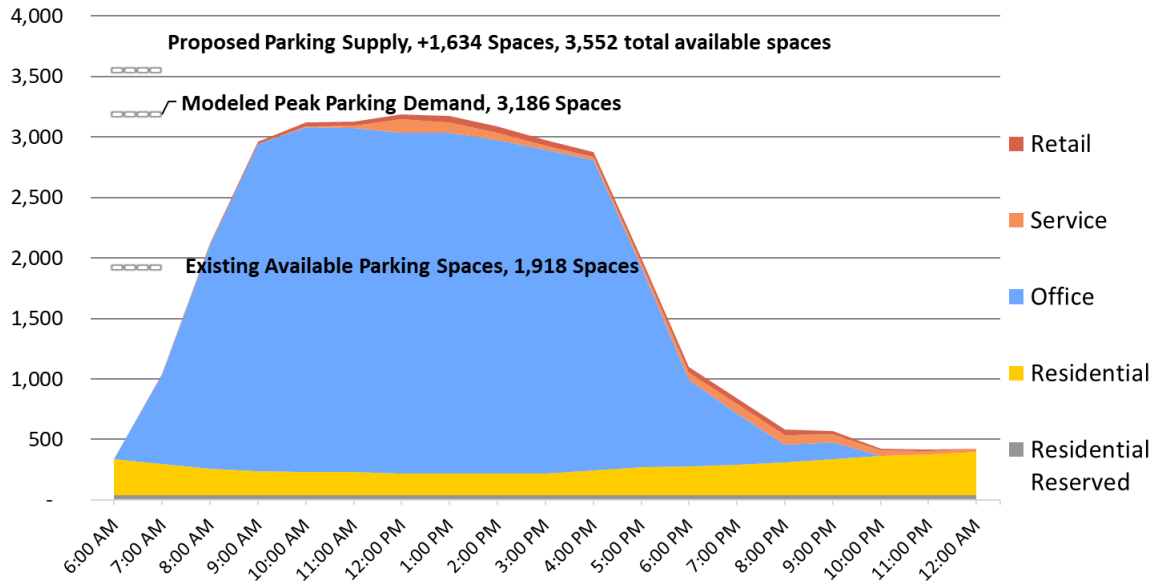
Using the method and key assumptions laid out in this chapter, the project team modeled weekday and weekend parking demand for the speculative future development program (see Figure 16).

The calibrated parking model indicates a weekday peak parking demand of 3,186 spaces for the proposed development program. This peak will occur during the midday period from roughly 12 PM – 2 PM. The projected new parking supply to be constructed for the development parcels amounts to 1,634 spaces. That means there are 1,552 excess vehicles not accommodated by the new parking supply (3,186 peak parking demand minus 1,634 new parking spaces).

There are 2,906 currently unoccupied parking spaces in publicly accessible facilities in the area (both on-street and off-street). In order to remain conservative, we assume that only 66% (1,918) of these existing, unoccupied, publicly accessible spaces would be available to support future I-195 Parcel development. These 1,918 spaces can support the 1,552 excess vehicles generated by new development while providing a substantial buffer. The remaining 34% of currently unoccupied spaces in publicly accessible parking facilities are assumed to support other development or growth in the study area.

Evening demand is expected to fall well below the expected on-site parking supply. Weekend demand will also fall well below the proposed parking supply, as the majority of parking demand is driven by weekday commuter use. The on-site parking supply will easily accommodate residential and commercial demand in the evening and on weekends with no spillover onto neighborhood streets.

Figure 16 Modeled Weekday Parking Demand by Time of Day and Use



RECOMMENDATIONS

The following recommendations are the result of the analyses completed by the project team and documented in this report. These recommendations in many cases align with and reiterate the strategies proposed during the previously completed I-195 District East Side Parking Study (July 2022). Recommendations are divided into three groups:

- **Parking Resources.** Results of the future parking demand model suggest that specific new parking resources should be provided to ensure that district-wide parking demand is accommodated.
- **The Demand Management Toolset.** This toolset provides a suite of strategies that can be directly implemented or encouraged by the I-195 District during review of incoming development proposals. These strategies are focused on mitigating parking and curbside demands and operational impacts from new development. **This is a toolset – not all strategies are expected to be implemented. They are presented as options to manage future parking demand.**
- **The Curbside Management Toolset.** This toolset offers strategies that can directly influence and improve how existing parking resources are used and managed in the district, both now and in the future. Many strategies in this section would need to be led and implemented by the City of Providence. This study is documenting these recommendations with the intention of sharing this information with the City of Providence.

Parking Resources

If development potential in the West Side of the I-195 District is maximized, a new large-scale parking resource must be provided to achieve the vision for shared parking. A limited number of parcels exist within the District land that could accommodate this type of large-scale parking facility. Parcel 35 offers the most viable location for a new parking garage that could support demand from new development on that parcel as well as overflow demand from other parcels during off-peak hours. Parcel 34 could also potentially accommodate a new parking garage. Construction of such a garage may not be warranted if the ultimate buildout of parcels is lower than the maximum density allowed by the I-195 Redevelopment District Development Plan.

Our model included a potential 496 space parking garage on Parcel 35 that would support the office and lab uses on that site during work hours while supporting residential and commercial demand from the district as whole during other hours. This is just one potential configuration that would create the desired shared parking ecosystem – the specific location, configuration, and size of any new parking resource should be dictated by both these long-

term projections and the needs of the specific development in question. A shared parking facility of this scale could effectively serve the area when located in the vicinity of the West Side Highway District area. In any case, providing a new, large-scale parking facility of this type is warranted based on the projected development program created for this report.

Demand Management Toolset

The parking demand scenarios modeled during this study did not apply adjustments based on a suite of demand management tools. Implementation of these policies will further reduce parking demand and mitigate curbside impacts. The impacts of these potential transportation demand management (TDM) programs are described in this section. These factors are intended to offer a range of options that can help achieve desired curbside operations in the future. While the internal capture and local context adjustments applied in this analysis were conservative, these factors are expected to grow into the future. The more comprehensively the elements described in this section are applied, the greater the ultimate parking reduction will be. Most of these strategies are complementary to one another and work best when implemented as part of a district-wide TDM package. **These strategies are part of a toolset – they are not all expected to be implemented. Each strategy provides one option to further reduce parking demand in the future if needed. The findings of this study indicate that parking demand from the speculative future development program can be successfully accommodated even without accounting for the impacts of these potential demand management tools.**

High Priority Demand Management Tools

High priority tools are expected to be the most feasible for implementation and achieve the greatest impacts.

Access and Wayfinding to Parking Garages

The parking inventory and utilization findings from this study indicate that nearly all off-street parking facilities in the study area are underutilized, including those which are publicly accessible. Wayfinding tools and increased signage advertising the public availability of these spaces can help mitigate on-street parking demand and alleviate the current public perception that the study area lacks parking (see Figure 17). Strategically placed signage is also often an affordable strategy that can result in effective outcomes, especially for several of the large parking garages that are publicly accessible and mostly empty. Garage owners and the City of Providence should collaborate to increase signage and wayfinding for these critical public (but privately owned) parking resources.

Safety concerns can also dissuade potential users from parking in a garage. Garage operators should work to provide a safe and comfortable environment, including through the use of on-site security or operational staff, to promote greater use.

Time-of-day restrictions can also dissuade public use of underutilized garages. Garage owners and operators should acknowledge the presence of a variety of potential customers and offer overnight parking, all-day parking with discounted rates for service industry workers, and other programs targeted to a broad user base that can increase utilization.

It is to the advantage of parking facility owners and operators to advertise, price, and market these spaces effectively to maximize utilization over time.

Figure 17 SSL Garage Entrance

Shared Parking

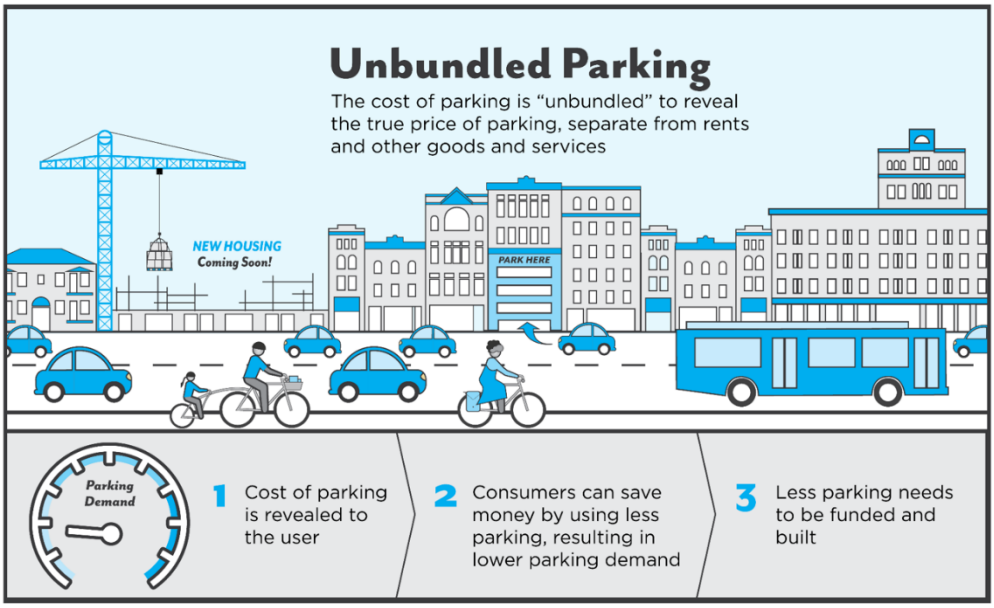
The future parking demand model prepared for this study assumes that all future expected parking will be offered in a shared environment. To achieve the parking scenarios documented here, the I-195 District must require developers to offer shared parking arrangements and publicly accessible parking priced at a market rate. **Similar to the East Side study, this is the most imperative parking demand management strategy documented in this report.**

Unbundled Parking

The cost of providing parking is often hidden from the user. Separating the cost of parking from the cost of rent or purchase price is one of the simplest methods to reduce overall car trips, reduce traffic congestion, and reduce the cost of development. Traditionally, off-street parking provision is baked into the cost of commercial rental agreements and residential leases, driving up prices and resulting in an oversupply of parking spaces. Unbundled parking is leased separately from active uses and is not associated with one particular use. This format fits naturally into a shared parking environment, makes the true cost of parking visible to users, and enables more affordable housing by separating expensive parking from residential units (see Figure 18).

Studies from major metropolitan areas have indicated that unbundling parking can reduce residential parking demand by 5-15%, particularly when offered alongside on-site carsharing. **The I-195 District should encourage incoming developers to unbundle parking as described here.**

Figure 18 Unbundled Parking Graphic



Low Priority (Future) Demand Management Tools

Low priority demand management tools provide additional opportunities to manage and reduce parking demand in the future if needed. These tools are not expected to be implemented at this time, but should be considered as part of a long-term strategy to manage parking demands in the neighborhood. **The strategies described in this section align with those proposed for the East Side study and should be viewed as applicable District-wide.**

On-Site Carsharing

Car sharing services such as ZipCar offer residents and employees an alternative to using their own vehicles for trips that must take place by car. Car sharing allows individuals to forego owning a vehicle while retaining the comfort of knowing that they can always access a car on-site for special trips. When on-site car sharing is offered alongside unbundled parking, many tenants may choose to rely on car sharing and save money on parking and vehicle ownership costs. The impact of on-site car sharing is expected to range up to 15% when used alongside unbundled parking. ZipCar rentals are currently available in the Downtown

Providence area - the I-195 District should encourage developers to provide additional car sharing spaces on-site to meet future demand and facilitate unbundled parking.

On-Site Bicycle and Pedestrian Amenities

Modern tenants are more likely than those of previous decades to make use of pedestrian, bicycle, and other active transportation modes. Developments that incorporate facilities and amenities that support biking and walking are well positioned to attract tenants while also reducing the demand for parking. Facilities such as bike lanes and sidewalks on adjacent streets, in-building bicycle parking, lockers and showers for non-resident tenants who bike, and in-unit bike storage options all increase the value of new developments and reduce parking demand. Typical elements of a bike- and pedestrian- friendly development include:

- Indoor and outdoor bike parking facilities for tenants and visitors
- In-unit bike storage features
- Bike lanes and other on-street facilities on adjacent streets
- Wide and well-maintained sidewalks
- Public showers and lockers for non-resident tenants and visitors
- Improvements to crosswalks adjacent to the development site

The existing I-195 Redevelopment District Development Plan requires a specific amount of off-street bicycle parking per the standards laid out in Table 10. It also maintains specific design standards for bike parking and related amenities. The I-195 District should continue to uphold these standards and consider expanding requirements to cover items such as the public showers and lockers for bike commuters and in-unit bike storage features mentioned above.

Table 10 Off-Street Bicycle Parking Requirements

Table 2.4-1: Minimum Bicycle Parking Requirements – All Districts		
Use	**Number Required**	**Percent Long-term Covered/ Secure (see Section 2.4.D)**
Multifamily Residential	1 per 2 dwelling units	80%
Office	1 per 2500 SF	80%
Lab/Research and Development	1 per 2500 SF	80%
Hotel/Bed and Breakfast	1 per 5 rooms	-
Education/Institution/Government	1 per 2500 SF	50%
Retail	1 per 2500 SF	-
Restaurant/Bar/Specialty Food Service	1 per 2500 SF	-
Brewery/Distillery/Winery	1 per 5000 SF	-
Artisan Industrial/Industrial Design/Manufacturing uses with an accessory retail component, such as apparel manufacturing, millworking, coffee roasters, etc.	1 per 2500 SF	50%
Live Entertainment Venue	1 per 2500 SF	-
Professional Services	1 per 2500 SF	-
Personal Services	1 per 2500 SF	-
Day Care	1 per 5000 SF	-
Medical/Dental Office or Services	1 per 2500 SF	-
Arts Gallery/Arts Studio	1 per 2500 SF	-
Live/Work Space combining residential with commercial, retail, or artisan industrial uses	1 per 2500 SF	-
Community Center/Cultural Facility	1 per 2500 SF	-

Multimodal Transportation Access

The I-195 District's West Side parcels are in an area that is currently served by regional transit services. The significant scale of the proposed developments could support improved frequency of these services in the future. The presence of premium regional transit would bolster the efficacy of many TDM programs and further reduce parking demand. External trips that would otherwise be completed by car could be completed via transit services. When combined with incentive programs such as subsidized transit passes, this type of service would greatly alter the parking demand landscape in the future.

Figure 19 Chestnut Street Cycle Track

Similarly, the development of regional bike facilities or on-street bike facilities on adjacent streets will further unlock the true benefits of TDM programming. Safe and comfortable bike facilities on key corridors will allow external trips to be completed by bike in much greater numbers than may be possible under current conditions. Facilities such as the existing Chestnut Street cycle track already contribute to the bike-friendly atmosphere of the neighborhood (see Figure 19).

The I-195 District should encourage developers to partner with the City of Providence and other agencies to invest in multimodal infrastructure in the neighborhood.

Subsidized Transit and Micromobility Passes

The I-195 District should push developers to offer subsidized transit passes, carshare memberships, and/or micromobility service memberships to their tenants, particularly commercial office and lab tenants. Many incoming office and lab tenants may already be engaged in such behaviors – requiring this as part of the development agreement for these uses will reduce parking demand and ensure that incoming employees have an incentive to use public transportation.

Advanced Off-Street Parking Management and Valet

Advanced parking management techniques such as valet parking can allow a larger number of vehicles to fit within a parking facility of a given size. Valet parking handled by attendants allows vehicles to be stacked closer together and maximizes the available supply. The I-195 District should ensure that developer proposals demonstrate a familiarity with valet-style parking management and offer the ability to operate valet services in the future if these are needed.

Require Curb Infrastructure and Loading Studies

The I-195 District must pay close attention to the internal and curbside loading needs of incoming developments. Even developments that provide adequate internal loading bays for critical building services will still generate curbside demand due to the many forms of curbside delivery, loading, and passenger activity that comprise the modern transportation system (see Figure 20). Providing adequate space for small package deliveries, food deliveries, ride-hails, and other curbside services is key to ensuring traffic operations do not deteriorate at new development sites.

Figure 20 Commercial Truck Parked in a Bus Stop

Developers should be required to assess site-specific curb infrastructure, parking, and loading and these studies should be shared with the City of Providence to ensure that solutions align with the City's requirements.

Micromobility Integration

The growth of shared micromobility platforms represents a new and rapidly changing force in parking demand. Technologies such as electric bikes, scooters (Figure 21), and other small vehicle innovations extend the non-car trip range for a typical user up to 2-4 miles. Access to these services within a mixed-use development site means that site users are much less likely to fall back on their personal vehicles for trips within this distance range. Given that the entire I-195 District falls within this radius, many internal trips can be shifted from cars to micromobility options if these emerging modes are made attractive and accessible.

Figure 21 Scooter Parked on Richmond Street

While the potential impact of these services is great, they are primarily a force for reducing internal, rather than external, trips. Furthermore, the novelty and volatile nature of the micromobility industry makes it difficult to predict which services and modes will have true staying power. Flexibility is key when integrating these services into a mixed-use development site. Developers should partner with Spin, the primary local micromobility vendor, to effectively integrate these options into site development. New developments may consider adding specific Spin drop zones or parking areas on-site.

Other Emerging Mobility Trends

This analysis makes no assumptions regarding future mobility trends and the impact of the growth of transportation network companies (TNCs) such as Uber and Lyft, the emergence of autonomous vehicles, and the continued growth of micro-mobility services that offer dockless scooter and bike sharing. However, these trends will continue to mature and impact the expected parking demand of future land uses. Planning for the reduced parking demand that accompanies the growth of these platforms is an important consideration when constructing new parking.

Aggressive projections suggest that autonomous vehicles, both personally owned and shared, may reach 90% market saturation within thirty years. Unlike traditional personal vehicles, these vehicles do not need to remain static and parked when not in use. They can function as part of a ride-hailing system, a monthly subscription service, or be put to alternative uses while the primary owner is absent. Autonomous vehicles can also park more efficiently than human drivers and may be “stacked” to maximize the efficiency of the parking supply. These functions mean that large amounts of parking will no longer be required at mixed-use development sites.

The continued growth of ride hailing services will further incent individuals to forego car ownership given the relatively low cost and easy access provided by Uber, Lyft, and others.

Ultimately, the key to planning for emerging mobility services is flexibility. Over-construction of parking now may require expensive retrofitting later after parking demand falls. Modern tenants expect a variety of transportation options that will only grow as innovative services and technologies become more ubiquitous.

Curbside Management Toolset

The Curbside Management Toolset includes a variety of strategies to improve the management, utilization, and operations of curbs in the study area. These recommendations

are intended to be led by the City of Providence in coordination with the I-195 District and other stakeholders.

Create a Small Business Employee Parking Permit using Underutilized Garage Space

Many small business and institutional employees in the area currently park in metered spaces in the study area. These spaces may be better used in the future for short-term parking that supports local business visitors and retail customers. However, small business employees will still need a place to park. The City of Providence should investigate the potential for off-street small business employee parking in garages located within the study area, including the Clifford Street Garage and South Street Landing Garage, as well as future garages built by local developers, to provide this employee parking. These garages would serve as an easy option for employees and free up additional on-street spaces for local business visitors.

Figure 22 Commercial Truck Loading in No Parking Zone on Chestnut Street

Add Loading Zones

Parking utilization data and traffic counts indicate that adequate parking and vehicular capacity exist on roadways in the study area. However, on street / illegal loading activities contribute to congestion and poor roadway operations because adequate loading zones are not in place (see Figure 22). This study recommends working directly with business owners in the study area to implement additional curbside loading zones. Implementing new loading zones may require removing some metered parking spaces – this is a worthwhile tradeoff if it means that loading activities no longer create safety and operational hazards.

Curbside loading zones can be configured to serve the following use cases:

- **Commercial vehicle loading.** Commercial vehicles including trucks require loading zones of adequate dimensions to ensure that they do not obstruct passing traffic or infringe on driveways or parking spaces. The dimensions required for such loading zones vary based on the expected vehicles which will use them. The City of

Providence should work directly with local business owners to understand what vehicle types should be expected in the area, and design loading zones accordingly.

Commercial loading zones may be regulated for 30-minute limits depending on the nature of the activity. Flexible zones that allow 30-minute parking for commercial deliveries and 15-minute parking for short-term deliveries and passenger activity allow multiple uses to coexist in the same space.

- **Short-term delivery.** A variety of goods increasingly travel through Providence on short-term delivery vehicles. These can include parcels delivered by courier services such as UPS, Amazon, and FedEx or food deliveries operated by on-demand services such as DoorDash and Grubhub.

  These short-term deliveries may only require curb access for no more than five minutes and often as little as one minute – however, they are prone to double parking due to their short stay times if no loading zones are available. This study recommends adding specific short-term delivery zones in areas where high volumes of delivery traffic are expected, such as at popular restaurants which offer delivery service especially along Weybosset Street and around Johnson and Wales University buildings. The City of Providence should reach out directly to key business owners to understand where these zones might be needed. If a more comprehensive approach is desired, the City may consider implementing one 15-minute parking space per block on commercial streets.

  Short-term delivery zones can be managed as 15-minute parking spaces, allowing deliveries to take place but also allowing for passenger pickup / drop-off and other short-term parking operations in a single flexible zone. The City has already started adding these short-term spaces, such as those added on Point Street between Richmond Street and Chestnut Street (see Figure 23). The effectiveness of these spaces should be assessed before additional short-term spaces are considered.

- **Passenger pickup / drop-off.** Passenger pickup / drop-off activities function similarly to short-term deliveries. They typically only require a few minutes at the curb but are prone to double parking if space is not available. These users can take advantage of 15-minute parking spaces. The City of Providence should consider adding these spaces where ride-hail activity is greatest. Ideally, these spaces will serve both passenger and short-term delivery uses.

Figure 23 Designated Pick-up and Drop-off Area on Point Street

Ride-hail services such as Uber and Lyft can also benefit from geofencing. Geofencing indicates specific areas where Uber/Lyft drivers can begin and end trips and prevents trips from using other curb areas. It is managed directly by the ride-hail operators in their apps. The City of Providence should coordinate with these services to understand demand in the area and implement geofenced drop-off locations if ride-hail activity continues to grow and/or creates operational issues as development continues.

Extend Meter Times and Simplify Regulations

Most meters in the study area are not enforced after 6 PM. Given the large amount of evening activity in the area, meter times should be extended to 8 PM to moderate this evening demand.

Time limits for meters should also be simplified (see Figure 24). Rather than having many different time limits, the City should implement 4-hour and 10-hour zones across the study area. 4-hour meters can serve commercial and retail uses while 10-hour zones will support the small business and other employees who must park all day in the area. Ideally, 10-hour meters could be phased out in favor of an off-street monthly permit parking program for small businesses.

In the future, the City should consider removing time limits altogether and switching to a graduated pricing system. This pricing structure would encourage turnover while allowing people to park all day if they absolutely need to. Graduated pricing means charging substantially more for each hour beyond a typical 2- or 4-hour limit to encourage turnover while preserving flexibility.

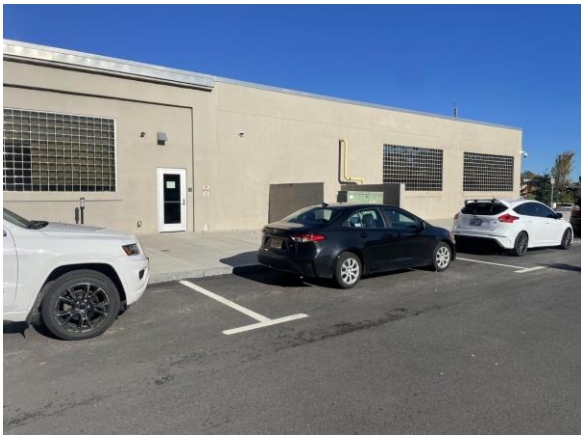
The City should also consider applying consistent time limits on non-metered streets. Rather than having multiple different time limits, select a consistent 2-, 3-, or 4-hour time limit for these non-metered areas to avoid confusion from users.

Figure 24 Types of Meters on the West Side

Add Meters to Unregulated Streets

The high utilization on Dyer Street and Friendship Street offers an opportunity to add more parking meters to the area on surrounding streets, including Dorrance Street (see Figure 25). Parking meters will help to regulate demand, encourage turnover, and make it clear to users that these streets are intended to provide parking for commercial use. The City should consider adding meters to these streets in the future as development continues. See findings from the parking inventory map (Figure 10) for the locations of unregulated blocks as of the time of this report's publication.

Figure 25 Unregulated Segment of Dorrance Street

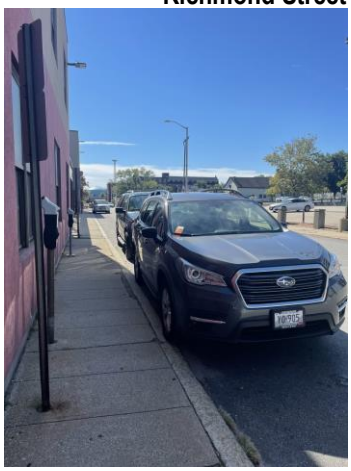


Increase Enforcement

The City of Providence should add staff capacity and conduct focused enforcement in the study area to ensure that curb regulations are followed. Parking enforcement should not only address metered parking – enforcement must also ensure that loading zones, permit programs, and other curb regulations are used correctly, and that safety and operational issues such as double parking do not occur.

Effective enforcement is a tool to share information, increase compliance, and improve curb operations. First-time forgiveness can reduce the negative perception of parking enforcement and provide an opportunity to share information with curb users about how to use the curb in a way that is both compliant and meets their needs.

Figure 26 Parking Ticket on Richmond Street



Implement Daytime Resident Permit Program

No daytime resident permit program currently exists within the study area. Currently, spillover parking from retail uses does not appear to be causing high utilization on residential streets. However, additional commercial demand in the future may begin to impact residents. Implementation of a daytime resident permit program would ensure that residential streets are always available for residents and not overutilized by visitors. In order to remain flexible, the City could implement a regulation of "2-hours except by permit" which would allow for some commercial parking but preserve spaces over the long-term for permit holders. Permits could be offered (for free or for a fee) to residents, with limits on the number of permits allocated per household.

APPENDIX A SURVEY RESULTS

Key Survey Findings

Key observations from the survey completed for the I-195 Redevelopment District West Side Parking and Curb Study include:

- Most respondents (54%) drive alone as their primary mode when traveling to the study area.
- Most respondents (61%) park in an on-street space when driving to the study area. Only 36% of respondents park in an off-street parking facility.
- 20% of those who drive to the study area do not pay to park.
  - For those who work in the study area, a larger portion (22%) have a monthly or annual permit, and a smaller portion (16%) do not pay to park.
- Most respondents (51%) park a block or less from their final destination when parking in the study area.
- 47% of respondents who drive to the study area say they find parking in 3 minutes or less.
  - 72% say they find parking in 5 minutes or less.
  - 89% say they find parking in 10 minutes or less.
- Respondents' view of parking enforcement is evenly split. 37% of respondents believe parking enforcement is 'just right,' 26% believe it is not strict enough, and 36% believe it is too strict.
- 44% of respondents who work in the study area now work from home more frequently.
  - Most respondent's mode of transportation did not change due to COVID-19, but 46% of people are no longer commuting to the study area as often as they were pre-pandemic.
- 40% of respondents bike to, from, or within the study area at least a few times per month.
- Most respondents (58%) feel that improved bicycle facilities is the most important factor to increase their likelihood of biking in the study area.
  - Of those who drive alone, 33% responded that improved bicycle facilities would be the most important factor to increase their likelihood of biking in the study area, followed by 23% who responded that less availability of parking would be the most important factor.

- Most respondents (65%) feel that the lack of existing and well-maintained sidewalk infrastructure limits their willingness to walk to and within the study area. Many also noted various safety concerns such as drivers ignoring crosswalks and poorly cleared sidewalks after snow.
- 85% of respondents noted that factors that keep them from visiting the study area are directly related to parking challenges.
- Respondents ranked 'expanded walking facilities' as their highest priority for curbside street uses. Other curbside priorities that are important to respondents include public transportation; bike/scooter facilities and parking; parklets, retail, and outdoor recreational space; and access for people with disabilities.
- Most respondents (64%) feel that more frequent transit service to their origin/destination would encourage them to take transit more often.
- 63% of respondents feel that improved infrastructure to create a complete and safe pedestrian network would encourage them to walk more often to/from the study area. 59% feel that more crosswalks and more frequent "walk" signals at signalized intersections would also encourage them.

APPENDIX B FULL PUBLIC MEETING COMMENTS RECEIVED

Listening Session Presentation and Comments

The session began with a brief presentation led by representatives of the I-195 Redevelopment District to provide an overview of the ongoing parking study and initial findings. The listening session presentation had 13 attendees who were a mix of residents, business owners, institutional and government representatives, visitors, and advocates in the area.

Attendees were encouraged to voice comments and concerns throughout the presentation. Comments covered topic areas such as project process, potential recommendations, and background knowledge of the study area, including:

- Concern that dedicated on-street parking for residents and their visitors is lacking throughout the neighborhood. This is a challenge for residents of the study area who do not have on-site parking at their residence.
- Additional data collection and analysis could be helpful to better understand the existing parking conditions of the study area. It would be important to note the lots and garages that are designated as residential or corporate parking. It would also be interesting to gather and present data on the price of all garages in the study area.
- A primary reason for why there are so many parking lots in the study area is because Brown University purchased many of the properties here. These lots might be subject to redevelopment in the future.
- The Clifford Street Garage should undertake tactics to better accommodate the needs of residents and visitors. For example, it would be helpful to offer a lower evening rate for those that work for the city's nighttime economy, as well as for those visiting the city for large evening events.
- Emphasis that the reasons behind the underutilization of off-street parking is beyond the control of the study. Much of this is due to private lots that are leased to employees, which are no longer being used regularly. Just because they are not utilized does not mean they are not committed.
- Concern that there is lack of dedicated space for delivery vehicles and rideshare app pickups and drop offs.
- Concern that there is a general lack of accessible on-street parking in the study area. This may be an easy, low-cost fix by adding more signage to indicate accessible

parking but would require longer-term construction to make the infrastructure around each parking spot accessible.

Listening Session Discussion

Following the presentation, District staff and representatives were available to attendees for further discussion. The team used poster-sized maps depicting parking regulations in the study area to encourage discussion and get comments related to specific locations. Attendees were encouraged to add comments to the maps using post-it notes.

Listening session attendees expressed a variety of concerns during this discussion period. Key concerns related to parking and curb issues raised in these additional comments included:

- It can be challenging and dangerous for pedestrians, bicyclists, and buses to travel when segments of the street are frequently blocked by short-term delivery trucks.
- One reason why the Clifford Street Garage may be underutilized is because surrounding lease holders have a number of required parking spots for their employees, many of which may not be needed. It will be important to uncover if those lease holders want or need those spaces.
- Gender, and the correlating perception of safety, may be an important factor in determining where people choose to park.
- It is important to review the standards and guidelines for accessibility to determine how many more accessible parking spaces are needed.
- There may be incentives to offer to the public and private lot owners that would open up private lots to individuals seeking off-street parking.
- Consider the reasons why people prefer to park on-street versus off-street in highly underutilized facilities.

ADDENDUM – I-195 WEST SIDE PARKING STUDY

The purpose of this addendum is to address comments received at the April 19, 2023, I-195 Redevelopment District Commission Meeting regarding this study. Additional data collection and review has determined that the overall findings of this study remain unchanged.

Comment Response – Relevance of Fall 2022 Parking Utilization Data

The parking data used in this study from Fall 2022 aligns closely with Spring 2023 parking conditions. The project team looked at the midday weekday occupancy data for two of the largest garages in the study area, including the South Street Landing (SSL) Garage and the Clifford Street Garage using data from Fall 2022 and Spring 2023. Occupancy count data for the Clifford Street Garage, which was provided by the property manager, showed roughly no change with a 2% decrease in occupancy since the fall. Occupancy count data for the SSL Garage, which was originally collected on-site during the fall and collected on-site again in the spring, showed a more substantial decrease in utilization with 14% less occupied spaces since the fall data collection period. The parking data originally collected for this study remains valid based on these observations.

				Fall 2022		Spring 2023		
Parking Garage	Regulation	Sum of Spaces	% of Total	Spaces Occupied	% Occupied	Spaces Occupied	% Occupied	% Change
SSL Garage; 1 Davol Square	Publicly Accessible	744	9%	380[5]	51%	275[6]	37%	-14%
Clifford Street Garage	Publicly Accessible	1250	15%	364[7]	29%	349[8]	27%	-2%

[5] Data collected on-site Thursday, Sept. 29, 2022, between 10am and 12pm.

[6] Data collected on-site on Tuesday, May 16, 2023, at 11am.

[7] Data from Wednesday, October 12, 2022, at 11am provided by the local property manager.

[8] Data from Wednesday, March 22, 2023, at 11am provided by the local property manager.

Additional Information on Utilization Data Selection for Large Lots and Garages

Utilization data for most off-street lots and garages was collected manually by field teams. Data for some lots and garages was obtained through coordination with local property managers who provided utilization data over a period of time. The utilization data selected for use in this analysis from these datasets was taken during a mid-week weekday during a midday time period from the counts that were provided, aligning with the days used for other occupancy counts that were collected on-site.

For example, the project team was not able to count spaces during the on-site data collection period for the Clifford Street Garage. Instead, we used the occupancy data sent to us from the property manager for Wednesday, October 12 at 11am. This time period aligned closely with the parking garage data that was collected on-site for other lots and garages between 10am and 12pm on a mid-week weekday in late September.

Comment Response – Which Lots are Publicly Accessible?

The project team verified that all lots listed as "publicly accessible" in this report were in fact open to the public as of Fall 2022. At this time, the team cannot independently verify each and every lot indicated as publicly accessible as of Fall 2022 remains so in May 2023. However, this team has verified that all major public parking resources (those listed as large lots and garages in this report) do remain publicly accessible at this time. As these resources comprise the vast majority of public parking in the neighborhood, no substantial impact to the findings in this report is expected even if the regulation of smaller lots may shift over time due to changes in leases and management.

Comment Response – Can we account for vacant retail in the future parking demand model?

The future parking demand model developed for this report did not specifically account for existing vacant retail spaces that may become occupied in the future. There is currently approximately 32,400 square feet of vacant retail space in the projects developed on the 195 District west side parcels and Clifford Street Garage.

Based on the same assumptions used for the modeling effort documented in the body of this report, this space could generate demand for 41 additional parking spaces during peak hours

if and when it is occupied. This would bring the total future parking demand to 3,227 spaces during peak hours. Our analysis shows that 3,552 spaces will be available to support new parking demand in the future. As such, the increased demand generated by this vacant retail space does not alter the findings of this report.