Charleston
Comprehensive Parking Study

January 2019

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Introduction

Introduction

The Charleston Comprehensive Parking Study offers a comprehensive analysis and set of recommendations for the parking system for the City of Charleston. The City will use this document as a guide for future decision-making, resource allocation, and investment choices. This Study focuses mainly on the parking and mobility on the Charleston Peninsula. However, the recommendations and analysis consider and are integrated with the rest of the City and surrounding communities.

Overview

We are at a point of incredible change in the way that parking and transportation is accessed, used, valued, operated, and managed. The desires and behavior of users are changing and a wealth of mobility options are available. We have seen the emergence of the "shared economy" in recent years and owning a vehicle is not the same rite of passage it once was. Emerging mobility providers from the private sector (e.g., Cars2Go, Zip Car, and now on-demand micro-mobility services are filling the first/last mile gap to enhance transit service. Mobile technology puts everything at the user's fingertips, providing the ability to access real-time parking and transportation information in seconds, such as parking availability and routing, secure on-demand mobility services, pay for parking, and other services. The wealth of data now available provides integration opportunities for cities to be able to make informed operations and management decisions.

With the change in the parking and mobility landscape, parking management isn't just about parking anymore, it's about the intersection between parking supply, demand management, and mobility. It used to be that the solution to parking challenges—both real and perceived—was to find additional capacity. Now, smart cities are using parking supply and good parking and mobility management as the lever to promote smarter and more equitable access, better behavior and decision-making, positive economic development, efficient multimodalism, and intelligent community design.
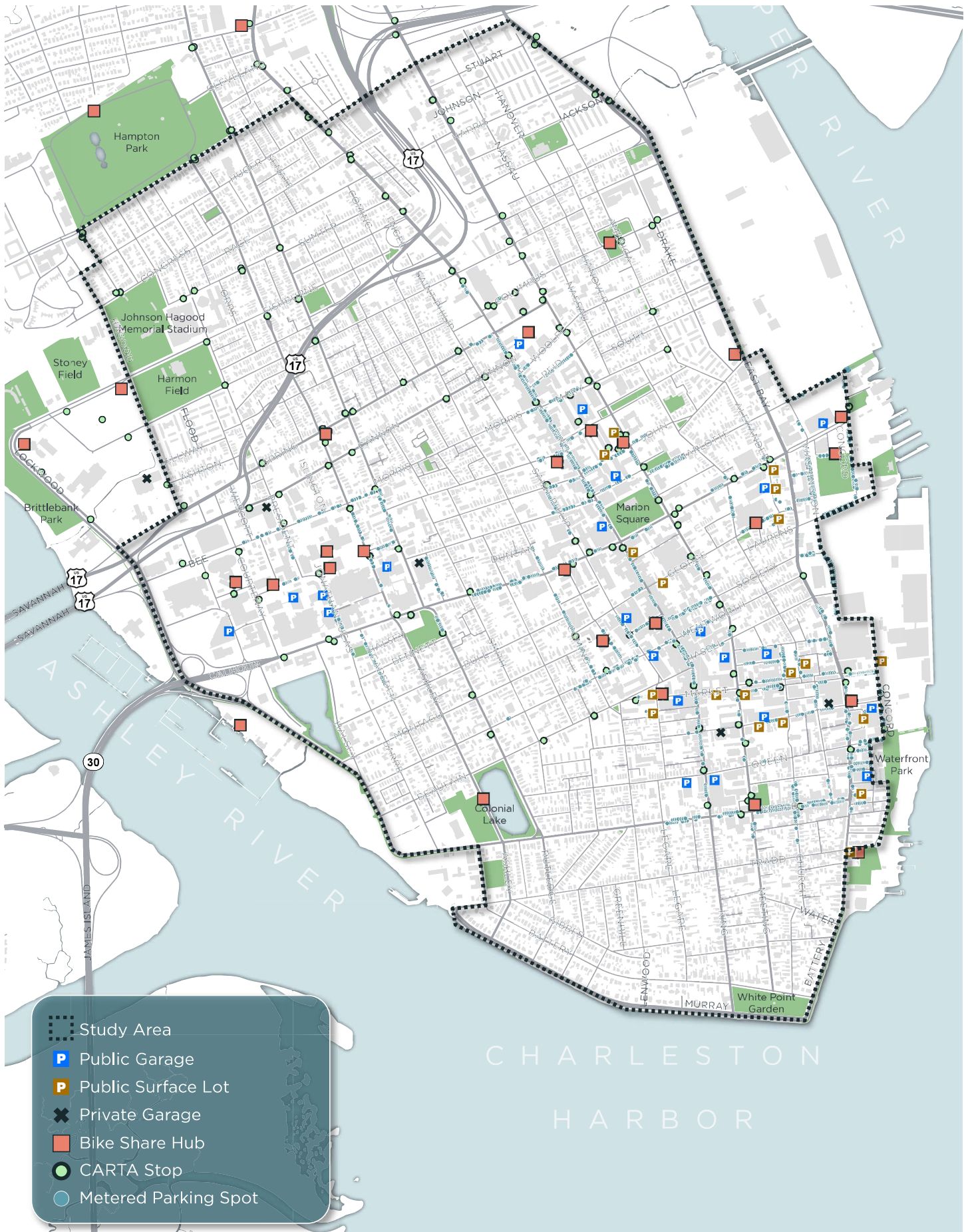
Parking is an expensive asset to build and maintain. Parking and mobility management in today's world involves building the right amount of parking in the right locations and in a way that complements good land use policy and urban design, pricing it appropriately, setting policies to manage it efficiently through data-driven decisions, and incentivizing and integrating the use of non-single-occupant automobile modes.

Data-driven approaches are now permeating parking and mobility programs throughout the country. Data extracted from existing parking technologies (e.g., meters, PARCS, LPR, transactional data) are being used to better parse information about the system and set policy, price, and practice.

Document Structure

The Study first outlines the **foundational existing conditions and analysis** for parking and mobility, and additionally catalogue the community outreach conducted as part of the process. Then, **policy considerations** are introduced to set the table for the recommendations. Finally, a detailed and **comprehensive set of recommendations** are presented.

Legend:
- Study Area
- P Public Garage
- P Public Surface Lot
- ✖ Private Garage
- Bike Share Hub
- CARTA Stop
- Metered Parking Spot

Existing
Conditions

Overview

The Charleston Comprehensive Parking Study seeks to assess the parking conditions on the Peninsula and develop recommended strategies for improving the system for all users. Parking will be viewed through a wide lens and focus not just on traditional parking solutions, but also on mobility solutions that help to reduce the need for vehicular travel on the Peninsula. This existing conditions report represents the first step towards an ultimate goal of creating a comprehensive parking strategy for the Peninsula and the greater Charleston community. This report documents findings from the data analytics and initial community outreach elements of the study process.

Purpose

This Existing Conditions Report provides a summary of today's parking conditions on the Charleston Peninsula. As stated above, this document is the first step in the creation of a comprehensive parking study that will provide Charleston with a blueprint for prioritizing parking planning decisions in the future. GIS and mapping data within this document is provided/created by the City and/or the project team, unless otherwise stated.

This report will consider the following broad subjects and how they relate to parking in the City:

▸ **Perceptions of Parking.** How the community perceives the parking system and their interaction with it

▸ **Realities of Parking.** How the parking system is actually utilized, based on in the field observations

Key Elements

These six key elements help to guide the process of the study and permeate throughout the analysis and recommendations development.

Customer Experience

- ▸ Wayfinding
- ▸ Information/communication provision
- ▸ Smartphone tools
- ▸ Commute knowledge

Leveraging Mobility
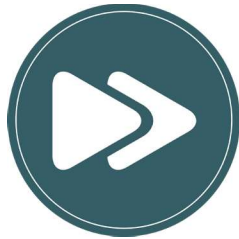
- ▸ Park & ride options
- ▸ Shared mobility
- ▸ Reduced commute impacts
- ▸ Improving commute knowledge

Technology Improvements
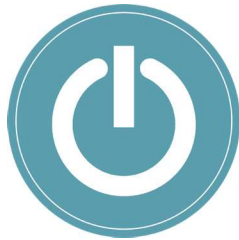
- ▸ Advanced operations
- ▸ Enhanced customer tools
- ▸ Dynamic management tools
- ▸ Data-driven policies

Policies & Practices

- ▸ Improving shared parking
- ▸ Pricing strategies
- ▸ Data-driven policies
- ▸ Holistic management

Managing Supply

- ▸ Neighborhood parking areas
- ▸ New development parking
- ▸ Public-private partnerships
- ▸ Wayfinding

Managing Demand

- ▸ Transportation demand management
- ▸ Shared mobility
- ▸ Pricing to demand
- ▸ Prioritizing access

Perceptions of Parking

This section summarizes the community and public engagement outreach efforts that were designed to provide a perception of what parking is like today on the Peninsula. Understanding the community perceived issues, challenges, and opportunities for change is a vital component of defining the baseline issues for the parking system.

Overview

Because this study is a community-driven effort, leveraging the input of the public and community leaders is tantamount to the success of the study. The City of Charleston has engaged and will continue to engage with a wide variety of people with interest in the study.

This section will focus on the following engagement pieces:

▸ Input from Project Staff Committee

▸ Stakeholder interviews

▸ Focus group interviews

▸ Extensive online surveying

▸ Community Events and drop-ins

▸ Public workshop event

Project Staff Committee

A team of City staff members from various departments was assembled to help guide the study process. These individuals represent a variety of City interests and bring local expertise to the study.

Using the six key elements outlined on the previous page, the Staff Committee was asked to rank the elements based on their perception of need in the community. The rankings were weighted based on perceived importance and the final prioritized ranking of the key elements is below.

1 Managing Supply

2 Leveraging Mobility

3 Managing Demand

4 Customer Experience

5 Technology Improvements

6 Policies & Practices

Stakeholders & Focus Groups

Community stakeholder and focus groups were engaged as part of the initial study process. These groups were given an opportunity to sit down with the project team to talk further about the parking needs for the community members they represent. The groups are listed below with a brief summary of the findings.

BCDCOG

BCDCOG is spearheading a number of initiatives aimed at improved mobility in Charleston and on the Peninsula. This includes a Park and Ride Study that is currently underway. BCDCOG maintains that there is a strong appetite from the public and from businesses for public transit improvements. They do recognize that there are some challenges to making those improvements, such as funding availability and political will.

Business and Development

Representatives from Boomtown talked about the needs of the burgeoning tech industry in Charleston. Young professionals in the industry are preferring to bike or take transit to work, lessening the need for cars and parking, but connectivity options limit their ability to do so. The West Edge Development group is bringing online a massive mixed-use development on the west side, with an additional 4,400 parking spaces.

Colleges

For College of Charleston and Trident Tech, the issue is parking capacity. There is concern that as the student population grows, the schools will be unable to find places for them to park. CofC already restricts parking permit use and provides funding to CARTA for every student to use park and ride. Trident Tech is concerned about having parking for their students who typically come at odd hours and don't have a lot of time or money to deal with finding parking.

Housing and Community Development

There is a 4 to 1 ratio for low-income housing units to every available parking space. Of the affordable housing population on the Peninsula, roughly 50% of individuals have a car. Most of those people work at home or on the Peninsula. Some residents have a challenge parking in front of their home because on-street spaces are used by the public.

Medical District

Representatives from the medical district, including the Ralph H Johnson VA Hospital, Roper Hospital, and MUSC raised capacity issues they have for parking staff and patients. All are more or less at capacity. The VA is parking staff off of the Peninsula and shuttling them over. Roper is currently looking for more spaces to support employee demands. MUSC are parking a significant number of staff off-site and shuttling them into the district.

Convention and Visitors Bureau

The amount of visitors per year is rising, and that while more people are flying into Charleston, that probably hasn't lessened the amount of visitors driving into the area. April and September are the busiest month for visitors on the Peninsula. There's a staffing issue for the bar/restaurant and hospitality businesses on the Peninsula partly because of perceived parking issues for employees.

Neighborhood Groups

Neighborhood groups from all around the Peninsula expressed concerns about visitors and tourists to the Peninsula using the parking spaces in front of their residences. Additionally, in neighborhoods near the schools, there were concerns about students from College of Charleston who park in the adjacent neighborhoods.

Historic Preservation

There is some concern for finding parking solutions that help to preserve and maintain Charleston's unique and historic character. There's also some concern that small businesses are not able to find places to park employees. There is some appetite for shared mobility options, but must be in accordance with local character.

Local Churches

Some churches on the Peninsula have capacity issues where they do not have enough spaces to park their congregations. In some cases, the churches have no dedicated spaces for any members of the congregation, even the clergy. There are concerns that people coming to church shouldn't have to pay to park and walk long distances. Additionally, there are challenges beyond just typical Sunday parking, as there are many church events on various days of the week. There are concerns about the uniformity and equity in how church parking is handled. Also to note, the City is considering changes to zoning ordinances regarding church parking.

Online Surveying

The survey yielded a significant number of total responses, and provided input from a wide variety of user groups. Although general perceptions of parking are that it is difficult, the survey results revealed that most people are able to find parking reasonably close to their destination and within an appropriate amount of time. Additionally, the desire for more travel options indicates that mobility solutions could help to mitigate parking issues in the area.

Who took the survey?

3,589
Total Responses

25%
Aged 31 - 39 years old

Who are you?

- Non-Resident Employee
- Visitor
- Peninsula Resident
- Resident Employee
- Other
- Non-Resident Business Owner
- Resident Business Owner
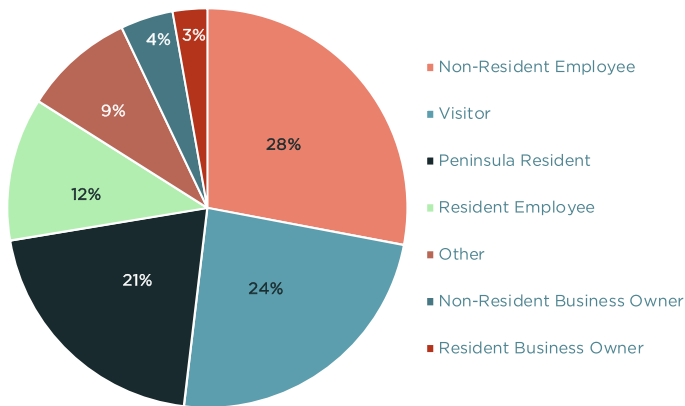
40%

Peninsula Employees

36%

Peninsula Residents

Where do you live? (If not on the Peninsula)

■ All Non-Residents ■ Non-Resident Employees ■ Non-Resident Business Owners ■ Visitors
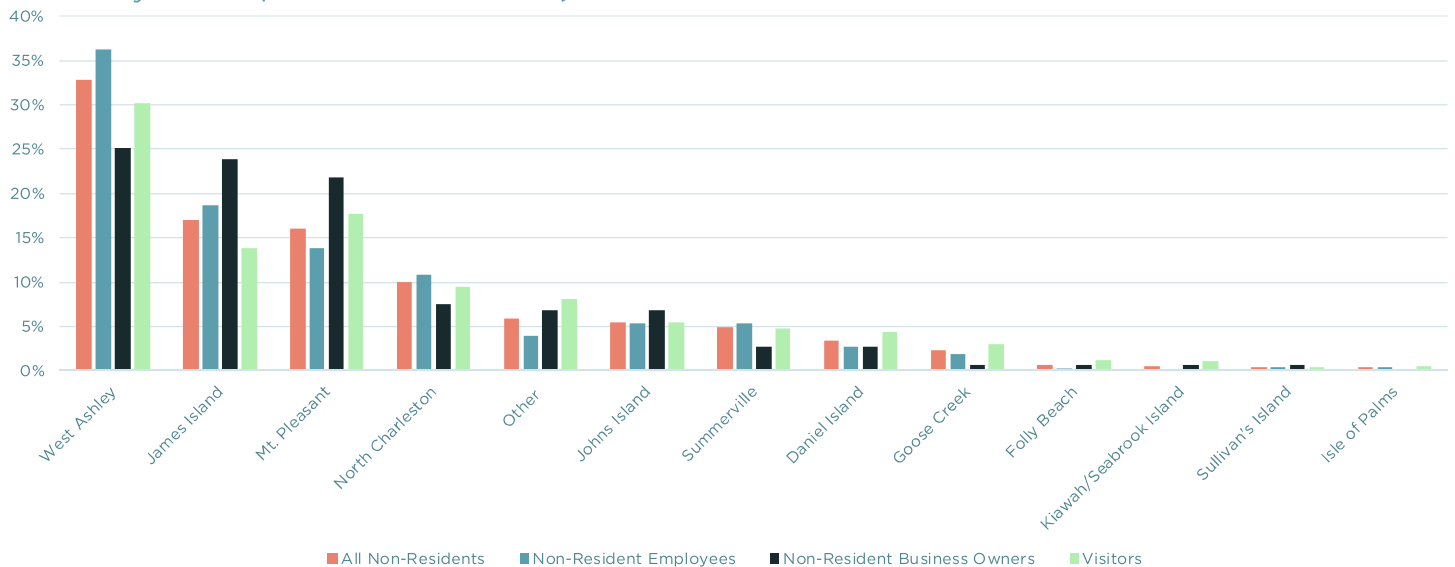
What did the community say?

What is your usual mode of transportation to the Peninsula?

Legend: ■ Drive alone in a car ■ Drive with others ■ Bicycle ■ Walk ■ Other mode
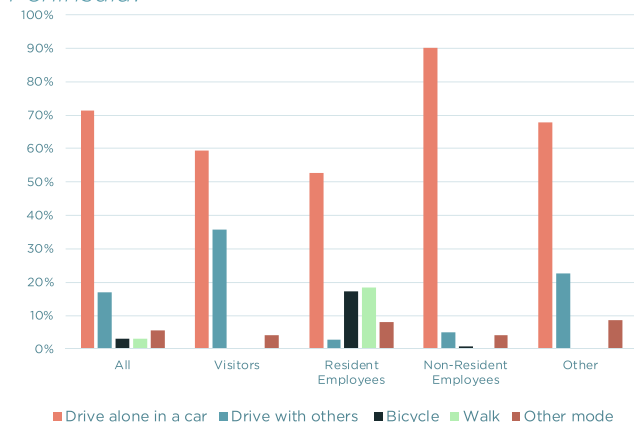
Driving alone is the dominant form of transportation to and from the Peninsula

How long does it usually take you to find a parking space?

Legend: ■ Less than 2 mins ■ 2 - 5 mins ■ 6 - 10 mins ■ 11 - 15 mins ■ More than 15 mins
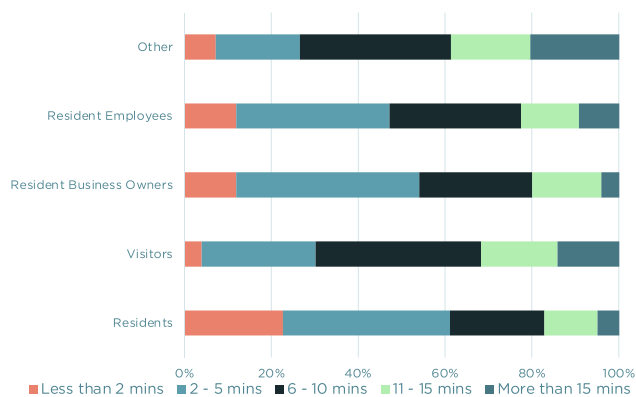
A significant number of people are finding parking **in under 5 minutes.**

Where do you typically park?

Legend: ■ On-street ■ In a garage ■ In a parking lot ■ In my driveway or elsewhere on my property
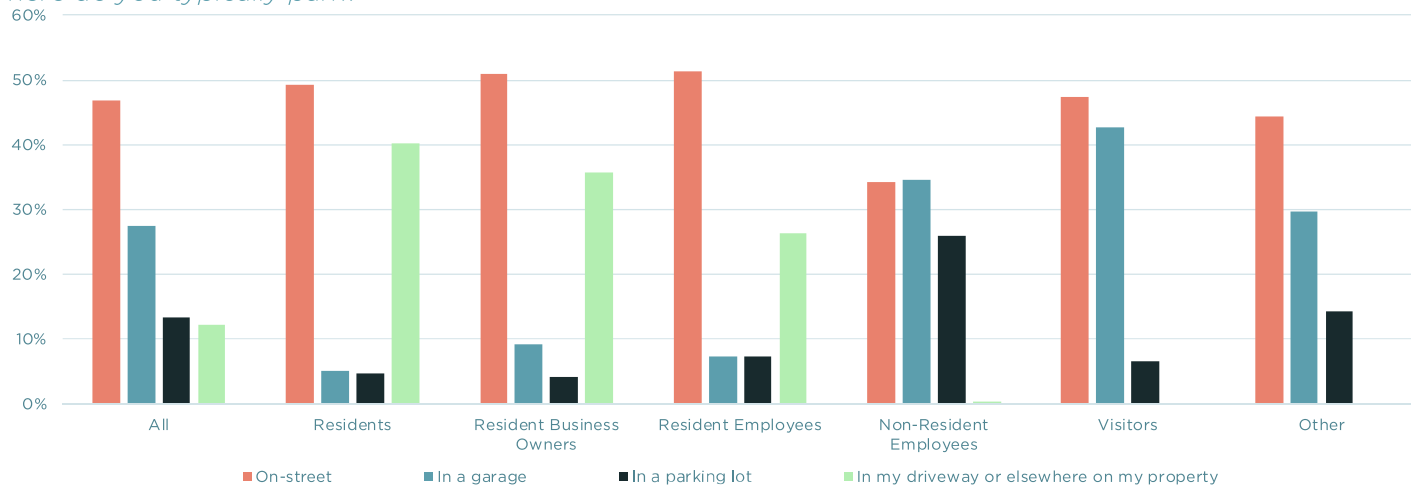
Most people are parking in **on-street** spaces. Residents are, not surprisingly, also parking in their driveways. Those looking to stay on the Peninsula longer, like employees and visitors, also use parking garages.

What is the biggest challenge related to parking?

Legend:
- Finding an available space quickly
- Finding an available space that is close
- Finding an affordable space
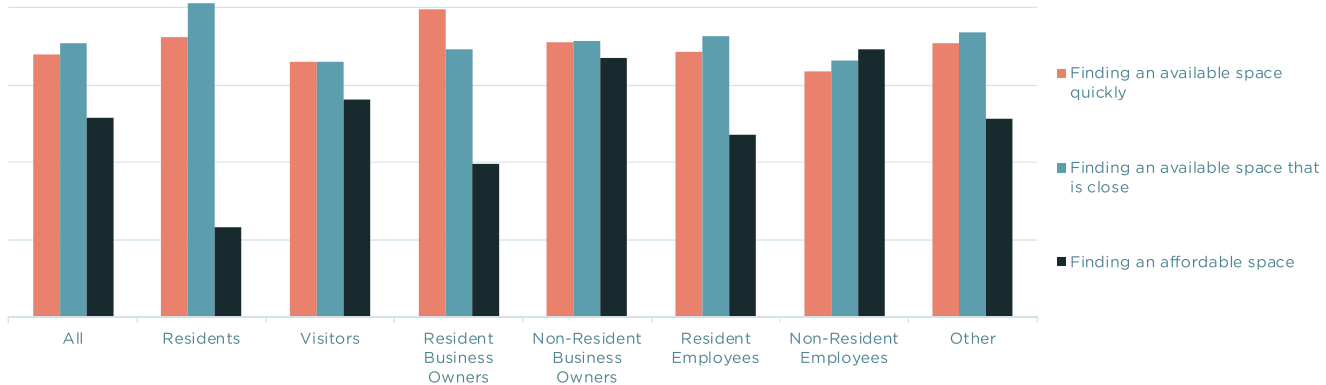
Responses were split between mostly finding a close space or finding one quickly. Finding a cheap space was considered to be **much less of a challenge** according to most.

How close to your destination do you typically park?

Legend: Visitors, Non-Resident Employees, Resident Employees, Other
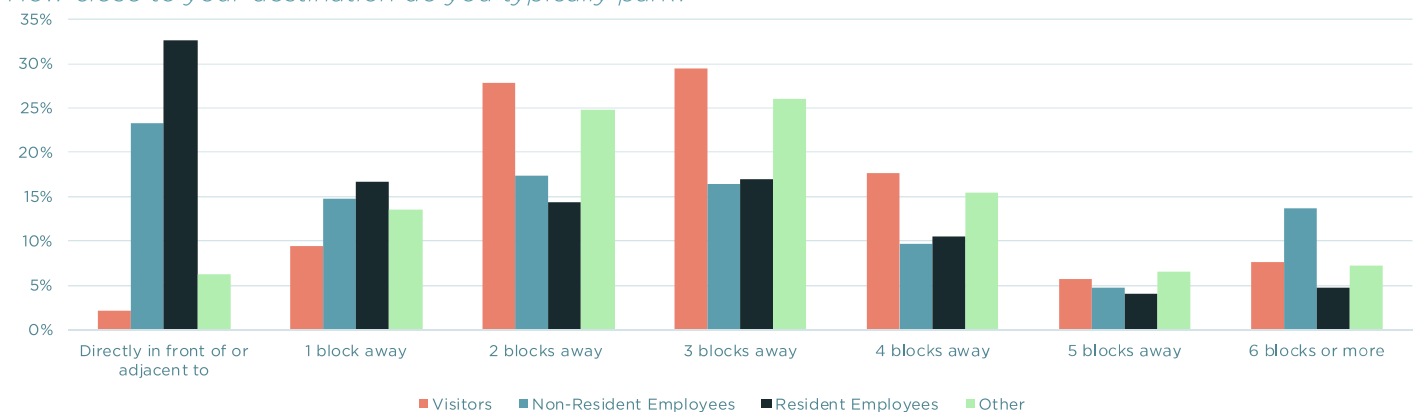
Majority of people are finding places to park directly adjacent or **within 3 blocks of their destination.**

What alternative mode of transportation would you regularly use?

Legend:
- Public transit (bus/train)
- Taxi, Uber, Lyft, ZipCar, or similar ridesharing service
- Bicycle
- Drive with others
- Walk
- Drop off
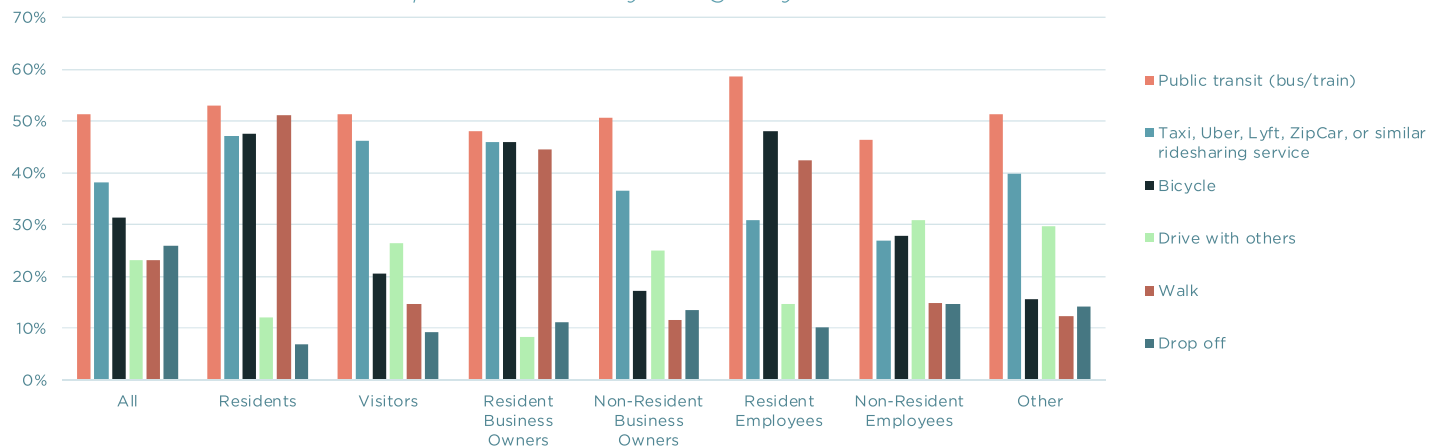
All groups expressed a desire to better utilize **public transit**, **rideshare services**, and **bicycle infrastructure.**

Community Events

The project team made a point to go to the public by engaging the community at one of the Saturday Farmer's Markets in Marion Square. The team had a booth with information from the project and representatives from the City to walk through the project process, incite conversation, and illicit meaningful feedback. The team used iPads to allow the public to take the online survey right at the booth.

Public Workshop

The public workshop event provided another opportunity for the community to engage with the project team, learn more about the study, and provide their feedback and input. Multiple stations were set up for participants to walk through at their leisure. Each station was designed to inform the public about a particular aspect of the study and illicit input through conversation and specially designed activities. Additionally, Mayor John Tecklenburg came and spoke about the importance of the study for the City.

Key takeaways from each activity station are noted on the following pages.

The workshop had three primary activity stations that focused on:

▸ Resource allocation and prioritization

▸ Spatial analysis and mapping

▸ Strategy and policy preference

Resource Allocation Activity

Participants were asked to think critically about how they would use city resources to alleviate parking issues. They were presented with four buckets, each corresponding to the following general strategies:

Parking Improvements

This includes adding more capacity, better management of existing capacity, and technology improvements (smart phone apps, etc.)

Mobility Improvements

Includes bicycle and pedestrian network improvements and/or additions, personal mobility options, and rideshare services like Uber or Lyft.

Transit to and from the Peninsula

All transit improvements that help bring people to the Peninsula, like park and ride services, more frequent routes, more buses, etc.

Transit on the Peninsula

Transit improvements that help move people around the Peninsula once they're there. This includes further investment in services like the HOP.

Participants were given $100 dollars and asked to split up their money into any combination of the four buckets, however they saw fit. The results of this activity are shown below.

Rank	Category	Total $
1	Transit to/from	$1,170
2	Parking	$1,000
3	Transit on	$810
4	Mobility	$740

Transit to/from — 31%
Parking — 27%
Transit on — 22%
Mobility — 20%
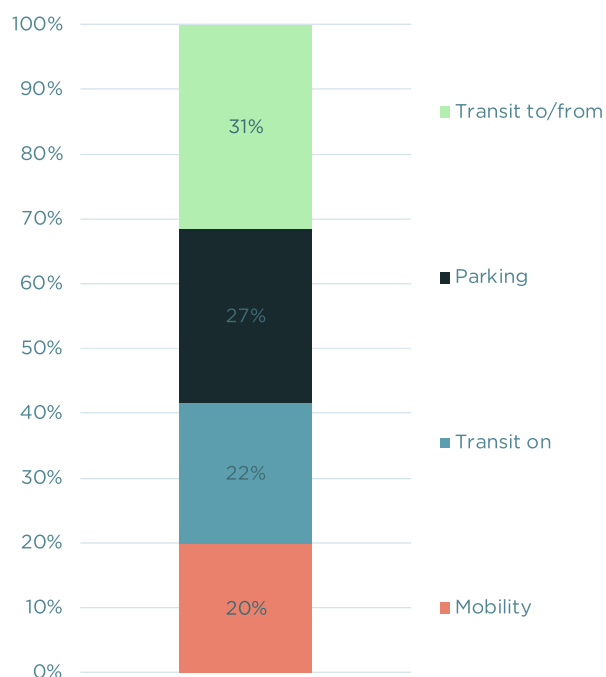
Key Takeaways

Transit to and from the Peninsula was the most heavily invested bucket. However, it should be noted that no bucket scored lower than 20% of the total dollars spent, indicating a desire for some general balance in investment.

Spatial Analysis and Mapping

Attendees were shown additional parking occupancy data, and using the same four prioritization buckets from the previous exercise (Parking Improvements, Mobility Improvements, Transit to/from, and Transit On) and were asked to put points (and comments) on a map where they felt those specific types of investment should go.

Strategy and Policy Preference

Potential strategies and policies for mitigating parking and mobility issues were placed on a board and grouped using the same four buckets as the previous two exercises. Participants were asked to review the strategies and place green dots on those that they felt would work for Charleston. Conversely, they were asked to put red dots on those strategies they felt would not work for their community.

Parking

Add Capacity

Adding capacity includes the addition of more parking facilities, such as lots, decks, on-street. Additionally, mechanical stackers have been used in dense areas to save space while providing parking.

Improve Wayfinding/Signage

Clear and smart wayfinding is critical to any parking system. Users get frustrated when parking is hard to find. Consistent branding and use of technology in signage also helps create a more successful parking system.

New Technology

Technology can make parking easier for users. Smart phone apps let you learn where parking is, navigate to an open space, and pay via phone. New advances in data collection can push data in real-time to users and managers to create a smarter system.

Implement Valet Services

Valet services ease difficulties in parking by allowing visitors to get out of their car near their destination and allow a valet staffer to take it directly to open facilities. This also creates more of a park-once environment, where users move about an area without the use of their vehicle, after they've arrived.

Mobility

Bike Share

Docked and non-docked bike share has been successful across the world, including in Charleston. Bike share allows people to easily move throughout the area without driving and parking each trip. Non-docked bike shares offer the additional advantage of having more freedom of movement.

Scooters

Scooter share programs offer many of the same benefits of bike share programs. One advantage is that they can be more fitting for those unable to ride bikes for health reasons. The scooters are electric and require no human force. Additionally, they can be a bit more maneuverable in tight spaces.

Rideshare Services

Uber and Lyft are traditional rideshare services that allow users to move throughout an area without parking or re-parking their cars. Promoting policies and design that helps for pickup and drop off for rideshare would encourage more users to reduce the need for parking.

Bike/Ped Improvements

Improvements made to the bicycle and pedestrian systems allows for visitors and residents to more easily move about the Peninsula on foot or on bike. This includes improvements to sidewalks, adding bike lanes and other dedicated bike facilities, and traffic calming.

Transit (on Peninsula)

The HOP

The Hospitality on Peninsula (HOP) is a downtown shuttle route that is free for all users. Visitors and residents can use the HOP to move throughout the Peninsula more easily. Investment in the HOP can yield more buses and routes for users.

Street Car

Street car systems have been shown to be successful in dense downtown environments, like Charleston. Like the HOP, a street car can offer the chance for users to more easily move around the Peninsula on a fixed route.

Current System Investments

Investing in the current transit system can help to encourage more riders who might otherwise drive their car and try to park. Resources added to the current system can bring more routes, higher frequency stops, and better buses and technology.

GOTCHA Ride

Charleston is one of the homes for the GOTCHA Ride, a small-vehicle transit service designed to move groups of people around the Peninsula. Investing in policy that makes it easier for GOTCHA and other similar companies to grow can reduce the need for parking.

Transit (to/from Peninsula)

Park-n-Ride
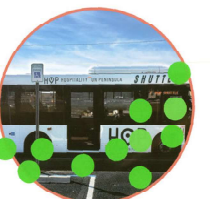
Regional and local planning efforts have started investing in park-n-ride systems, using existing transit services like the HOP to help operations. Park-n-ride areas allow for easier access to the Peninsula without driving and parking. Investment can yield more buses, stops, and more frequent rides.

Express Buses

Express bus services run faster than traditional bus service. They make less stops than a normal service and are mainly designed to connect key destinations together. Like the park-n-rides, investing in express bus services can yield more buses, stops, and more frequent rides.

Ferry Services

Charleston already boasts ferry services that move people from the mainland to the Peninsula, but they are not normally used for daily travel. Implementing policies to encourage ferry use will give visitors more travel options beyond traditional on-road travel.

Realities of Parking

This section summarizes the analytical review of the parking system on the Charleston Peninsula, defining the realities of parking in the community. This primarily includes the inventory of current parking facilities and the overall utilization of parking spaces during observed conditions. These realities of parking, when combined with the perception of the system, form the foundation for defining the future application of parking strategies to serve the community.

Overview

Parking occupancy counts were conducted in eight key focus areas on the Peninsula. This section highlights the focus areas, and displays the occupancy data for the areas at various times on weekdays and weekends. An overall map of the Peninsula and the focus areas is shown on the next page.

These focus areas help to prioritize resources to distinct areas of the Peninsula, each with their own unique challenges. The focus areas represented a varied look at several prominent conditions on the Peninsula. These areas capture different land use conditions, such as: high-density commercial, developing commercial, residential, historical, and institutional. They are representative of where residents live, where employees work, where visitors go, and destinations for all.

This section showcase the realities of parking by:

- Showcasing existing parking inventory
- Highlighting and describing the focus areas
- Displaying occupancy in the focus areas

Parking Occupancy is the percentage of available spaces that are occupied at a given time. Typically, **90% occupancy or higher is considered to be at or above capacity.** This threshold is used to define when policies or practices need to be adjusted to manage demand and balance access throughout the system.

Legend

- Study Area
- **P** Public Garage
- **P** Public Surface Lot
- ✕ Private Garage
- ▪ Bike Share Hub
- ◉ CARTA Stop
- ◯ Metered Parking Spot
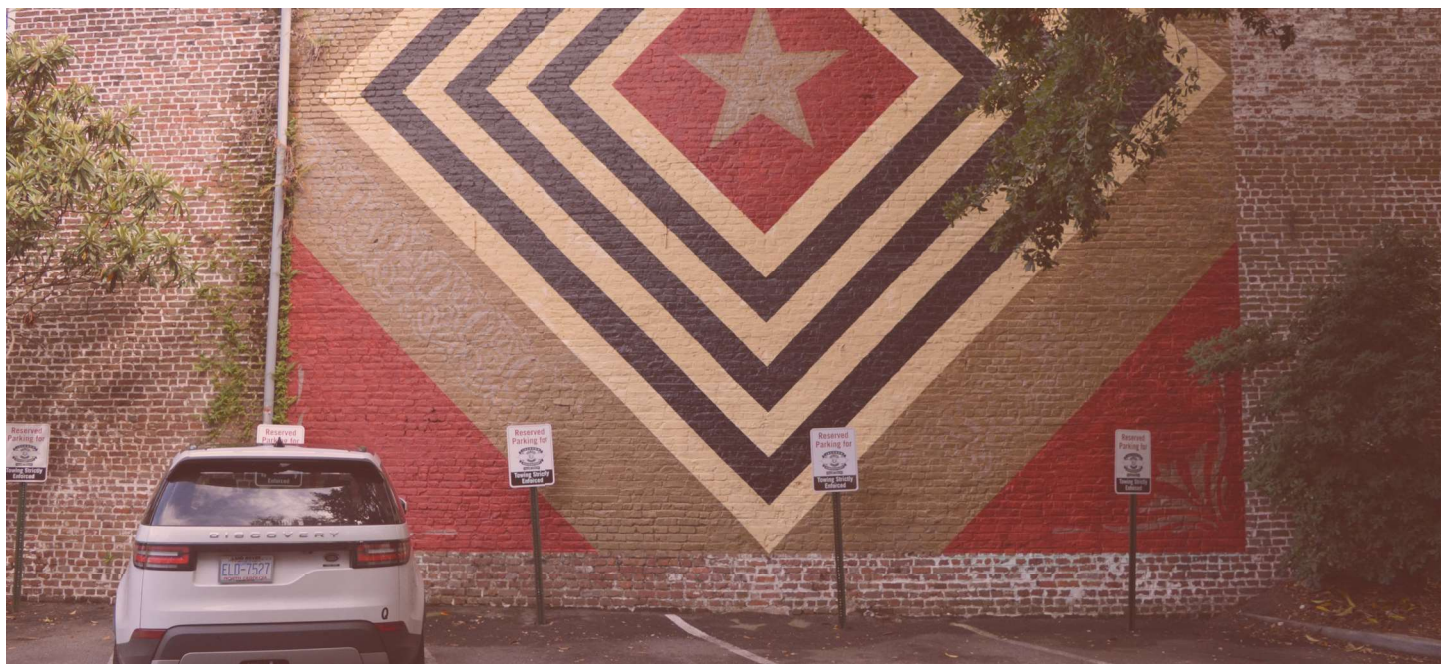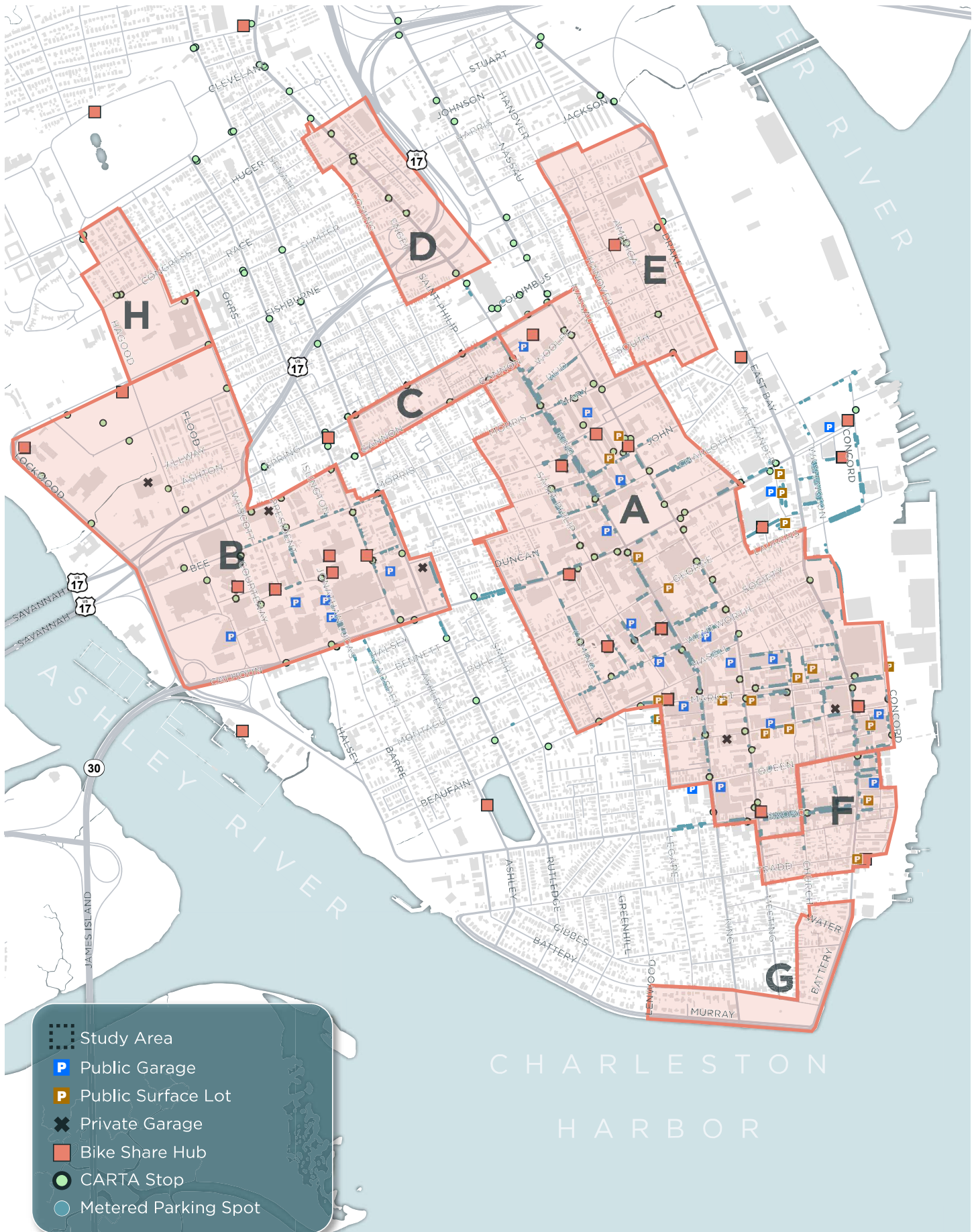
Parking Inventory

A parking inventory was conducted for the Peninsula area, including off-street public parking, private parking, on-street metered parking, and non-metered on-street parking. The table below provides a summary of the parking inventory for the entire Peninsula. **Note that all numbers represent data within the Study Area**.

	Reserved	Monthly	Visitor	Disabled	Loading Zone	Time Limited	Metered	Undefined	Spaces	% of Total
On-Street	120	0	0	179	225	7,275	1,324	5,879	18,677	**26%**
City of Charleston Public Parking	35	6,347	1,474	0	0	0	0	0	7,856	**11%**
Public Off-Street	170	0	0	7	9	0	0	7,363	7,549	**11%**
Private Off-Street	3,988	149	53	466	9	8	0	24,849	37,114	**52%**
Totals	**4,313**	**6,496**	**1,527**	**652**	**243**	**7,283**	**1,324**	**38,091**	**71,196**	**100%**

The parking inventory on the Peninsula is heavily skewed towards the private sector, with more than 50% of the spaces found in private parking areas. While the on-street system has 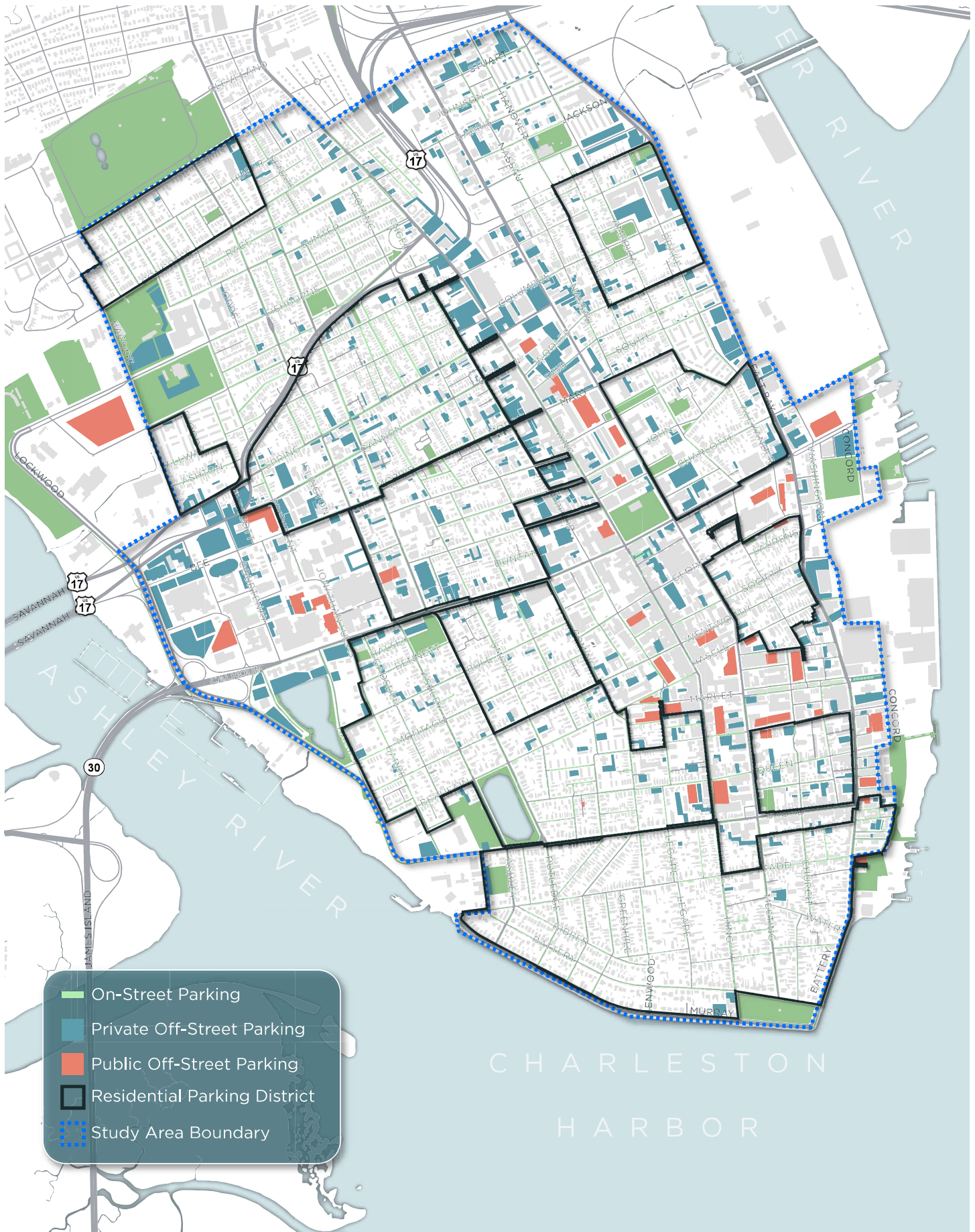the next highest proportion of spaces, the percentage is heavily weighted towards unmarked street parking found in neighborhood areas throughout the Peninsula. The public off-street system makes up the remaining 22% of the total, with the City of Charleston owning and managing about half of that public supply.

In addition to the total system inventory, the study reviewed the inventory and overall optimization of the Peninsula's residential parking permit program. In total, there are 11 residential parking areas, with nearly 6,000 residential permits, and slightly more than 10,000 on-street parking spaces in those areas. The table below provides the breakdown of spaces per area versus permits issued.

Neighborhood Name	On-Street Spaces	Metered On-Street	Un-Metered On-Street	Off-Street Public Spaces	Off-Street Private Spaces	Home-Owner Permits	Renter Permits	Total Permits	Permits per Space*
French Quarter	234	58	176	42	674	167	60	227	129%
Charlestowne	3,654	73	3,581	20	528	1,301	113	1,414	39%
Harleston Village	2,497	0	2,497	329	1,110	874	569	1,443	58%
Harleston Village	415	2	413	0	258				
Radcliffeborough	623	107	516	744	4,700	207	456	663	128%
Ansonborough	176	24	152	551	184	285	90	375	247%
Garden District	482	44	438	0	718	175	151	326	74%
Gadsden Green	187	0	187	0	75	12	10	22	12%
Cannonborough/ Elliotborough	1,040	57	983	0	1,516	334	709	1,043	106%
Eastside	523	0	523	0	1,111	102	124	226	43%
Hampton Park Terrace	1,029	0	1,029	0	136	128	16	144	14%
Totals	**10,860**	**365**	**10,495**	**1,686**	**11,010**	**3,585**	**2,298**	**5,883**	**56%**

*Based on the total number of un-metered spaces.

On-Street Parking

Private Off-Street Parking

Public Off-Street Parking

Residential Parking District

Study Area Boundary

Parking Occupancy

The study team collected parking occupancy for the eight focus areas in October/November 2018. The intention of collecting parking occupancy data during that period was to evaluate the demands on the Peninsula when all of the academic campuses were in full semester activities, as well as full business activity in the community's commercial areas. The following pages provide detailed parking occupancy by focus area and by collection period. The graphic below summarizes the parking occupancy for all of the collected parking facilities.

Area Wide Parking Occupancy
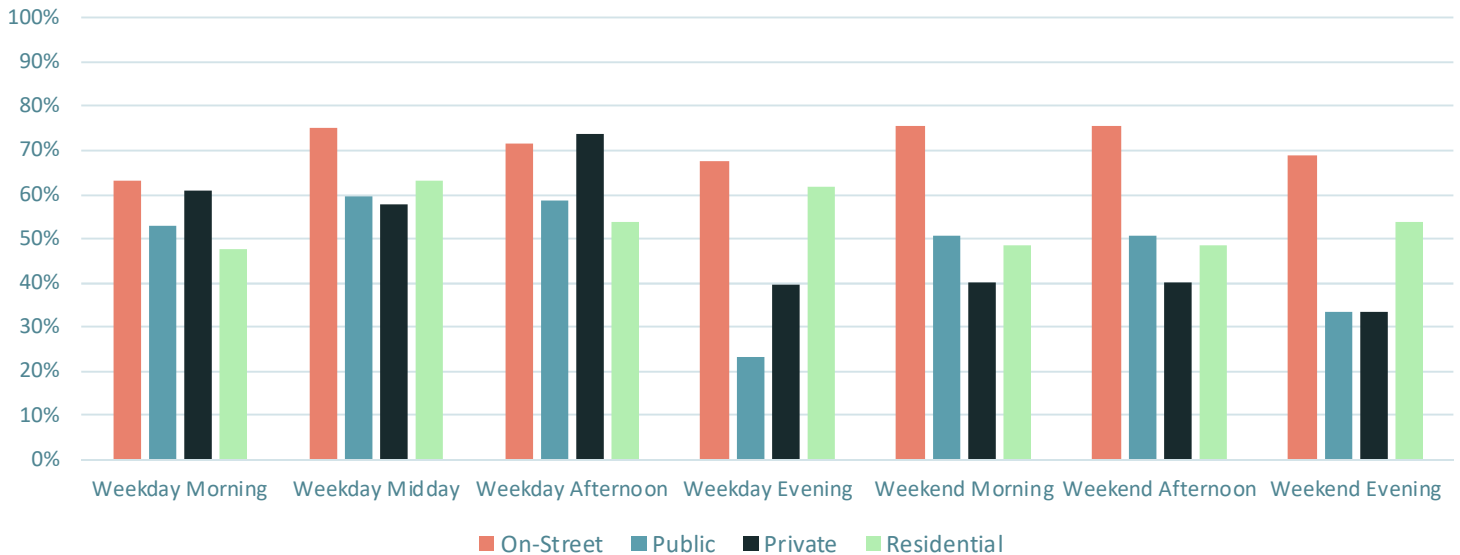
Seasonal Occupancy Comparisons

The project team also worked with parking management staff to determine how well the collected parking occupancy compared to peak conditions on the Peninsula. The analysis was completed by reviewing parking revenue data for previous months in comparison with October/November 2018 revenue data. The graphs to the right provides a comparison of the peak months and the previous November. The data indicates that there is an approximate 10% difference between peak off-street months (August) and November. The on-street data indicates that revenue has increased almost four times from November, likely because of the recent rate increase and extended enforcement.

Peak Month Comparison (Off-Street)
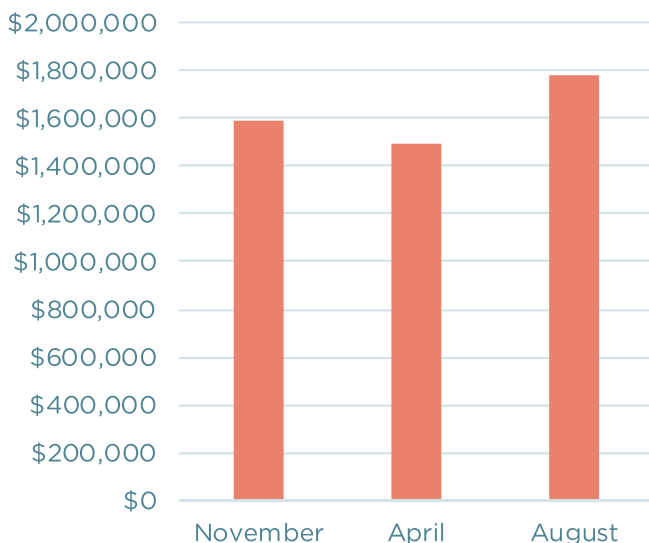
Peak Month Comparison (On-Street)
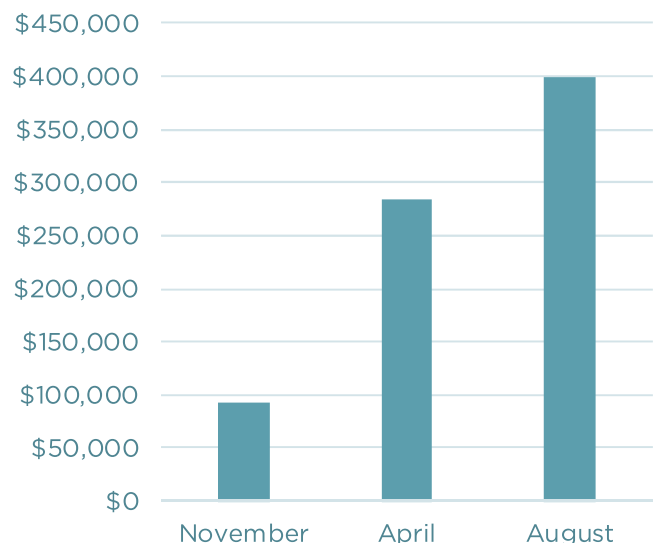
Seasonal Occupancy Comparisons

The project team also evaluated parking occupancy in the City-owned public parking facilities in relation to the total inventory and the total committed spaces in the garage (related to leases, reserved spaces, and other commitments). The table below provides a summary of that analysis.

Garage Location	Total Number of Spaces	Total Monthly	% of Spaces Committed	Actual Occupancy
34 Saint Phillip	598	323	54%	86%
Marion Square	302	318	105%	100%
Camden	296	107	36%	63%
Concord Garage	624	482	77%	76%
East Bay	339	300	88%	76%
Charleston Place	403	149	37%	60%
Visitor Center - Garage	723	519	72%	92%
Majestic	471	452	96%	96%
93 Queen St	323	352	109%	88%
Market & Horlbeck Lot	106	78	74%	77%
Aquarium	1108	1316	119%	96%
Gaillard	551	754	137%	84%
Midtown	400	302	76%	76%
99 West Edge	1006	889	88%	55%

*Table shows peak occupancies

The data clearly indicates that the City-owned public parking supply is well utilized in many locations with what appears to be a mixture of both monthly and transient parking. In those facilities where the permit levels are oversold, the mixture of permit and transient parking is pushing the facilities near capacity during peak conditions. With that said, there are still several facilities that are underutilized even at peak. Based on the data above, approximately 20% of the total City-owned parking system is available during peak conditions. Even of the seasonal trends from the previous section are applied, there are close to 1,000 empty spaces throughout the system that should be optimized.

Focus Area Occupancy

A

The commercial district on and surrounding King Street dominates this zone. Visitors frequent this area, and is a hot spot for tourism in Charleston. The College of Charleston campus also falls within this zone.

B
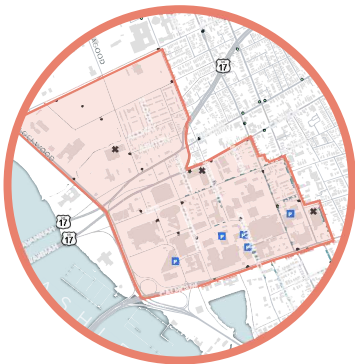
The medical district in Zone B is comprised of three different hospitals. This area is a massive employment center for the region. The new West Edge development will bring commercial and residential development in the future.

C

Development is quickly spreading to Spring and Cannon in the form of restaurants and shops. Visitors and residents are beginning to utilize this area as King Street becomes more congested.

Focus Area A Occupancy Table

Legend: On-Street, Public, Private, Residential
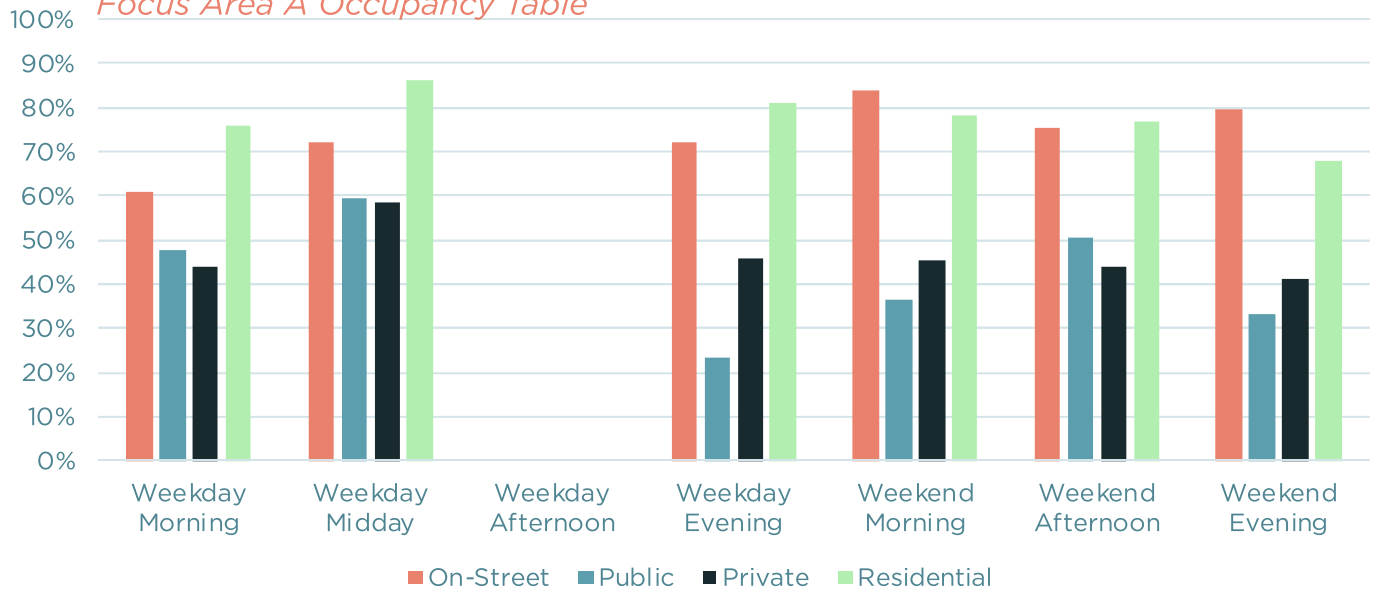
Focus Area B Occupancy Table

Legend: On-Street, Public, Private, Residential
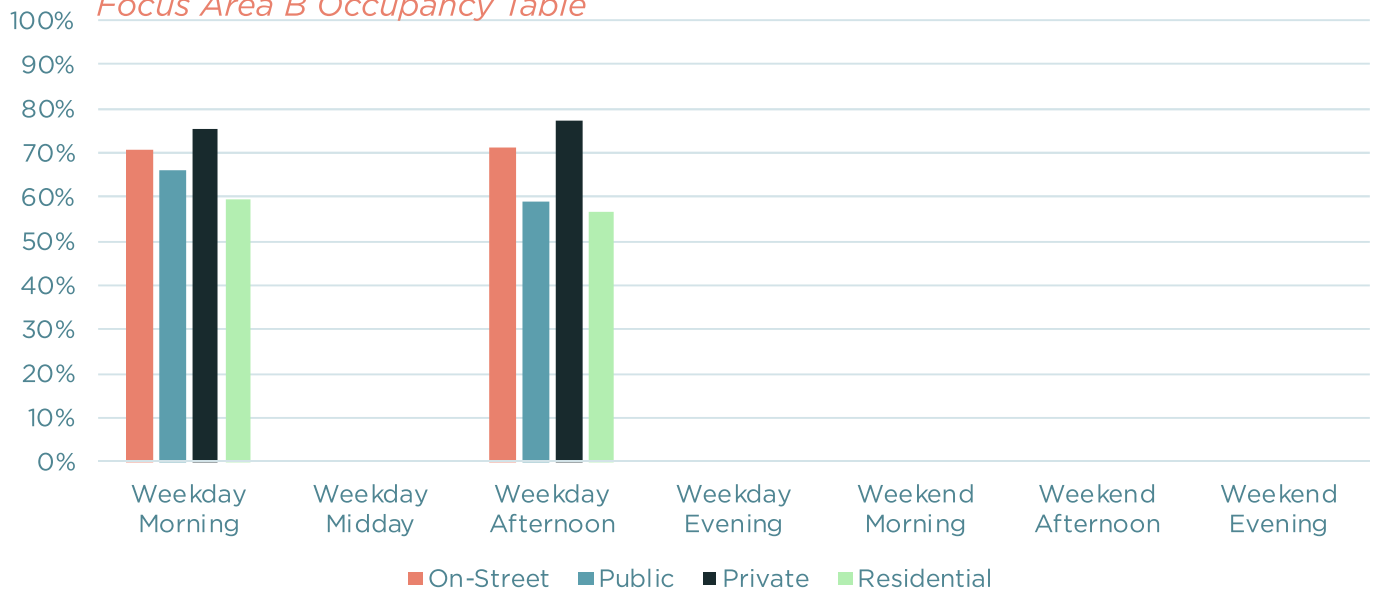
Focus Area C Occupancy Table

Legend: On-Street, Public, Private, Residential
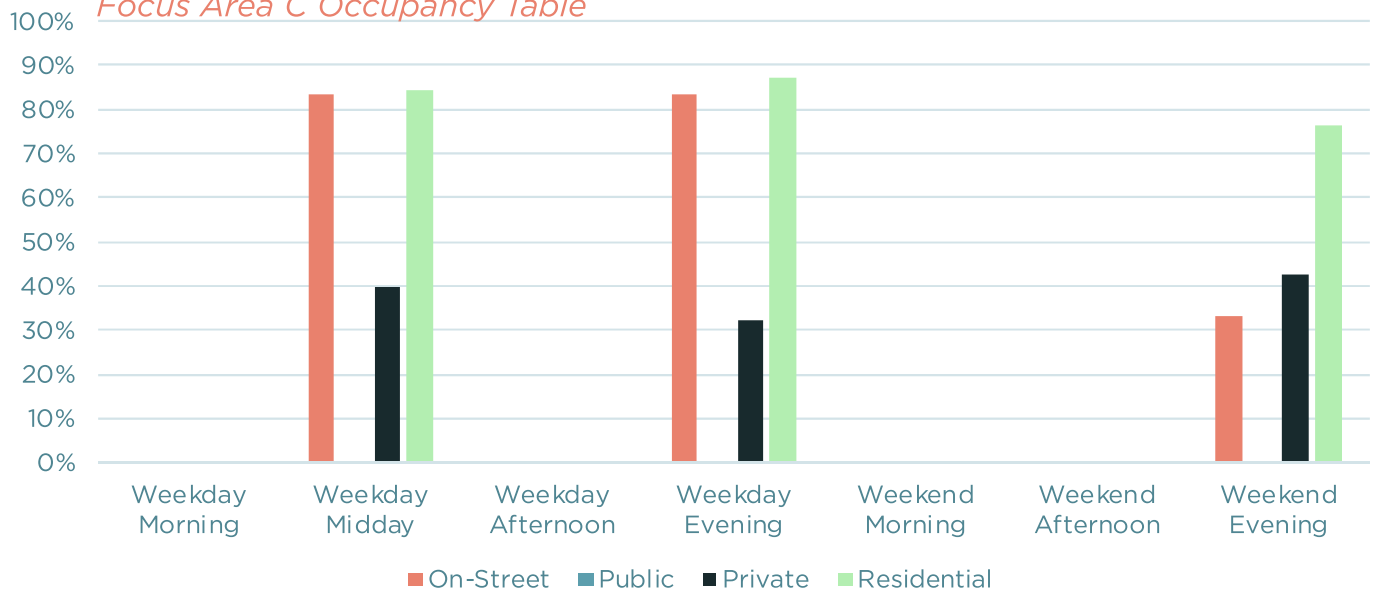
D

The Upper King area also represents spreading and new development. Local restaurants and boutique shops are growing in number as new multi-family development enters this zone.

E
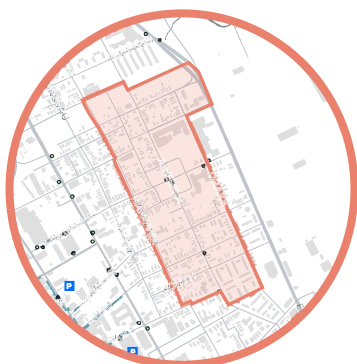
Zone E is a largely residential area. The Hampstead Mall and Trident Technical College are key destinations and bring people the park or to classes during day and night.

F

Historic houses and museums dot the French Quarter here, attracting tourists. Visitor parking on-street in the neighborhoods here are known to cause issues with local residents.

Focus Area D Occupancy Table

| | Weekday Morning | Weekday Midday | Weekday Afternoon | Weekday Evening | Weekend Morning | Weekend Afternoon | Weekend Evening |

On-Street ■ Public ■ Private ■ Residential
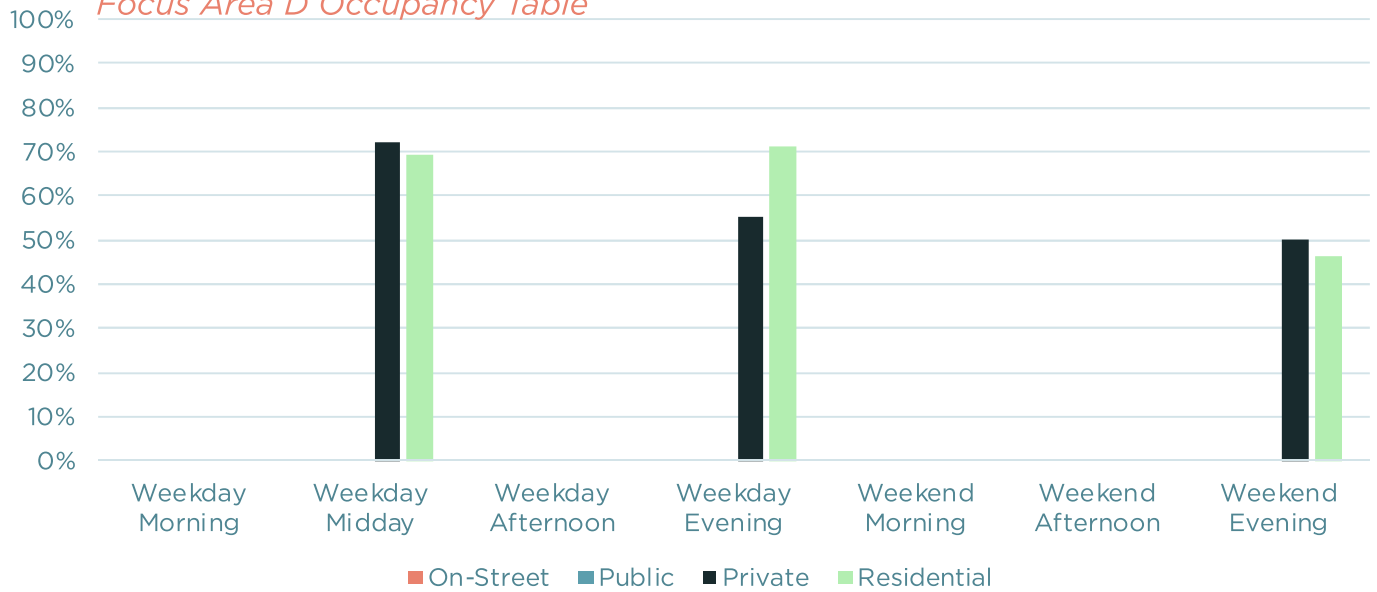
Focus Area E Occupancy Table

On-Street ■ Public ■ Private ■ Residential
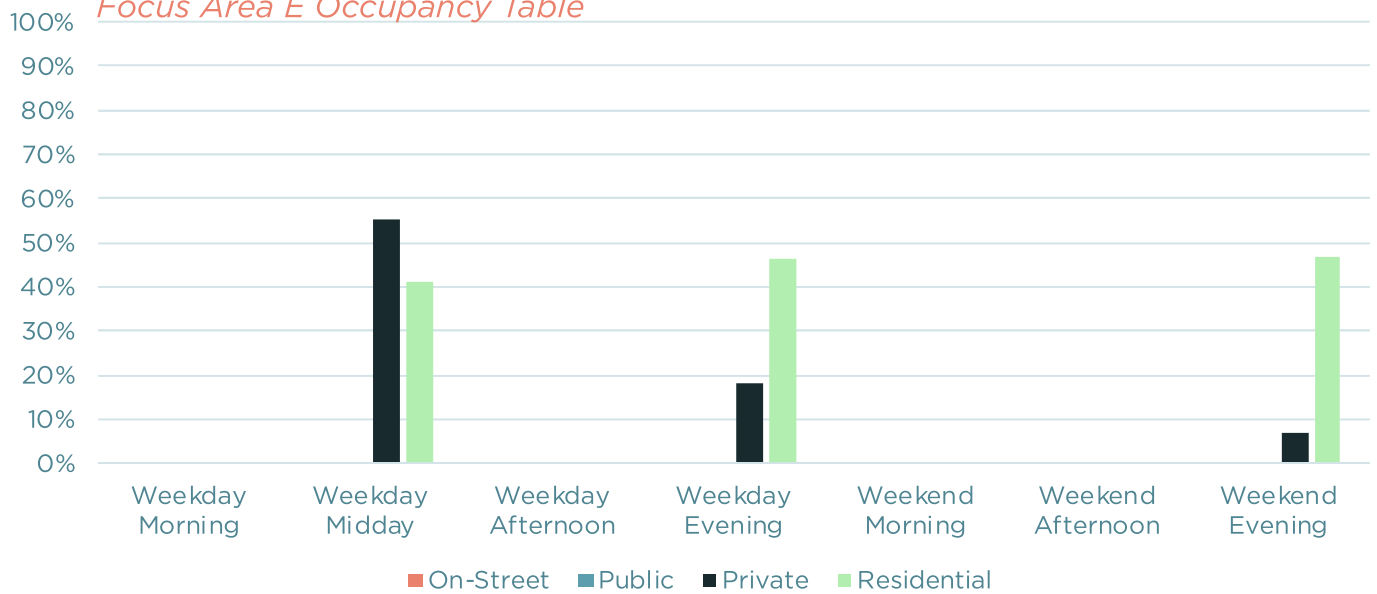
Focus Area F Occupancy Table

On-Street ■ Public ■ Private ■ Residential
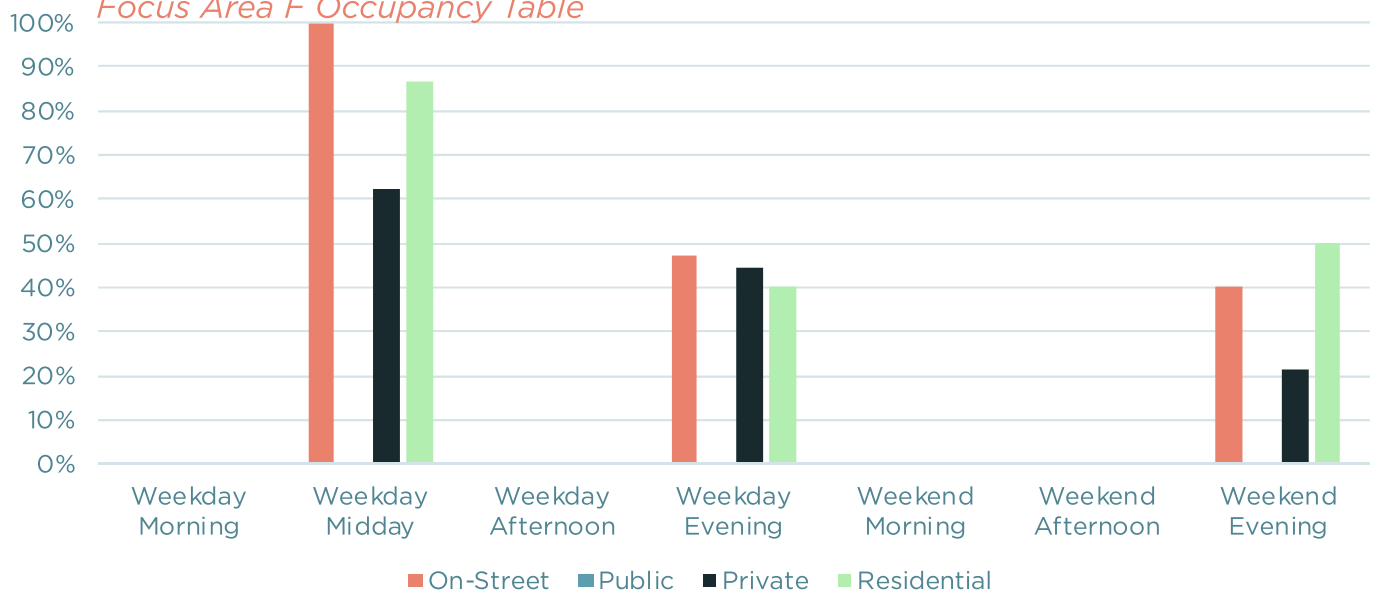
G

The Battery is an extremely popular spot for visitors. Like Zone F, there are historic houses in the area, and parking on residential streets has created friction in the past. On-street parking along Murray is usually full during peak times.

H
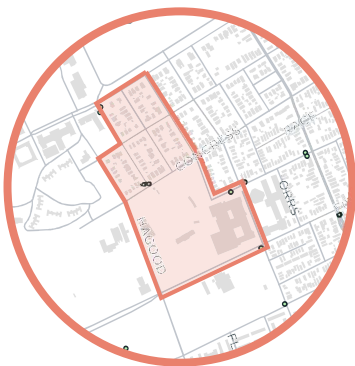
The area around The Citadel and Hampton Park is largely residential. Neighborhood streets are used by visitors for Citadel events and football games and to enjoy the park.

Focus Area G Occupancy Table

Legend: On-Street, Public, Private, Residential

Categories: Weekday Morning, Weekday Midday, Weekday Afternoon, Weekday Evening, Weekend Morning, Weekend Afternoon, Weekend Evening
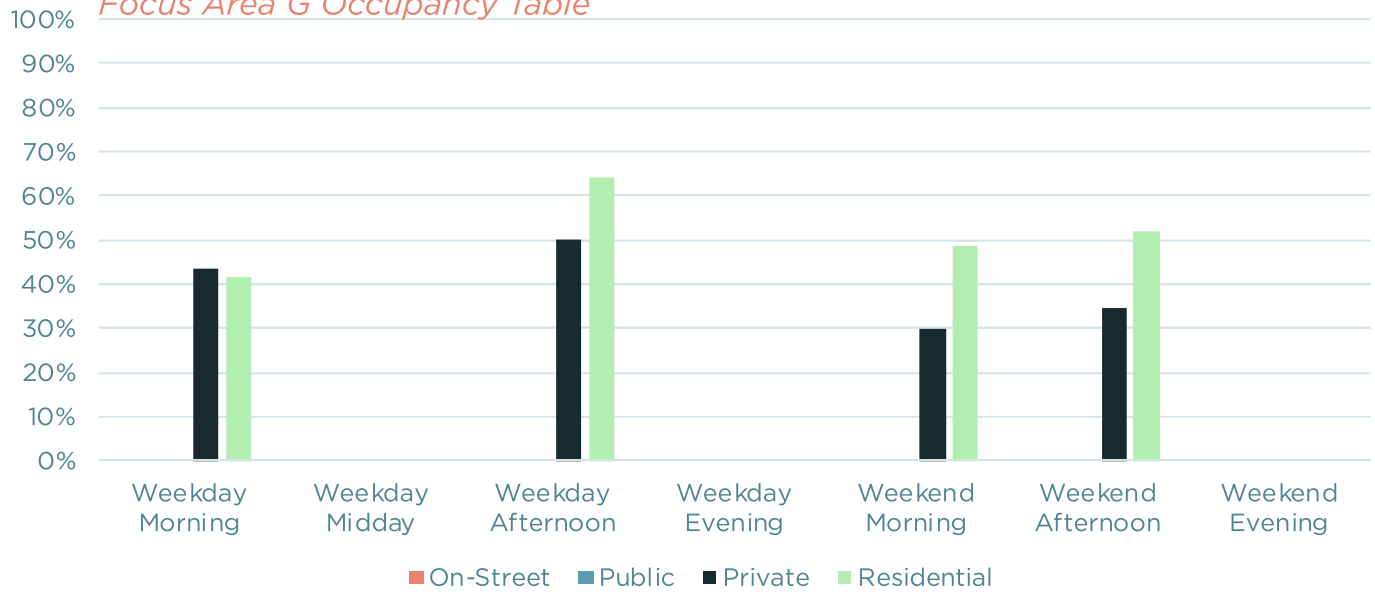
Focus Area H Occupancy Table

Legend: On-Street, Public, Private, Residential

Categories: Weekday Morning, Weekday Midday, Weekday Afternoon, Weekday Evening, Weekend Morning, Weekend Afternoon, Weekend Evening
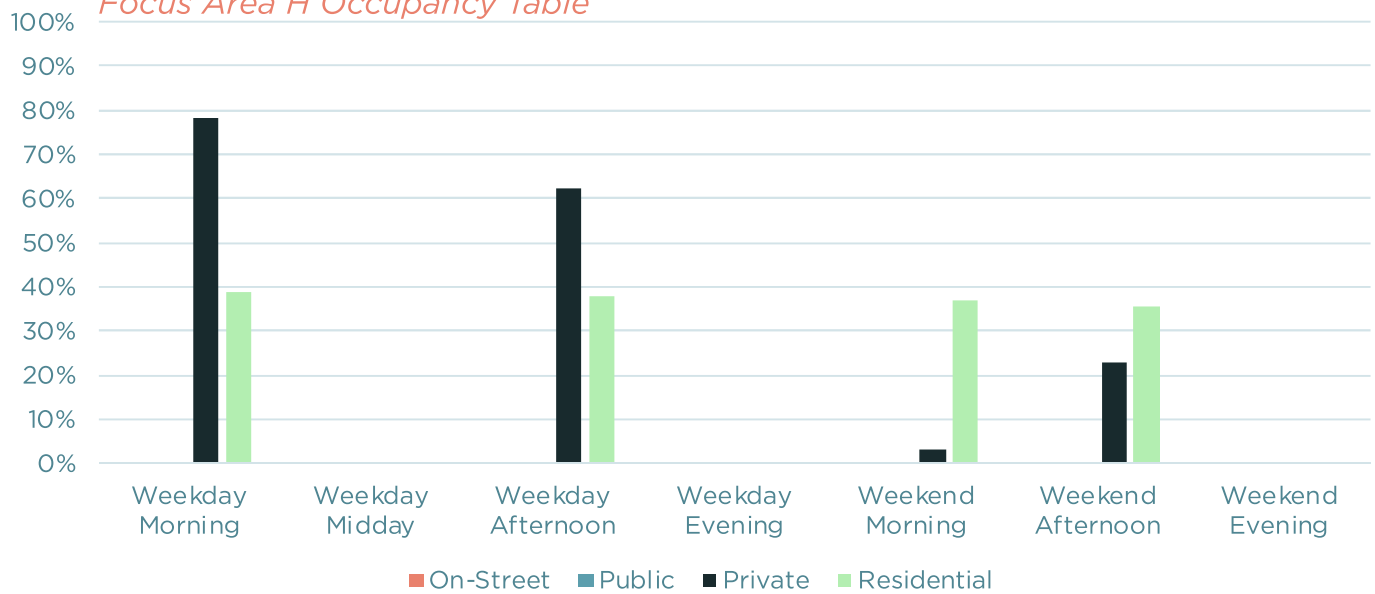
Occupancy Maps

Weekday Morning

Note that zones were counted at specific times and days based on the types of uses and character of the zone. Not all zones were counted during every count period.

Focus Area Boundary
0 - 25% Occupancy
25 - 50% Occupancy
50 - 75% Occupancy
75 - 90% Occupancy
90%+ Occupancy

Weekday Midday

D

H

E

C

A

B

F

G

Focus Area Boundary

0 - 25% Occupancy

25 - 50% Occupancy

50 - 75% Occupancy

75 - 90% Occupancy

90%+ Occupancy

Weekday Afternoon

Legend:
- Focus Area Boundary
- 0 - 25% Occupancy
- 25 - 50% Occupancy
- 50 - 75% Occupancy
- 75 - 90% Occupancy
- 90%+ Occupancy

Weekday Evening

Focus Area Boundary
0 - 25% Occupancy
25 - 50% Occupancy
50 - 75% Occupancy
75 - 90% Occupancy
90%+ Occupancy

Weekend Morning

Legend:
- Focus Area Boundary
- 0 - 25% Occupancy
- 25 - 50% Occupancy
- 50 - 75% Occupancy
- 75 - 90% Occupancy
- 90%+ Occupancy

Weekend Afternoon

Focus Area Boundary
0 - 25% Occupancy
25 - 50% Occupancy
50 - 75% Occupancy
75 - 90% Occupancy
90%+ Occupancy

Weekend Evening

Legend:
- Focus Area Boundary
- 0 - 25% Occupancy
- 25 - 50% Occupancy
- 50 - 75% Occupancy
- 75 - 90% Occupancy
- 90%+ Occupancy

Murray Blvd/E Battery Parking Turnover

On Murray Blvd and E Battery, on the southern end of the Peninsula, there is a significant amount of unregulated on-street parking. There's a perception that a significant amount of people come to this area to park and leave their vehicles overnight, thereby limiting the amount of potential turnover in the highly popular area.

Videos were taken on Friday afternoon, Saturday morning, and Sunday morning to assess the conditions. The videos were thoroughly compared, and the number of cars that stayed overnight one or two nights was recorded. The results are shown in the table below.

	Total # of Cars Parked	Cars Still Parked from Previous Night	% of Original # of Cars	Cars Still Parked from Previous 2 Nights	% of Original # of Cars
Friday	212				
Saturday	155	12	5.7%		
Sunday	97	35	22.6%	32	15.1%

5.7% of the cars in the Friday video were left overnight, as they were parked in the same spot in the Saturday video. 22.6% of cars in the Saturday video were left overnight and in the same spot in the Sunday video. 15.1% of the original cars from the Friday video parked overnight both nights, as they were still parked in the same spot from Friday in the Sunday video. This indicates that there is a significant amount of turnover in parking, at least on a nightly basis, which is contrary to most local perceptions. Although some cars do stay parked multiple nights, the availability of parking does seem to fluctuate adequately.

Key Findings

Based on the data gathered through both the community outreach and the data analytics part of the existing conditions portion of this project, the project team has developed key findings and takeaways, summarized in the following sections. These findings will be used to define the development of broad program-defining policies and specific strategies and implementation steps over the final phases of the project. Each key element listed below includes findings from the data gathering efforts, as well as opportunities and challenges that should be considered. Finally, this section ends with a summary of four of the key findings from this stage of the process and their meanings.

Key Element Findings

Customer Experience

Key Takeaway

▶ Not all areas should be treated the same, as customer and business types will drive needs

▶ Policies should be developed with specific user types in mind

▶ Specific customer types need equitable parking options

Opportunities

▶ Data-driven policies can create context-specific rules and regulations to serve customer areas

Challenges

▶ Variety of user types on the Peninsula means that no one specific solution can solve the parking issues

Leveraging Mobility

Key Takeaway

▶ There is a strong appetite for enhanced transit service throughout the Peninsula

▶ There is currently a lack of connectivity within the Peninsula and various mode types

▶ Any type of shared mobility option should be implemented in a way that is uniquely Charleston

Opportunities

▶ Peninsula-specific transit options can help to redefine how people access and move around the Peninsula

Challenges

▶ There is a need to revamp the transit system to meet Peninsula needs, but a funding source is not established
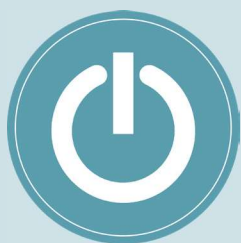
Technology Improvements

Key Takeaway

▶ There is available parking – users need tools to find it

▶ Technology platforms should provide flexible payment and interactive options

▶ Technology decisions should be driven by customer need

Opportunities

▶ Leveraging connectivity between existing and potential parking technologies could create a rich data stream to support ongoing policy development

Challenges

▶ Lack of cohesive management of parking limits the ability to mine and share data

Policies & Practices

Key Takeaway

▸ Parking and mobility solutions must adapt to the character of the Charleston community

▸ Policies should be context- and demand-driven

▸ Operational practices should be tailored to meet varying needs by area, time-of-day, and use

Opportunities

▸ Policies and operational practices could be tailored to the needs of specific areas, promoting compliant use of parking system

Challenges

▸ Current management structure does not allow for comprehensive development and application of policy

Managing Supply

Key Takeaway

▸ Many of the specific user groups on the Peninsula lack the capacity for parking, impacting adjacent areas and groups

▸ A majority of people familiar with the Peninsula choose to park on-street, while visitors choose garages

▸ Users preference is to have close and available parking, rather than cheap parking

▸ There are parking spaces available in private and underutilized areas that could support demand with better connectivity

Opportunities

▸ Right-sizing parking on the Peninsula through shared parking, smart investment, and progressive policies could yield more balanced utilization and congestion

Challenges

▸ Lack of consistent branding, marketing, wayfinding, and management decisions means that most users are unaware of available parking

▸ Current parking codes require more parking than is likely required for dense, urban development

Managing Demand

Key Takeaway

▸ A lack of non-automobile connectivity drives a need to self-commute

▸ Neighborhood areas face pressures from a number of outside demand sources

▸ Employees on the Peninsula lack equitable access options

Opportunities

▸ All user groups expressed a desire for more and better transit service, a sign that behavior change is achievable

Challenges

▸ Lack of alternative transportation options forces the decision to drive for most Peninsula commuters and guests

Primary Takeaways

Based on this initial work, four primary themes have emerged that will dictate the process and approach to completing and implementing the study process, including:

Solutions are more about Mobility and Demand Management than Capacity Improvements.

Given the current congestion levels for travel into and throughout the Peninsula, the optimum solution for parking and mobility is not likely one that encourages more driving trips. Rather, the solution should find an appropriate and equitable mix of transit, shared mobility, and auto trips to balance the transportation system. Parking management can be a catalyst to help influence better mode choice.

The current parking management structure is extremely fragmented and disjointed.

The current management of parking is spread across multiple departments within the City. This structure limits the effectiveness of the parking program and can actually work against the goal of a holistic and varied parking, mobility, and transportation system. This study needs to determine optimal structures for system management and improve the ability for program operations and funding to support the vision for the overall system.

There are mixed perceptions about how much parking the City has or needs.

Through several conversations with stakeholders, there was a distinct perception that the public parking system had excess capacity that was seeing limited usage due to leased parking restrictions. This was especially apparent in City owned parking garages, where residents, business owners, and developers felt that the restriction and removal of spaces for reserved use was limiting the ability of the City to provide inventory to support area parking needs.

There won't be a singular solution that satisfies everyone.

Whatever solutions this study proposes, there will likely be parties that aren't happy with the outcome. In order to create solutions that are equitable and effective, the process will need to define priorities on the Peninsula and construct goals and strategies for the program that account for a variety of user needs and challenges.

Solutions will need to account for variability by area, including:

▸ **Neighborhood areas.** A need to support residential parking while also recognizing that street parking in these areas is vital to support community access and growth.

▸ **Commercial areas.** Allocation of parking needs to support diverse needs of patrons, businesses, and employees.

▸ **Connectivity.** Including better transit access within the Peninsula that reduces vehicular dependence.

▸ **Cultural needs.** Including supporting religious, academic, and institutional needs through intentional partnerships.

Policy Considerations

Overview

Parking and mobility is a core factor for the user experience in the City of Charleston. Residents and visitors weigh various factors when making a choice of travel and parking, including cost, convenience, and proximity to destination. The core of any good parking and mobility approach should be remaining open and flexible to opportunities that present themselves with changing technology, mobility and parking behavior, and changes in the transportation landscape. This section introduces primary policy concepts and elements that will drive the development of specific recommendations for the Study.

Purpose

Leveraging policy and programming strategies to address parking and mobility challenges needs to be a core tenet of the City of Charleston's approach for operating and managing its parking and mobility system moving forward. There are a range of policy-based strategies that can be employed.

This sections contains various strategic policies for consideration. Each policy is presented with sub-topics for consideration, listed below:

Intended Benefits

Potential Challenges

Required Changes (policy, practice, code)

Technology Support and Opportunities

Potential Cost (capital and ongoing)

Implementation Steps

Supporting Strategies

Key Partnerships

Performance Metrics

These policies intend to do the following, in no particular order:

▶ Develop an integrated parking and mobility program within the City.

▶ Define and support balanced access onto the Peninsula.

▶ Redistribute parking demands to alternative modes or lower demand areas.

▶ Support a more holistic look at mobility on the Peninsula.

▶ Enhance mobility and access comprehensively and equitably.

▶ Improve knowledge about the parking and transportation system.

▶ Provide opportunities for community input when considering major changes to the parking and mobility program and program investment.

▶ Prioritize access for various areas of the Peninsula among different types of users.

▶ Use the parking system to promote and support advanced transportation options.

▶ Reduce single occupant commute trips onto the Peninsula.

▶ Enhance the City's organizational capacity to effectively manage the parking and mobility program.

The next steps with this policy booklet will include:

1 *Review and discussion with City staff and stakeholders, as well as City leadership.*

2 *Presentation of these materials to the Expert Panelists, who will contribute lessons learned and best management practices from their communities through the interactive panel exercise in December 2018.*

3 *Development of specific recommendations tailored from these policy areas.*

Policies for Consideration

Consolidation of Parking Management

Improve Transit Access to Peninsula

Improve Transit Services on the Peninsula

Improve Bike/Ped Services and Facilities

Consider MaaS/Personal Transportation Options

Improve Wayfinding, Branding, and Messaging

Data-Driven Policies to Support Balanced Utilization

Consider Shared Parking with Private Assets

Leverage and Enhance Parking Technology

Dynamic Curb Lane Management Policies

Enhance Residential Parking Practices

Right-Size Parking Codes/Ordinances/Policies

Parking Investment Strategy

Consolidation of Parking Management

Description

Currently, the management of parking functions (i.e. on-street parking, off-street parking, residential parking, budgeting, and enforcement) are spread across various divisions within city government. Work between internal city partners to consolidate all parking functions within a singular City department or authority.

Intended Benefits

▸ Information can be shared, partnerships formed, and obstacles can be overcome more easily.

▸ Ability to streamline decisions, vision, technology, programs, policy, and management.

▸ This setup can be leveraged to improve operations and management on Peninsula.

Potential Challenges

▸ Consensus among departments to consolidate parking and transportation services.

▸ Decisions to in-source or out-source.

▸ Consolidating management under one person.

Required Changes (policy, practice)

The City will need a reorganization of departments into one centralized location, reassignment of outsourced contracts under centralized organization, and redefinition of acceptable uses for parking enterprise funds.

Technology Support and Opportunities

Consolidation of data from multiple back-end systems into one dynamic suite of parking data for management purposes. May also require investment in a data aggregation platform to ensure data is structured in one back-end platform.

Potential Costs (capital and ongoing)

▸ A new parking director (**$85k - $125k salary**)

▸ Outsourced or in-sourced parking staff (**varies**).

▸ Integration of back-end management systems (**depends on choice of software or aggregation**).

Supporting Strategies

Consolidation of parking and mobility services will catalyze the implementation of other strategies articulated in this booklet through partnership and collaboration.

Key Partnerships

▸ Traffic and Transportation

▸ Real Estate

▸ Facilities

▸ Finance

▸ City leadership

Performance Metrics

▸ Program revenue

▸ System-wide and facility based occupancy

▸ Customer satisfaction

Importance of having everything under one department:

▸ Ability to align policies and programs to support one common vision (e.g. customer service).

▸ Ability to utilize technologies and management tools to actively balance parking demand and access.

▸ Utilization of programs, policies, and funding to support investment (parking and mobility).

▸ Ability to quickly modify management approaches as demands (data) dictates.

▸ Ability to balance allocation of spaces amongst various user groups.

▸ Ability to support inventory, assets, and investments from one budget stream.

▸ Will enhance the City's organizational capacity to effectively manage the parking and mobility program.

Implementation Steps

1 — Council approval for consolidation of departments.

Define appropriate organizational structure. — **2**

3 — Hire a parking manager and consider whether to insource or outsource operations.

Consider other parking positions like: Accounting, Operations manager, Data scientists, and Marketing/communications. — **4**
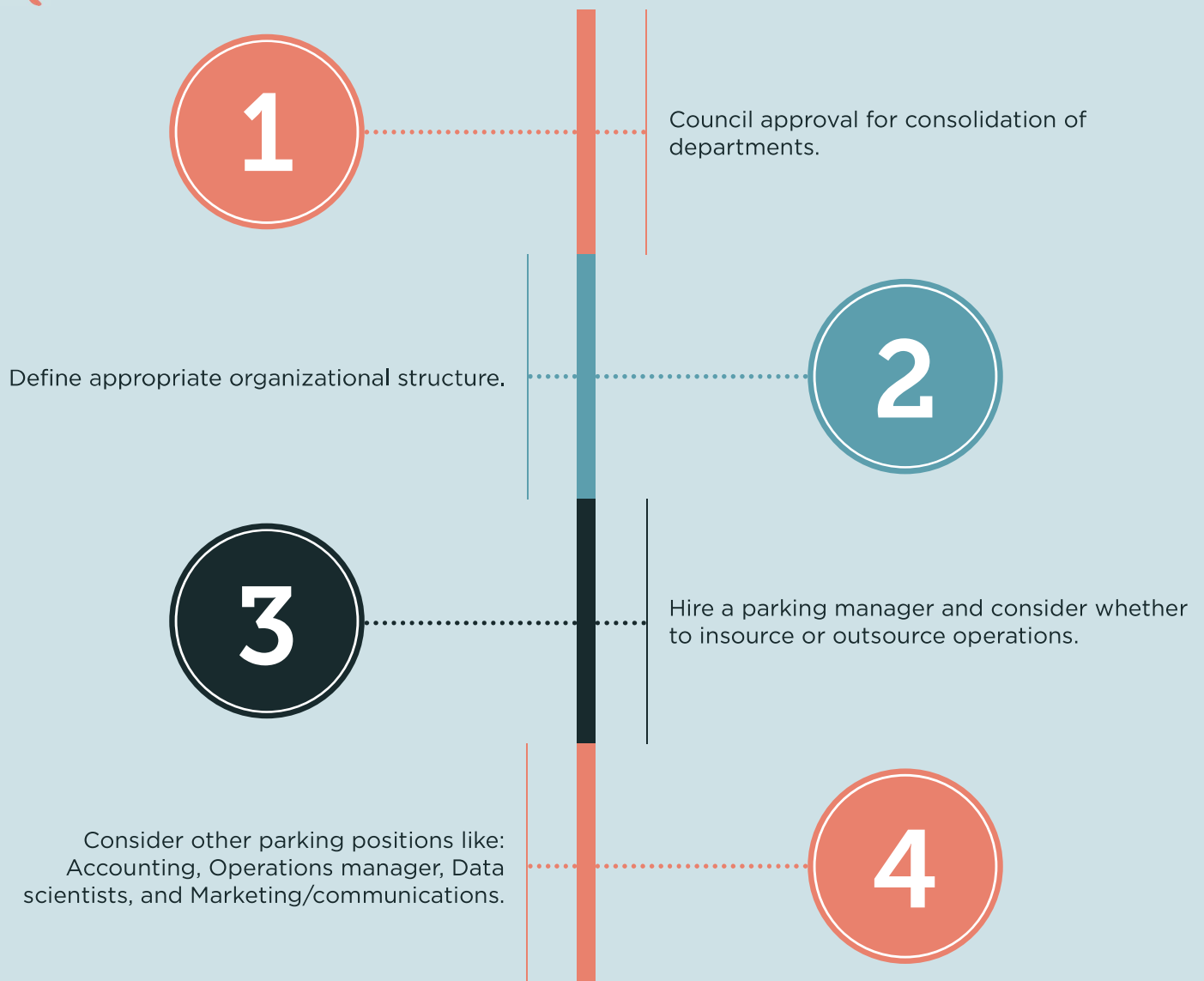
Improve Transit Access to Peninsula

Description

Work collaboratively with BCDCOG and CARTA to realize goals of off-Peninsula park-and-ride efforts. Primary function is to: define "landing spots" on the Peninsula, create first and last mile access strategies, use parking policy and price to encourage use of the transit system.

Intended Benefits

‣ Reduced parking demands in the community.

‣ Lowered expectations for parking infrastructure investment.

‣ Improved and equitable access options onto (and around) the Peninsula.

Potential Challenges

‣ Funding for BCDCOG, CARTA to accomplish goals.

‣ Changing user behavior to accomplish goals.

Required Changes (policy, practice)

Authorization of funding to support multimodal investment will be required.

Potential Costs (capital and ongoing)

‣ Mobility Hubs (**$200k - $500k per site**).

‣ Transportation application (**$150k to develop, $50k-$100k ongoing to manage** data and integrate platforms).

Key Partnerships

‣ BCDCOG

‣ CARTA

Technology Support and Opportunities

Opportunity for better trip planning and mode-choice applications to make better commute decisions. Charleston would be well served by real-time parking data and real-time transit locators.

Supporting Strategies

‣ Improve Transit Services on the Peninsula

‣ Improve Bike/Ped Services and Facilities

‣ Consider MaaS/Personal Transportation Options

Performance Metrics

‣ Reduced congestion

‣ Increased transit ridership

‣ Changing access/mode statistics

Implementation Steps

1

Work with BCDCOG/CARTA to define optimal routing onto the Peninsula to incentivize ridership.

Work with strategic partners to continue to identify and communicate existing and new park-and-ride locations off of the Peninsula where users can park and then board transit to the Peninsula.

2

3

Use parking policy/pricing to incentivize desired commuter/mode share behavior. Work with private parking operators to encourage the offering of daily pricing options, pricing monthly parking permits accordingly. Work with employers to offer tax-free employee access to transit and other modes (TNCs, car share, bike share) that they can utilize to circulate while on the Peninsula.

Work with employers and stakeholders to offer guaranteed ride home programs for those that commute via transit. This might include subsidizing trips home via Uber or Lyft.

4

5

Identify specific transit stops on the Peninsula, specifically "mobility hub" locations where mobility options can be consolidated to enhance first-mile/last-mile connectivity.

Work with partners to aggregate commute/ mobility options into a single mobile and desktop platform that includes real-time parking data and pricing.

6

Improve Transit Services on the Peninsula

Description

Create more localized transit options that connect areas of the Peninsula that are underserved by larger CARTA services. Most neighborhoods and commercial areas are not well connected and patrons must drive from destination to destination, creating more parking need. The HOP shuttle exemplifies this concept.

Intended Benefits

- Replaces "on Peninsula" driving trips with transit trips or multimodal trips (Ride-share, biking, walking) that do not generate parking demand and reduces traffic congestion.
- Reduces multiple parking activities (ParkOnce).
- Reduces short trips on Peninsula.

Potential Challenges

- Attracting ridership.
- Funding.
- Size of vehicle.
- Routing.
- Existing congestion on Peninsula.

Required Changes (policy, practice)

Make allowance for non-traditional transit (shuttles, carts, personal mobility devices) that can be tailored to Peninsula character. Change policy/practice to support use of TNC's. Enhance existing ordinances to require transit and mobility investment.

Technology Support and Opportunities

Opportunity for better trip planning and mode-choice applications to make better commute decisions. Charleston would be well served by real-time parking data and real-time transit locators.

Potential Costs (capital and ongoing)

- Subsidization of TNC trips (**$250k - $500k/year**)
- Transit vehicles (**$150k - $500k per vehicle**)
- Mobility Hubs (**$200k - $500k per site**)
- Transportation application (**$150k to develop, $50k-$100k ongoing to manage** data and integrate platforms)

Supporting Strategies

- Consolidate Parking Management into One Department
- Improve Transit Services on the Peninsula
- Improve Bike/Ped Services and Facilities
- Consider MaaS/Personal Transportation Options
- Data-Driven Policies to Support Balanced System Utilization
- Dynamic Curb Lane Management Policies

Key Partnerships

- BCDCOG
- CARTA
- Business community
- Neighborhood associations

Performance Metrics

- Reduced congestion
- Increased transit ridership
- Changing access/mode statistics

Implementation Steps

1 .... Define missing links in Peninsula transit system.

Evaluate vehicle types. **2**

3 .... Define routing and access.

Identify and prioritize curb transit access areas. **4**

5 .... Work to consolidate walking and biking, and shared mobility, infrastructure and facilities proximate to transit.
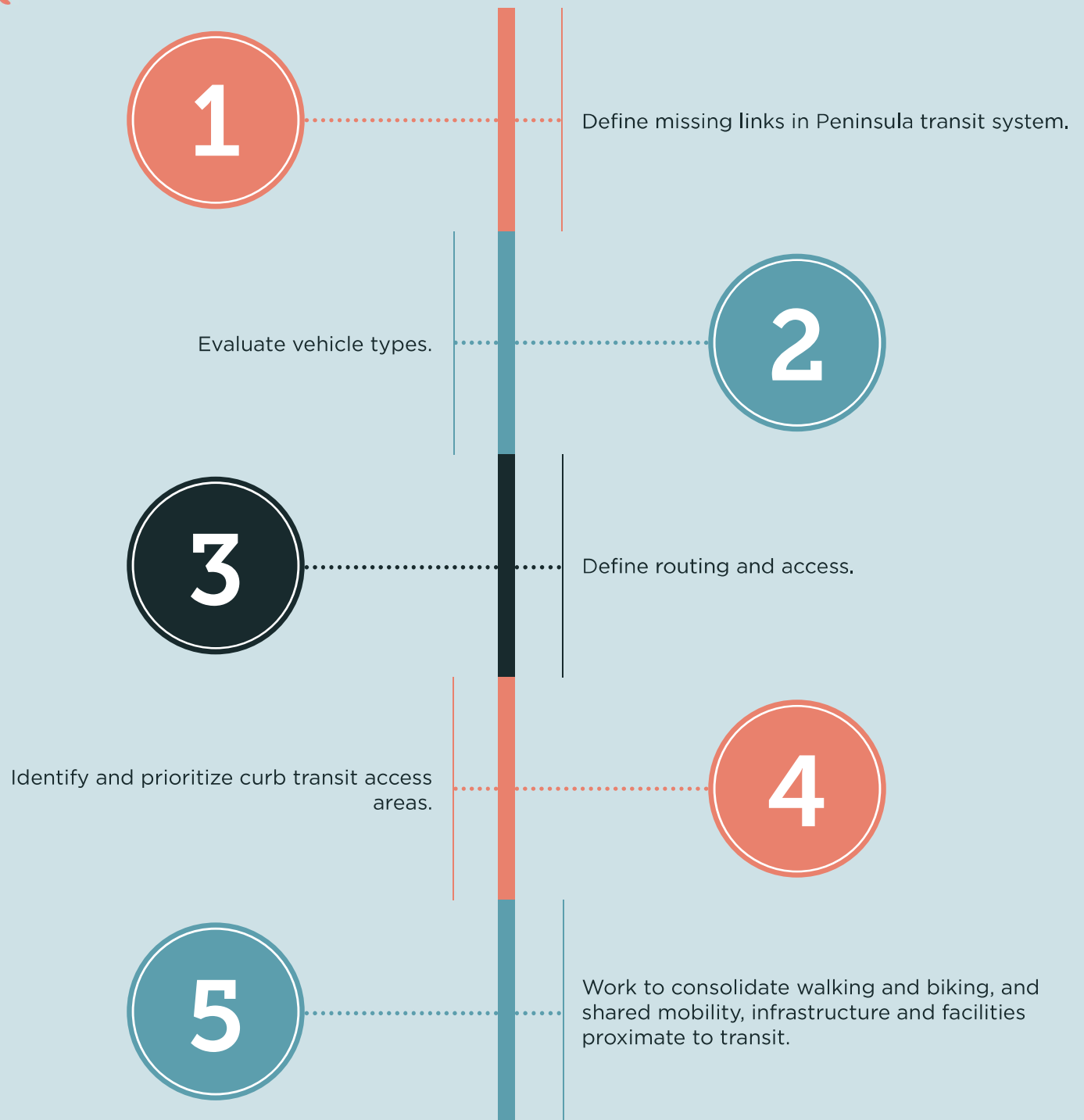
Improve Bike/Ped Services and Facilities

Description

Create connected, comfortable, and "low-stress" walking and biking facilities and infrastructure that will reduce vehicle trips on the Peninsula. Providing more bike/ped options, and coupling with transit services, will encourage people to drive less (and park less) in the City.

Intended Benefits

▶ Better linkage for non-automotive use.

▶ Better distribution of access and demand.

▶ Promotes equity for users of all ages and abilities.

▶ Support of city missions of complete streets and sustainability measures to reduce pollution.

Potential Challenges

▶ Limited right of way.

▶ Aging road network.

▶ Limited bike parking.

▶ Access to Peninsula does not provide cycling options.

Required Changes (policy, practice)

Would require the application of safe and protected bicycle facilities and modification of code to incentivize bike/ped connectivity. City would need to prioritize bike/ped trips in key corridors and areas to incentivize non-automotive travel.

Technology Support and Opportunities

Work with Holy Spokes and partners to establish a data sharing, operations, maintenance, and legal framework for facilitating electric bike shared urban mobility devices. Could look to expand current bike share and provide bike applications.

Potential Costs (capital and ongoing)

▶ Bike share stations (**$10k - $12k per station**)

▶ Bike routes and protected bike lanes (**$125k - $700k per lane mile**).

Supporting Strategies

▶ Consolidate Parking Management into One Department

▶ Improve Transit Services on the Peninsula

▶ Consider MaaS/Personal Transportation Options

Key Partnerships

▶ Business community

▶ Transit providers

▶ Shared mobility providers

Performance Metrics

▶ Cyclist safety statistics

▶ Reduced parking demand

▶ Reduced congestion

Implementation Steps

1 .... Work with partners to implement walking and biking improvements from the Walk + Bike BCD plan.

Work with state and county partners to implement dedicated, connected, and protected bicycle facilities **2**

3 .... Work across city departments to establish policies and regulations that are friendly and welcoming to bike operation and parking.

Examine the potential for electric bike share in the city. **4**

Consider MaaS/Personal Transportation Options

Description

"Mobility as a Service" (MaaS) platforms like Transportation Network Companies (TNCs) Uber and Lyft, docked and dockless bike share, and e-scooters are providing mobility options at the fingertips of consumers. These options should reduce the number of single-occupant vehicles in the City.

Intended Benefits

‣ Enhanced mobility for all types of users.

‣ Limits primary and secondary vehicle trips.

‣ Reduces parking demand.

‣ Fills the first-mile/last-mile transportation gap and facilitates multimodal commuting.

Potential Challenges

‣ Potential for lack of control by the City.

‣ Increased use of Uber and Lyft Increases demand for valuable and limited curb space.

‣ Congestion issues from pickup and drop-off.

‣ Difficult to manage dockless bikes and scooters.

Required Changes (policy, practice)

Loosen regulations that limit the use of MaaS offerings on the Peninsula and allow for non-traditional transit methods (shuttles, carts, personal mobility devices) that can be tailored to Peninsula character.

Technology Support and Opportunities

There is potential to aggregate MaaS services on a centralized application that also features transit, real-time parking occupancy, bike share, and other mobility options and information.

Potential Costs (capital and ongoing)

‣ Subsidization of TNC trips (**$250k - $500k/year**)

‣ Transportation application (**$150k to develop, $50k-$100k ongoing to manage** data and integrate platforms)

Supporting Strategies

‣ Consolidate Parking Management into One Department

‣ Improve Transit Access to the Peninsula

‣ Improve Transit Services on the Peninsula

‣ Improve Bike/Ped Services and Facilities

Key Partnerships

‣ Uber and Lyft

Performance Metrics

‣ Reduced congestion

‣ Increased transit ridership

‣ Changing access/mode statistics

‣ Reduced parking demand

Implementation Steps

1

Provide dedicated and marked pick-up/drop-off areas for TNCs in high-traffic commercial and entertainment districts. Partner directly with Uber and Lyft to designate these areas along the curb during peak demand periods. These areas would be designated loading zones (replacing on-street parking), and can be geolocated within the Uber and Lyft app, enhancing safety and consistency with users.

2

Consider "monetizing" the use of the curb, a limited citywide resource, through measures such as taxing TNCs.

3

Consider subsidizing shared mobility options (e.g. TNC's) for on Peninsula trips to promote active use of alternative transportation.

Improve Wayfinding, Branding, and Messaging

Description

Consistent and branded wayfinding and messaging signage can help communicate information about parking and mobility destinations, resources, and options, and aide users as they navigate the system. Signage should be clear, recognizable, and coordinated with wayfinding that directs users to destinations.

Intended Benefits

▸ Improves users' ability to navigate the parking and transportation system and find parking.

▸ Improved information to patrons about the parking system will better balance access and ultimately mode choice.

Potential Challenges

▸ Must stay in front of the message.

▸ Requires multiple touch points – on the ground, traditional media, social media, etc.

▸ Erasing negative connotations and creating positive perceptions is often easier said than done.

Required Changes (policy, practice)

Likely creation of a branding/marketing position within the parking program to support messaging, and signage ordinance changes to allow for unique parking system branding.

Potential Costs (capital and ongoing)

▸ Social media campaign (staff time plus **$50k - $75k annual budget**)

▸ Dynamic messaging signs (**$10k - $30k per sign**)

▸ On-street space detection systems **($200 - $500 per space annually)**

▸ Off-street space detection systems (**$500-$1k per space** capital cost, **$100-$300 per space annually**)

Key Partnerships

▸ Neighborhood associations

▸ Business improvement districts to coordinate messaging and branding

Technology Support and Opportunities

Social media should be leveraged for communication. Dynamic wayfinding should be considered to and within large Peninsula parking locations. Online and smart-phone based mapping programs can use real-time data to assist with locating parking.

Supporting Strategies

▸ Data-Driven Policies to Support Balanced System Utilization

▸ Consider Shared Parking with Private Assets

▸ Leverage and Enhance Parking Technology

▸ Enhance Residential Parking Practices

Performance Metrics

▸ Better balance of parking demands in parking facilities

▸ Reduced congestion

▸ Increased customer satisfaction

Implementation Steps

1 · · · · · · · · · · Develop a plan for wayfinding needs.

Develop a consistent theme and brand.
Use coordinated education and marketing
campaign to communicate theme and brand
and begin to re-orient system users. · · · · · · · · · · **2**

3 · · · · · · · · · · Coordinate the system with the selection and
implementation of a smartphone application
that provides real-time parking information.

Develop signage for new public parking
facilities created through shared and leased
parking. · · · · · · · · · · **4**

5 · · · · · · · · · · Create a map of public parking facilities
(location and number of spaces) and post to
the city website.

Leverage social media to communicate
information and the wayfinding brand to users. · · · · · · · · · · **6**

Data-Driven Policies to Support Balanced System Utilization

Description

Data-driven policies can be used to justify and encourage dynamic price and policy, improve marketing, wayfinding, and branding, and create better connectivity on the Peninsula. Helps to better allocate parking demand to reduce congestion into and around specific parking facilities.

Intended Benefits

‣ Reduced congestion in high demand areas/facilities.

‣ Better utilization of parking facilities.

‣ Equitable parking options.

‣ Better decision-making in commute choice.

Potential Challenges

‣ Setting the correct price to define behavior.

‣ Enabling over-population of certain facilities.

‣ Ongoing data management and policy changes (needs to be frequent and dynamic to manage assets properly).

Required Changes (policy, practice)

Adjust city policies on standing/stopping to accommodate dynamic changes and define data-driven practices to collect, analyze, store, and communicate date. Reserve the ability to change rates periodically without council approval (using pre-defined rate ceilings and floors)

Potential Costs (capital and ongoing)

‣ Integration of back-end management systems (**depends on choice of software or aggregation**).

‣ Data collection mechanisms (could range depending on manual or automation, budget **$250k to $500k annually**)

‣ Communication/marketing of policy/rate increases (**$100k per year**)

Key Partnerships

‣ Business community

‣ City leadership

Technology Support and Opportunities

Utilize back-end data management through aggregated data platform and a central system to adjust price/policy in real time. Coordinate and collate ongoing data collection.

Supporting Strategies

‣ Consolidate Parking Management into One Department

‣ Improve Transit Access to Peninsula

‣ Improve Transit Services on the Peninsula

‣ Leverage and Enhance Parking Technology

‣ Dynamic Curb Lane Management Policies

Performance Metrics

‣ Parking occupancy

‣ Parking duration

‣ Reduced congestion

Implementation Steps

1

Define and implement criteria for defining policy changes, including data thresholds, location characteristics, and intended policy outcomes (including price floor/ceiling, adjustment periods, and data resources).

2

Ongoing data collection and analysis to define impacts of performance.

3

Defined interval (quarterly, annually, etc) rate adjustments with marketing & education campaign.

Consider Shared Parking with Private Assets

Description

Private off-street parking assets can provide an important reservoir for spillover parking to serve a variety of uses. The City can use underutilized private parking assets to serve hourly, daily, monthly and/or event demands. The timing of parking demand in these facilities is usually different than on-street facilities.

Intended Benefits

‣ Better balancing of parking demand.

‣ Better balancing of access onto Peninsula.

‣ More options for users.

‣ Reduced need to build new parking infrastructure.

Potential Challenges

‣ Options to work with private sector may be limited.

‣ Private sector may hesitate because of liability concerns.

‣ Availability of parking may not be during peak conditions.

Required Changes (policy, practice)

Would require adjustments to shared parking provisions and development of consistent lease/shared parking agreements. Policy should support public leasing of private spaces and define funding source for leasing private assets.

Technology Support and Opportunities

Smart parking applications, coordinated back-end management, and dynamic wayfinding and messaging are key technology tools to support shared parking on the Peninsula.

Potential Costs (capital and ongoing)

‣ Staff time to develop shared parking policy and practice

‣ Negotiated market rate for leasing private parking spaces

Supporting Strategies

‣ Consolidate Parking Management into One Department

‣ Improve Wayfinding, Branding, and Messaging

‣ Data-Driven Policies to Support Balanced System Utilization

‣ Right-Size Parking Codes/Ordinances/Policies

‣ Parking Investment Strategy

Key Partnerships

‣ Private sector/development community

‣ Private property owners

‣ Private parking operators

Performance Metrics

‣ Parking occupancy

‣ Business owner and customer satisfaction

Implementation Steps

1 — Encourage private property owners to enter into shared and leased parking agreements to share common off-street parking and/or off-site parking resource to meet collective parking needs.

Identify high-demand parking areas where shared parking may be beneficial and Identify/inventory and document private off-street parking assets that could be candidates for shared parking arrangements. — **2**

3 — Establish agreements and incentives for private parking operators and property owners to participate in shared parking system, including liability, enforcement, management, and marketing.

4

5 — Work with private business owners and landowners to broker shared-use parking arrangements in high-demand parking areas.

Allow participants to lease parking spaces in the shared facility, adding monetary value to the spaces (city with private businesses, business to business). — **6**

Leverage and Enhance Parking Technology

Description

Technology can provide a better provision of information about parking – location, assets, prices, availability – to make better decisions. Use of new parking technologies for access, wayfinding, management, and more, can help improve the user experience and make it easier for the community to park on the Peninsula.

Intended Benefits

▸ Improved customer decision making.

▸ Reduced city staff overhead time for permitting and payment administration and management.

▸ Better balance parking access and utilization.

▸ Improved ability to collect data.

Potential Challenges

▸ Availability of data.

▸ Realizing substantial user base for any smart phone application or platform.

▸ Assembling dataset for a true "Transportation Choice" application.

Required Changes (policy, practice)

Minimal changes required beyond installation of new technology and staff training for new systems.

Potential Costs (capital and ongoing)

▸ Smartphone applications for management (**$150k to develop, $50k-$100k ongoing to manage** data and integrate platforms)

▸ Pay-by-phone application (**off the shelf implementation, plus user charges per transaction**)

▸ Integration of back-end management systems (**depends on choice of software or aggregation**)

▸ LPR equipment (**$30k - $50k per vehicle; $20k - $30k annual software costs**).

Key Partnerships

▸ Business community

▸ Chamber and hospitality (for communication of technology availability)

▸ City IT staff

Technology Support and Opportunities

Smartphone applications and License Plate Recognition (LPR) for enforcement and ongoing data management are important technology pieces to improve the system.

Supporting Strategies

▸ Consolidate Parking Management into One Department

▸ Consider MaaS/Personal Transportation Options

▸ Dynamic Curb Lane Management Policies

Performance Metrics

▸ Citation issuance (vs compliance)

▸ Program revenues

▸ Parking occupancy

▸ Parking duration

▸ Business owner and customer satisfaction

Implementation Steps

1

Implement mobile payments through a third-party or custom-built mobile payment application.

Develop an online customer parking portal that can facilitate online permitting.

2

3

Implement license plate recognition-based permitting tied in to the online permitting database for enforcement purposes, especially in neighborhoods with residential parking permit programs.

Explore real-time parking availability technology.

4

Dynamic Curb Lane Management Policies

Description

A curb lane management program provides structure for managing the various competing curb lane uses. A comprehensive curb lane management plan and program allows for making consistent decisions regarding curb lane uses so that there is structure and consistent reasoning behind the decision-making process.

Intended Benefits

▸ Better structure of curbside assets for parking, loading, and interaction with businesses.

▸ Prioritization of uses/users by area to support intended vision.

▸ Better planning tool for the City to define how and where curbside elements are changed.

Potential Challenges

▸ Multi-faceted areas like King Street will have very dynamic needs.

▸ Rapidly changing areas will require flexible policy to grow with the changing community.

▸ Some users will potentially be de-prioritized.

Required Changes (policy, practice)

There will need to be adjustments to City standing and stopping ordinances to allow for curbside flexibility and correlation with or adjustment to state-owned road curbside policies.

Technology Support and Opportunities

Technology like dynamic payment platforms and permit access are key. Real-time data can let parkers know which curb areas are currently being utilized by non-parking uses.

Potential Costs (capital and ongoing)

▸ Signage changes (**will vary**)

▸ Dynamic curbside communication and payment platforms (varies by use and location; assume **$4,000 - $10,000 per block face** for initial technology)

Supporting Strategies

▸ Consolidate Parking Management into One Department

▸ Data-Driven Policies to Support Balanced System Utilization

▸ Leverage and Enhance Parking Technology

Key Partnerships

▸ Business community

▸ Commercial loading operators

▸ TNC and Passenger transport services

Performance Metrics

▸ Parking occupancy

▸ Business owner satisfaction

▸ Reduced congestion

Implementation Steps

1

Develop and adopt a comprehensive curb lane management program approach that: Prioritizes curb uses, defines the curb lane uses including when, where, and how to implement curb changes, and cultivates flexibility and transitioning of curb uses from one to another (e.g. commercial loading during the day to passenger loading at night).

Using the implementation in the data-driven policies section, set dynamic policy and prices for on-street facilities.

2

3

Work with loading groups (delivery, passenger, TNC) to define optimal strategies for loading. Define realistic proximity conditions for loading activities. Define dynamic loading policies based on time of day and application.

Enhance Residential Parking Practices

Description

In high-demand areas where spillover parking affects nearby residents, residential parking programs enable residents with unfettered access to otherwise restricted on-street parking. The Peninsula could benefit from creating dynamic policies that allow some access without over-committing neighborhood streets.

Intended Benefits

‣ Protects neighborhood streets while realizing there is a need to use right-of-way to support Peninsula parking needs.

‣ Limits access when residents need parking most.

‣ Allows access in limited quantities (considering some payment with resident exemptions).

Potential Challenges

‣ Creating a policy that residents support (i.e. managing backlash).

‣ Enforcing parking in a meaningful way to support neighborhood needs.

Required Changes (policy, practice)

Would require adjustments to residential parking code to support dynamic implementation, and changes to standing/stopping codes to support balanced on-street access. Code/policy would need to be developed for benefit districts and revenue reinvestment.

Potential Costs (capital and ongoing)

‣ Parking meters (**$300 - $1k per space**)

‣ Pay by phone application (**off the shelf implementation, plus user charges per transaction**)

‣ Benefit districts (return of revenues above and beyond operating costs)

Key Partnerships

‣ Neighborhood associations

Technology Support and Opportunities

Use technology to implement paid parking in shoulder areas and dynamic messaging to promote available parking and restrictions, depending on time of day.

Supporting Strategies

‣ Consolidate Parking Management into One Department

‣ Data-Driven Policies to Support Balanced System Utilization

‣ Dynamic Curb Lane Management Policies

Performance Metrics

‣ Parking occupancy

‣ Parking duration

‣ Resident satisfaction

‣ Customer satisfaction

Implementation Steps

1 Evaluate existing residential parking areas to right-size policy and application.

Conduct neighborhood specific outreach to discuss advanced policies and practices. **2**

3 Define neighborhood and commercial area criteria to define how and what to implement in neighborhood areas.

Consider implementation of paid parking in applicable neighborhoods, with residential exemptions and benefit district policies. **4**

Right-Size Parking Codes/Ordinances/Policies

Description

Defines policies and practices that support the vision of the Peninsula through parking requirements and provisions by: removing minimum parking requirements, utilizing parking maximums, leveraging fee-in-lieu implementation, better shared parking practices, and evaluating variances provided for redevelopment.

Intended Benefits

▸ Creates a balanced parking system that can accommodate the needs and vision of the City.

▸ Reduced subsidization of auto trips.

▸ Increased reliance on centralized parking system.

▸ Reduced underutilized restricted parking.

Potential Challenges

▸ May be a need to address concerns and manage neighborhood impacts.

▸ Coordination of public supply – either existing or future – to support area businesses.

▸ Establishment of fee in lieu and application of funds.

Required Changes (policy, practice)

Adjustments would need to be made to the citywide development code, including: parking requirements, shared parking policies, and implementing fee-in-lieu practices.

Technology Support and Opportunities

Digital inventory of parking and asset allocation would need to be utilized.

Potential Costs (capital and ongoing)

▸ Staff time for implementation and practice

Supporting Strategies

▸ Improve Transit Access to Peninsula

▸ Improve Transit Services on the Peninsula

▸ Improve Bike/Ped Services and Facilities

▸ Consider MaaS/Personal Transportation Options

▸ Data-Driven Policies to Support Balanced System Utilization

▸ Consider Shared Parking with Private Assets

▸ Parking Investment Strategy

Key Partnerships

▸ City planning department

▸ Area development community

Performance Metrics

▸ Parking occupancy

▸ Neighborhood spillover impacts

▸ Return on investment from development

Implementation Steps

1

Establish parking requirements appropriate for the use and based on actual parking demand, which is determined by evaluating actual data collected to represent that development .

Monitor the parking occupancy related to development annually.

2

3

Revise parking requirements as necessary based on monitoring.

Collect and implement fee in lieu to support shared centralized parking for development.

4

Parking Investment Strategy

Description

A parking investment strategy will act as a guide for the City to make parking-related decisions in the future. Characteristics for investment include: area demands, proximity to demands, ability to generate new business, ability to manage parking demands, land use, revenue generation, and ability to serve mixed-use.

Intended Benefits

‣ Better decision making on investments in new parking, leasing spaces, public-private partnerships.

‣ Better implementation of new parking assets.

‣ Right-sized parking investments.

Potential Challenges

‣ Lack of parking investments in areas that do not meet requirements.

‣ Reliance on private parking in non-investment areas.

Required Changes (policy, practice)

Policy on public-private investments would need to be changed.

Supporting Strategies

‣ Data-Driven Policies to Support Balanced System Utilization

‣ Consider Shared Parking with Private Assets

‣ Right-Size Parking Codes/Ordinances/Policies

Key Partnerships

‣ City planning

‣ Private sector (development community)

Performance Metrics

‣ Parking occupancy

‣ Return on investment from public-private decisions

Implementation Steps

1 ········· Define optimal criteria for investment decisions.

Develop policy/playbook for investment strategy implementation. ········· **2**

3 ········· Assess new parking decisions on a case-by-case basis.
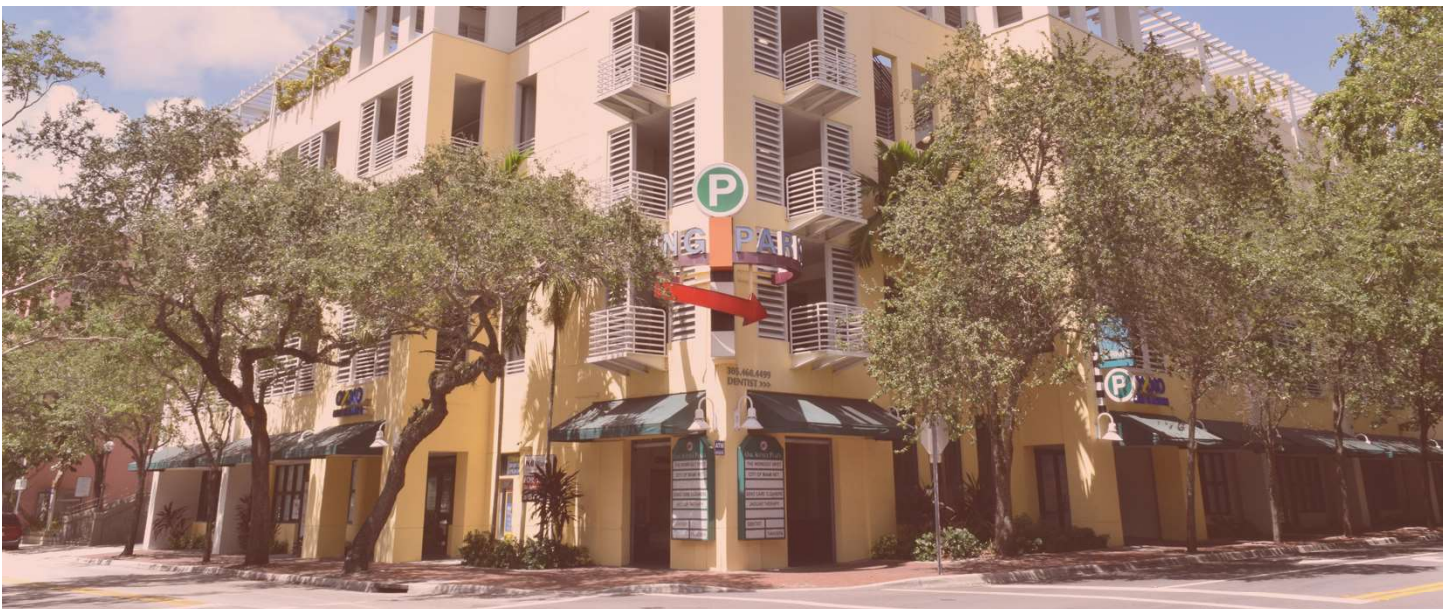
Recommendations

Recommendations

This section contains the full recommendations of the Study. These recommendations were developed based on the foundational analysis presented in earlier chapters of this document. The City should use these recommendations as a tool for guiding future decision making and investment related to parking.

Overview

Drawing from the existing conditions analysis and stakeholder engagement, and building off the Policy Booklet developed in conjunction with the November 2018 Expert Panel, this section presents a set of specific infrastructure, policy, and programming strategies for improving the provision, operations, and management of parking and mobility in the City of Charleston. The strategies presented herein are aimed at addressing identified needs and achieving stated objectives identified in the Existing Conditions Report and Policy Booklet. They are meant to be holistic in nature; there is no singular solution but rather, a phased and strategic approach to improve management, find the right balance of parking and mobility, and provide increased and better customer service.

Each strategy area is give a priority rating that communicates which elements are most important, as shown below:

Priority Rating | ●○○ ————— **Lower** Tier Priority

Priority Rating | ●●○ ————— **Middle** Tier Priority

Priority Rating | ●●● ————— **Highest** Tier Priority
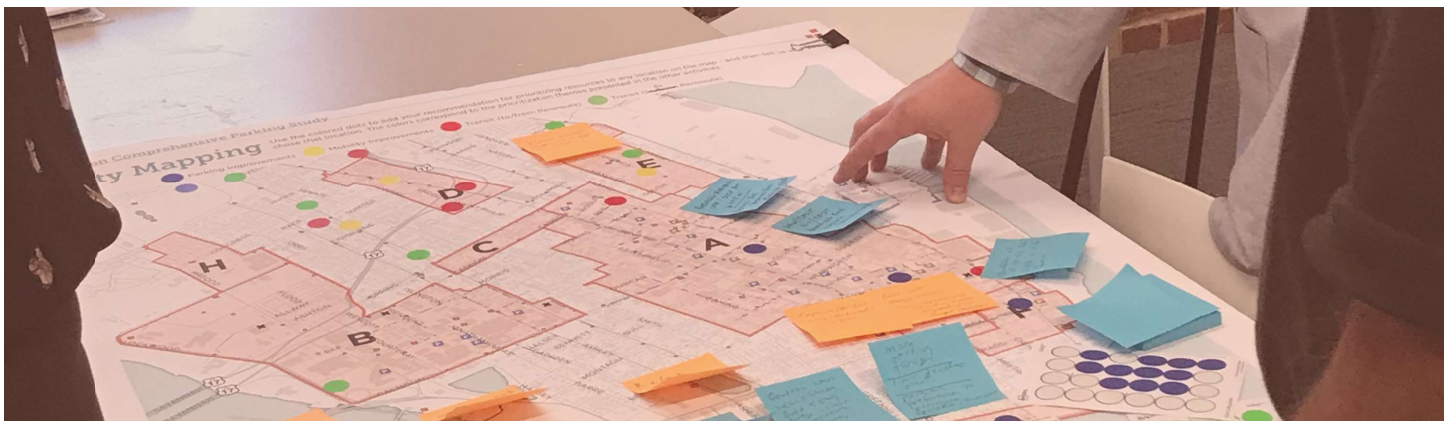
The Role of Parking Supply in the Charleston Solution

Parking supply has increased rapidly in American cities over the past 50 years, with minimum parking requirements and over-reliance on the automobile driving the desire to provide more and more parking spaces. In many cases, non-shared spaces were overbuilt, resulting in lost development potential, increased congestion, and subsidization of the vehicular trip—often at the expense of other mobility options. A 2018 article in the planning publication CityLab reviewed parking supply versus population and size metrics in several US cities to document how expansive past parking decisions have been on the design of our downtowns. We've added in equivalent metrics from Charleston for comparison. The Charleston Peninsula has twice as many parking spaces per acre of land as households, with almost two parking spaces for every household on the Peninsula. When considering the replacement value of the existing parking supply, the City would incur more than $1.5 billion in costs to rebuild supply.

	New York City, NY	Philadelphia, PA	Seattle, WA	Des Moines, IA	Jackson, WY	Charleston Peninsula
Total Parking Spaces	1.85 million	2.2 million	1.6 million	1.6 million	100,119	71,196
Housing density per acre	16	6.8	5.7	1.5	2	11.7
Parking density per acre	10.1	25.3	29.7	28.4	53.8	22.2
Parking spaces per household	0.6	3.7	5.2	19.4	27	1.9
Total replacement cost of parking	$20.1 billion	$17.5 billion	$35.8 billion	$6.4 billion	$711 million	$1.6 billion
Parking cost per household	$6,570	$29,974	$117,677	$77,165	$192,138	$42,520

*CityLab, Parking Has Eaten American Cities, Richard Florida, Jul 24, 2018

Given the outcomes of the Existing Conditions Report and the metrics summarized in this table, it's fairly clear that the strategies in this document should focus less on parking supply and more on managing demands, providing customer service enhancements, and applying advanced management strategies.

Consolidation of Parking Management

Priority Rating ● ● ●

Overview

A City's parking system is comprised of on- and off-street parking assets. In an optimal environment, holistic management strategies are used to balance demands across both aspects of the system, including using parking rates and management strategies to influence priority parkers, pushing long-term parkers to off-street facilities, and encouraging short-term parkers to utilize on-street spaces. The difficulty in reaching this balance typically lies in the ownership of assets. Who has authority to make changes to on-street rates? Who manages the spaces in the off-street system? Are decisions about both systems made in coordination with one another?

The City of Charleston is in a unique position where it controls not only the on-street parking—which is typical of most large American municipalities—but also a large majority of the off-street system. Having these two assets in house, the City should be able to leverage the parking system to support community growth, provide multiple options to area residents, patrons, and employers, and balance demands throughout the system. While this happens to a certain degree already, there is a significant opportunity to improve parking management by better consolidating parking assets, operations, and decisions into one singular department.

Key Recommendation:

▸ *The City should work to consolidate all functions related to parking, including on-street, off-street, planning, budgeting, revenue collection, and management into one singular department.*
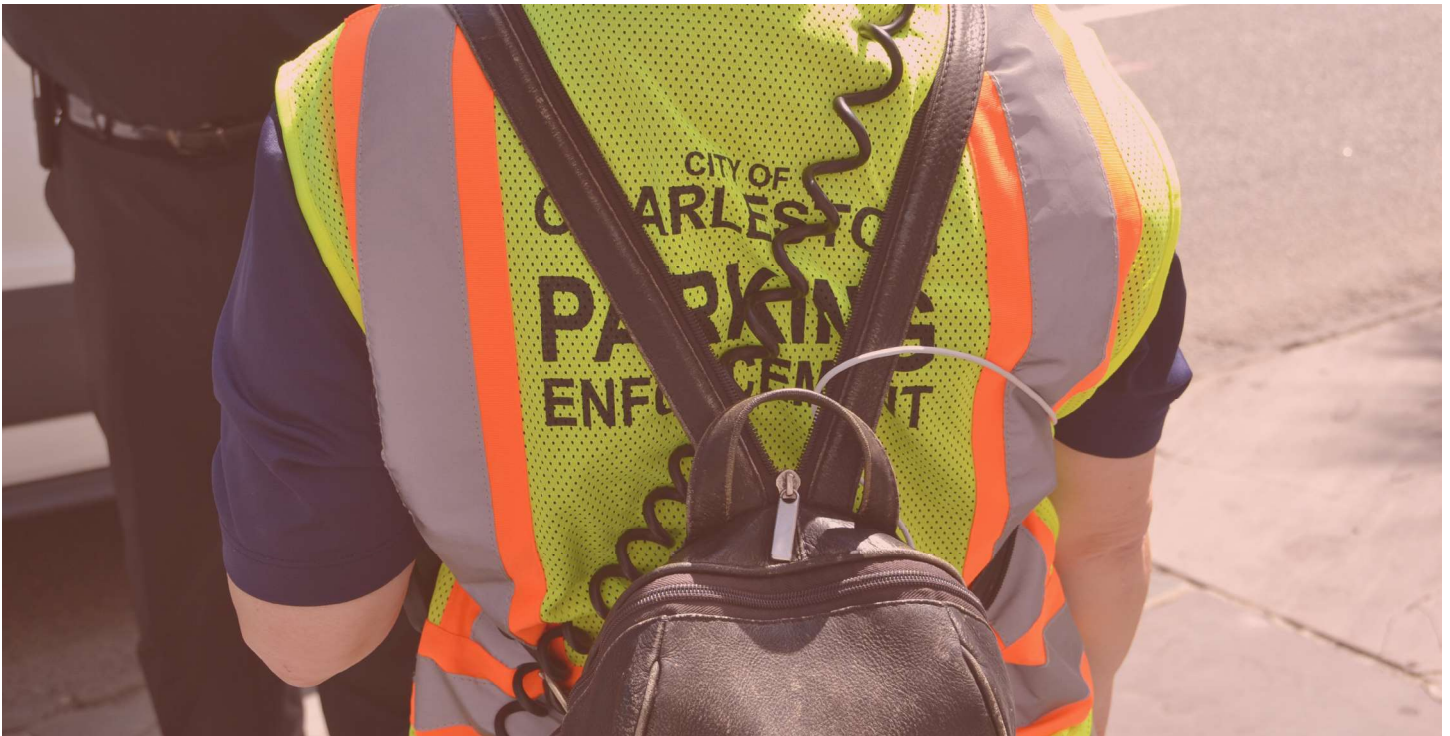
Implementation Strategies

Consolidated parking management will allow the City to more effectively manage parking demand, improve the user experience, coordinate technology investments, and improve program monitoring for data-driven decision-making. Consolidated parking management should be focused on City-owned on- and off-street facilities in the near term but may include greater management coordination with private facilities in the future. Active planning and management of the City's parking enterprise fund should also be under the parking management umbrella, with a focus on parking operations, maintenance, management, monitoring, and mobility.

The remaining recommendations in this document are all built on the premise that the City can achieve some level of consolidated management in the next few years. That coordinated and consolidated management should unlock opportunities related to improved parking system management, transit and mobility coordination, wayfinding and branding, data-driven policy development, shared parking, technology enhancements, and investment decisions.

Near-Term Strategy (0 to 2 years)

- Consolidate all on-street management functions within the Traffic and Transportation Department including management, collections, and enforcement. This would include removing the collections element from any upcoming RFP for off-street parking management and advertising that element as a standalone process for the on-street management group.

  ‣ *The on-street system should rely on data analytics pulled from existing parking technologies and management platforms to make daily programmatic decisions.*

- The off-street parking system managed by the City's Real Estate department should re-advertise the off-street parking management function with the intent to improve operational efficiency, customer service, and costs to the City.

  ‣ *The off-street system should rely on data analytics pulled from existing parking technologies and management platforms to make daily programmatic decisions.*

- Establish a Parking Management Task Force with internal City departments to more collaboratively manage the systems. Their efforts should include:

  ‣ *Monthly meetings to discuss policies and practices*

  ‣ *Collaborative management decisions aimed to balance the parking system*

  ‣ *Data analytics to review trends within the on-street and off-street system*

  ‣ *Revenue evaluation and comparison based on policy changes*

  ‣ *Marketing, education, and branding discussions*

  ‣ *Consideration of additional consolidation*

- Both on-street and off-street functions should coordinate closely with the City's Finance department to realistically incorporate the City's budget and available resources for implementing this study's recommendations.

The task force should evaluate how the recommendations and the enhanced management functions of this study are implemented outside of the Peninsula, including parking enforcement, mobility implementation, and parking management. This will likely require further adaptation of functions into one department to create more capacity for community-wide management.

Mid-Term Strategy (2 to 5 years)

Evaluate outcomes of the Parking Management Task Force and determine the optimal location for consolidating all parking management functions (whether that is an existing department, a new department, or an authority).

Define parking program organizational chart and roles, including at a minimum:

▸ *Parking Director. Oversees the operations of the program and coordinates with other City departments*

▸ *Parking Business Manager/Communications. Assists with the overall management of the program, manages accounting functions, and supports marketing and messaging*

▸ *On-Street Parking Manager. Oversees all functions related to on-street parking*

▸ *Off-Street Parking Manager. Oversees all functions related to off-street parking*

▸ *Parking Technology Manager. Oversees acquisition, implementation, and management of parking assets, coordinates data and statistical analysis functions*

▸ *Mobility Planner. Coordinates parking program decisions with other City and County departments related to transportation, transit, and mobility*

Evaluate the decision to continue outsourcing parking system operations versus insourcing staff into City department.

Develop a detailed 10-year policy and budget plan for the parking enterprise fund. The budget should contain the following elements:

▸ *Updating budget and expense policies*

▸ *Prioritizing spending, including capital expenses, mobility investments, technology investments, staffing, and others*

▸ *Performing revenue forecasts*

Improve Transit Access to the Peninsula

Priority Rating | ● ● ○

Overview

The cornerstone of any good municipal multimodal transportation system is a connected, efficient, and convenient transit system. No other mode has as much potential to move large volumes of people around efficiently, a fact that is especially important in a city with limited physical street, parking, and curb space like Charleston.

Cutting transit service to reduce costs leads to a cycle of declining ridership, increased automobile use, and a further weakening of transit's impact and overall resources. High-quality transit service, especially one that connects to a variety of destinations and offers frequent rides (i.e., 30 minutes or less), drives demand and ridership. That is, service generates demand.

Regional efforts to improve transit access to the Peninsula are ongoing. The Berkeley Charleston Dorchester Council of Governments (BCDCOG) is currently undergoing a bus rapid transit (BRT) planning project between Summerville and the Peninsula. The Hospitality on Peninsula (HOP) Shuttle from the park-and-ride off I-26 on the northeastern edge of the Peninsula helps relieve parking pressure in Downtown Charleston. The City should implement strategies that continue to improve transit access to the Peninsula, directly into downtown or peripheral areas.

Key Recommendations:

▸ *Evaluate park-and-ride demand and place additional park-and-ride locations outside the Peninsula.*

▸ *Work with BCDCOG and Charleston Area Regional Transit Authority (CARTA) to identify ideal locations and amenities for transit landings on the Peninsula, including first- and last-mile amenities to connect riders to final destinations.*

▸ *Implement express, limited-stop service from peripheral areas into downtown Charleston.*

▸ *Work with employers to institute transportation demand management (TDM) policies that incentivize transit use, such as parking cash-out programs and pre-tax transit benefits.*

▸ *Work to adjust the City's' Development Standards and Ordinances to offset parking demand and reduce the amount of off-street parking required for new developments. Abundant and accessible parking, particularly off-street parking, generates automobile use and traffic congestion. Further recommendations are discussed in the Right-Size Parking Codes/Ordinances/Policies section of this document.*

▸ *Ensure that on- and off-street public parking assets are priced appropriately relative to the cost of transit and parking in park-and-ride facilities.*

▸ *Work with regional agencies to develop a mobile trip-planning app platform that can serve as a "one-stop-shop" for trip and commute planning, with features such as traffic conditions, routing, choice of optimal mode, schedule information, mobile payments, and shared mobility options. The City of Los Angeles developed the GoLA mobility hub platform in partnership with Xerox/Conduent. The app provides aggregated mobility information for commuters and travelers in the region and is particularly beneficial for multimodal commute and travel trips.*

Improve Transit Access on the Peninsula

Overview

In addition to providing access to the Peninsula, transit must be a central way that people move around on the Peninsula. Flexible and user-friendly transit service reduces pressure on parking resources and works to decrease traffic congestion. Transit service should be optimized with the rider in mind, especially in high-demand priority corridors/areas, including:

▸ *Frequent (i.e., 15 minutes or less) headways to improve rider convenience and eliminate the need for riders to "learn" the times transit service departs or arrives*

▸ *Connected route network with visible and comfortable stop locations to improve access to important destinations*

▸ *Wide span of service to offer service throughout the day and week*

These are the foundational tenets of good fixed-route transit service. The City of Charleston, like many cities around the United States, faces the financial realities and resource constraints of operating a robust, fixed-out transit service. Compounding the issue is a changing mobility landscape and users that increasingly covet on-demand transportation (and increasingly private) options that offer flexibility and direct door-to-door access. The City of Charleston should implement strategies that promote the flexibility of transit service and better integrate transit service with other emerging and flexible mobility options.

Key Recommendations:

▸ *Identify and leverage flexible micro-transit opportunities with the private sector to supplement existing CARTA service by providing flexible, demand-responsive transit service that can deviate off fixed routes. Washington, D.C. is in its second year of operating a pilot program called Neighborhood Ride Service by Taxis, which provides flexible, on-demand transit service in areas of the city that are underserved by fixed route transit service.*

▸ *Integrate the CARTA "transit" app into a central mobility platform that aggregates transit with walking, biking, parking, and shared mobility information. The City of Portland integrates TNC (Lyft), car share (car2go), and transit (TriMet) information into a single mobile platform called RideTap, a single mobile platform that aggregates public and private mobility options for users to easily access.*

▸ *Embrace mobility as a service (MaaS) options, such as TNCs and dockless, on-demand personal mobility devices, to supplement core public transportation services by connecting transit stations. This will address first-mile/last-mile connectivity gaps and establishing connections between transit stations and Peninsula destinations.*

▸ *These options are typically private services, but efforts should be made to ensure all residents have equitable access to these services and "set the playing field" for the services to operate with proper data sharing, maintenance, and operations agreements. The City of Detroit, for example, partners with Lyft to subsidize rides during late night, off-peak times. The City of Austin subsidizes to and from transit stops on TNC RideAustin. The City of Royal Palm Beach, partners with Lyft to enhance paratransit connectivity.*

Improve Pedestrian and Bicycle Services and Facilities

Priority Rating ● ● ○

Overview

Walking and bicycling are foundations of good urban places. Walkability and bikeability are the positive outcomes of good urban form, land use policy, and design. The Charleston Peninsula, with its compact size, tight, gridded streets, and attractive urban form, is inherently walkable. Exploring the City on foot is quintessential to experiencing Charleston's charm. Biking is more of a challenge on the Peninsula due to narrow streets and limited space.

Despite inherent advantages, specific efforts should be taken to further invite and encourage walking and bicycling. The goal of effective pedestrian and bicycle programs is to establish walking and biking as normal, convenient, and everyday travel modes as well as encourage users of all ages and abilities to feel comfortable walking and biking in "low stress" facilities that are buffered from motor vehicle traffic.

Key Recommendations:

▸ *Develop policies for funding bike/pedestrian programs with parking revenues, using program-wide or neighborhood specific revenues.*

▸ *Leverage parking funds to obtain grant funding for bicycle and pedestrian projects with an emphasis on projects that enhance safety and mobility.*

▸ *Develop a street master plan for the Peninsula and other neighborhood districts to improve safety, mobility, and curb space management.*

▸ *Adopt the Vision Zero target for zero fatalities involving road traffic and leverage parking revenues to fund portions of the program.*

▸ *Where possible, investigate opportunities for cycle tracks and off-street paths or bicycle lanes that are buffered from moving vehicular traffic by curbs, landscaping, bollards, and/or parked vehicles.*

▸ *Retrofit existing on-street parking spaces as corrals for bike parking and for parklets to enhance the pedestrian experience and calm traffic.*

▸ *Designate, mark, and sign specific north-south and east-west bikeways internal to the Peninsula to enhance the visibility and profile of bicyclists in these locations.*

▸ *Integrate dockless, on-demand mobility devices where possible and designate appropriate curb space for parking these devices.*

▸ *Explore of the possibility of converting streets to car-free "Woonerf" style areas where pedestrians, bicycles, and dockless devices are prioritized.*

Implement MaaS/Personal Transportation Options

Priority Rating | ◉ ◉ ○

Overview

If deployed properly, Mobility as a Service (MaaS) options have the potential to integrate with the Peninsula's parking system and improve overall access and mobility on the Peninsula for residents and visitors, while reducing parking demand and traffic congestion from vehicles making short trips and/or searching for parking. The City should adopt several strategies that ensure MaaS options work in a beneficial and seamless way within existing City streets and alongside current transportation systems.

Key Recommendations:
‣ *Designate curb space for rideshare pick-up and drop-off*
‣ *Cluster Mobility as a Service options and connect them with transit*
‣ *Adopt policy and program frameworks that manage services and monetize access*
‣ *Embrace new shared mobility devices*

Recommendation Details

The key to implementing and unlocking MaaS options on the Peninsula and throughout the Charleston community is likely found in a combination of strategies throughout this document, including effective curb lane management, improving transit access on the Peninsula, and right sizing policies and ordinances.

Designate Curb Space for TNC Rideshare Pick-Up and Drop-Off Zones

Curb space is at a premium on the Peninsula, as it is in cities across the United States. A variety of competing uses compete for space along the curb, including on-street parking, loading zones, TNCs, dockless, on-demand personal mobility devices, and others. Flexible curb space management is critical to maximizing the efficiency and functionality of the curb to serve adjacent land uses and prioritizing the right curb use at the right time of day.

For example, a curb zone located near popular restaurants and entertainment establishments that is on-street parking with low turnover during the day is best prioritized as a pick-up/drop-off area during the nighttime entertainment hours. Doing so facilitates greater access to the destinations along particular curbs by giving TNC vehicles access to curb space and reducing the need for these vehicles to stop in the line of traffic to pick up and drop off riders, helping to relieve congestion.

The City should partner directly with Uber and Lyft to identify and designate flexible curb zones in areas adjacent to commercial entertainment land uses, i.e., curb space that functions as on-street during the day and TNC pick-up/drop-off areas when demand spikes at night. The City of Fort Lauderdale partnered with Uber in 2017 to designate on-street parking spaces as nighttime and weekend pick-up and drop-off zones. Washington D.C., San Francisco, and other cities are implementing flex curb zones in partnership with TNCs as well. The City of Charleston will need to initiate discussions directly with Uber and Lyft by establishing a business account. The City will then work with an assigned business representative to set up the terms of the arrangement.

Cluster MaaS Options and Connect with Transit

Shared mobility options can play a critical role in addressing "first-mile/last-mile" connectivity needs at the beginning or end of a trip. First-mile/last-mile connectivity means connecting travelers between destinations and parking facilities or transit stations, either during the first leg of the trip, or during the return trip. Shared mobility options are particularly effective in filling the first-mile/last-mile access gap for those traveling via transit—facilitating a non-single-occupant vehicle multimodal trip.

The City should work with BCDCOG and CARTA to create "mobility hubs" by clustering TNC loadings areas and dockless, on-demand personal mobility devices near or adjacent to transit stations and large consolidated parking structures and/or park-and-ride facilities. Additionally, the City should evaluate subsidizing TNC trips that originate or terminate at CARTA transit stations to incentivize multimodal transportation trips to the Peninsula that do not result in parking demand.

● **Adopt Policy and Program Frameworks that Manage Services and Monetize Access**

Establishing the policy ecosystem, in which shared mobility and MaaS options will exist and operate on the Peninsula, is essential. The City of Charleston should adopt policies that set the terms of operation by shared mobility services like TNCs, dockless, on-demand personal mobility devices, and other options. Adopted policies ensure the City earns its fair share for providing service platforms access to its residents, allow the City to glean vital information on user mobility behavior, and align the City to provide services that positively enhance the overall access, circulation, and mobility for all users without causing externalities.

The City should initiate the following practices:

▸ *Where possible, initiate RFPs to provide shared mobility service. Doing so allows the City to set the terms of operation and dictate requirements, such as service location and objectives, accessibility compliance, data sharing, operations and maintenance, and evaluation and reporting.*

▸ *Adopt a policy that sets the terms and requirements for TNCs and other shared mobility providers to collect and share their anonymized user data with the City. This data will be a robust snapshot of user mobility behavior and should be integrated into the City's data sets to inform transportation and parking management decisions.*

▸ *Implement a policy to collect a per-use fee from TNC ridesharing services. The City of Charleston and cities around the United States are providing TNCs with access to their street space, limited curb space, and ultimately, their customers. Cities deserve commensurate value in return. The City of Chicago imposes a fee of $.67 on every Uber and Lyft ride—money that is used to fund public transportation improvements.*

▸ *Adopt a platform that consolidates shared mobility and parking elements into one management dashboard, allowing for the collection of user data, the management of mobile parking payments, and the opportunity to monetize curb access by shared mobility options.*

Embrace New Shared Mobility Devices

Urban trips of 1 to 3 miles are too short for most people to drive and park or take transit (unless the transit service is conveniently located), but are too long for people to walk. On-demand mobility options are emerging and evolving in today's marketplace, some providing rides in a vehicle shared with other rides (e.g., Uber, Lyft, Gotcha Ride), while other options offer personal mobility devices (e.g., dockless, shared bikes and scooters). Shared mobility platforms like Gotcha Ride, Uber, and Lyft are aggregating multiple device options within a single mobile platform, so users can catch a ride in a rideshare vehicle and then utilize bike share and scooters from the same platform provider.

Dockless, on-demand mobility devices like scooters and bikes, which offer personal transportation, are filling this important flexibility of mobility need in the overall transportation ecosystem. New vendors and platforms have emerged in recent years but there is an evolution toward dockless, human-powered and electric-assist devices that are shared between users and available via a mobile platform at a moment's notice. These devices are readily available, enjoyable to ride, easy to use, and offer point to point connectivity. New and different kinds of devices will continue to emerge as technology changes, but on-demand, personal mobility devices are here to stay and cities must adapt and evolve.

The City should evaluate and embrace shared mobility devices by:

▸ *Maintaining a philosophy of openness and acceptance to new shared and personal, on-demand mobility options. New and different options, with different vehicle types, are expected to continue to evolve and come online. The City of Charleston should set up policies that are flexible and emphasize and promote the City's top mobility priorities—no matter the specific shared mobility device.*

▸ *Adopting policies that outline to providers the terms of operation, maintenance, data sharing, and allocation/re-balancing of dockless units across the City.*

▸ *Integrating the provision of space and resources for shared and alternative mobility devices in requirements for new developments.*

▸ *Integrating shared mobility devices in all public mobility resources and communications to increase the exposure and access to information about devices among the public.*

▸ *Implementing policies and education campaigns that regulate where devices should be operated.*

▸ *Ensuring there is adequate on- and off-street infrastructure for these devices to operate.*

▸ *Designating space on the sidewalk and/or along the curb for parking of dockless devices. This is being done with dockless scooters and bikes in Arlington, VA; Minneapolis, MN; and other cities. These cities are designating the parking areas on and off the street with paint and leveraging the GPS capabilities within the mobile apps to identify the virtual parking hubs.*

Recommended Primary Mobility Hub

- *Adjacent to Marion Square Parking Garage and King/Meeting Street corridors*
- *At the convergence of several transit routes*
- *Cluser MaaS options to make last-mile connections*

Recommended Secondary Mobility Hub

- *Adjacent to parking assets, City Market, and other destinations*
- *At the convergence of several transit routes*
- *Cluster MaaS options to make last-mile connections*

Legend

— Transit Route
⬛ Study Area
🅿 Public Garage
🅿 Public Surface Lot
✖ Private Garage
⬛ Bike Share Hub
◯ CARTA Stop

Improve Wayfinding, Branding, and Messaging

Priority Rating | ● ● ○

Overview

Parking users should be provided a high-quality customer experience whether they are parking in public on- or off-street facilities, or in a private off-street facility. Consistent wayfinding information, branding, and communications about where and how to park will enhance the user experience and improve access to the Peninsula and other neighborhoods. One of the key takeaways from the existing conditions review was that there is a general lack of understanding of where available parking is within the public (and private) parking system. This is typically a symptom of a poor navigation system and lack of information related to the system. There are several steps the City should take to remedy this issue.

Key Recommendations:

▸ *Conduct full program branding efforts*

▸ *Develop a branded wayfinding strategy*

▸ *Implement marketing and messaging campaigns*

Recommendation Details

The implementation of a more robust wayfinding system includes elements of branding, marketing, signage, and design. The following elements should be implemented by the City.

Conduct Full Program Branding Efforts

- As the program evolves with the full consolidation of management, the City should consider branding the program as a standalone element of the parking and mobility system in the community. This program branding helps clearly delineate who is managing parking and helps support more efficient messaging and information distribution. The program branding strategy should be simple and memorable, clearly convey the intention of the system, and be developed to be transparent in operation and practice to help develop support and trust from the community.

  The City should partner with other community and business organizations and private parking operators to develop a consistent branding and communications strategy for the parking system. A logo for the parking system, along with consistent marketing and communications using a variety of media formats, will improve the parking experience in Charleston. That branding should then extend to the parking wayfinding system.

Develop a Branded Wayfinding Strategy

- Currently, the City's parking wayfinding system consists of green "Manual on Uniform Traffic Control Devices (MUTCD)-like" roadway signs that blend in with other roadway signage. To improve this approach to wayfinding, the City should develop a branded signage package that corresponds to a larger program branding effort. The City should invest in branded signs for the program that help communicate the following: presence of public parking, direction to public parking, and destinations associated with specific public parking facilities.

  The general rule is to start with directional signage that navigates drivers to destinations, then associated parking signage that defines where to park relative to the destination. Simple and direct branded signage should be used to navigate motorists throughout the system.

  The addition of real-time parking applications (or coordination with legacy mapping platforms) would serve as an ideal way to communicate availability. This approach is discussed further in the technology section.

Implement Marketing and Messaging Campaigns

- In combination with the branded signage elements, the City should consider various media (print, television, radio, and social) marketing campaigns to educate users. The same branding developed for the wayfinding system can then be used on marketing and advertising campaigns to create consistency throughout the system for users. The City should review the Toronto Green P radio marketing platform that aimed to direct drivers during commute times to branded city parking facilities. As part of the program consolidation elements, the City should consider implementing a media specialist into the parking program to support messaging.

Data-Driven Policies to Support Balanced Utilization

Priority Rating   ● ● ●

Overview

One of the central tenets of the new approach to parking and mobility management in Charleston should be the use of system data to support better policy, price, and practice decisions that are consistent with the intended vision and outcomes of the program. This will include the frequent collection of data, ongoing analysis of data, and use of performance indicators and benchmarks to define when and how to make changes.

Key Recommendations:

▸ *Use existing and potential data collection sources to catalogue parking system data*

▸ *Explore ways to aggregate existing and future data into a singular platform*

▸ *Implement data analytics practices and processes in the parking and mobility program*

▸ *Define metrics and indicators to define policy changes*

▸ *Evaluate demand-based pricing practices for parking system*

Recommendation Details

The City likely has access to multiple data points today that can be used to drive policy and practice decisions. By further reviewing that data and adding new data streams, the City can be well on its way to making more data-driven decisions related to parking and transportation.

Data Collection Mechanisms

- There are numerous channels for collecting parking data within the system to inform smarter policy, price, and practice decisions, including:

  ‣ *Manual data collection*

  ‣ *Back-end systems (both on-street meters and Parking Access Revenue Control Systems (PARCS) equipment)*

  ‣ *License plate recognition (LPR) equipment*

  ‣ *Citation management systems*

  ‣ *Program revenue and budget sources*

  ‣ *Customer satisfaction surveys and outreach*

  ‣ *Transit and MaaS platforms*

  Data to be collected includes:

  ‣ **Parking and curb space inventory.** *Provides the baseline for analysis and allows the city to track changes to the parking system over time and the impacts of those changes (e.g., removal/addition of parking, regulatory changes).*

  ‣ **Parking occupancy.** *Indicates how well the system is being used and when parking strategies need to be implemented or adjusted. Time limit policies can be adjusted to either encourage or discourage use. Subsets of occupancy that should be evaluated include: Parking garage occupancy vs. commitments, metered parking occupancy, and residential area parking occupancy.*

  ‣ **Parking duration.** *Indicates how long people are staying in given locations. Pricing and timing policies can be adjusted based on the surrounding uses and turnover rate.*

  ‣ **Citation volume and type.** *Indicates how many citations are issued and whether violations are occurring in isolated areas over a given period of time. An analysis of this information can show whether citations are increasing and may lead to further analysis to figure out why that is happening and if an adjustment in the parking strategies and policies is needed.*

  ‣ **Program revenue.** *Changes in revenue, when viewed granularly, can define how parking demands are shifting, the success of policy changes, and the realization of pricing and practice changes. Revenue's should be viewed as on-street, off-street transient, off-street permit, and citations at a minimum. Observing these trends can indicate changes to performance and behavior.*

  ‣ **Customer satisfaction.** *Conducting customer satisfaction surveys periodically can define how patrons are reacting to changes in the program. The City should consider satisfaction levels of residents, businesses, employees, and customers at a minimum.*

  ‣ **Vehicular congestion.** *Reduction in vehicle miles traveled and localized congestion is an indicator that parking management strategies are effective at redistributing demand and overall access to the community.*

  ‣ **Transit ridership.** *Changes in transit ridership, whether a regional or local route, can indicate a shift in both parking demands and access patterns. When combined with parking specific metrics, the City should be able to define the effectiveness of specific policy and practice changes.*

  ‣ **Mode split.** *Overall mode split into the community is a key characteristic in defining shifting behavioral and access patterns. Reductions in drive alone rates can be a clear indicator that parking policies are working.*

Data Aggregation Mechanisms

The current data sources for the City of Charleston are confined to either manual data collection sources (like the initial phases of this study) or from back-end parking systems (CivicSmart for on-street; TIBA for off-street). To fully leverage the intended management benefits from the back-end systems, the City should consider a data aggregation system that allows for both systems to input data into a centralized location. The centralized dashboard should allow the City's parking management team to quickly analyze data trends, identify operational challenges, and inform program changes. An ideal system would also allow for flexible customization of data inputs and reporting outputs.

Data Analytics Processes and Practices

Once the City has a process and tools in place for collecting and viewing data, the City should define processes and practices for analyzing data. A few key considerations include:

▸ *Reviewing similar periods of time and sets of data*

▸ *Using similar practices when collecting data for clear comparisons*

▸ *Creating a dashboard of historic outcomes and using the current and historic data points to create ongoing trends analyses*

▸ *When analyzing changing trends, considering what outward influences would affect changes in data*

▸ *Clearly communicating changing trends, influential data points, and outcomes to help drive new policy and practice decisions*

Policies Tied to Data Analytics
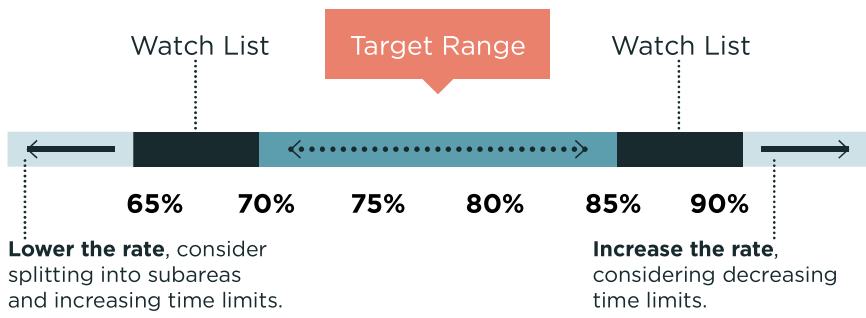
As the City progresses along the path to deeper data analytics, the corresponding policies and practices that should be tied to the analytics will become more apparent. Initially, the City should include these policy areas, at a minimum:

▸ *__Parking pricing.__ Using occupancy data to define how much to collect based on demands (prices will go up and down)*

▸ *__Time regulations.__ Using occupancy, duration, and citations to define how long people can park and when regulations should be set*

▸ *__Hours of enforcement.__ Using occupancy, citations, and customer input to define the need to manage parking before or after traditional hours*

▸ *__Oversell rates.__ Using occupancy, commitments, and access information, manage the off-street system to customized oversell rates for the parking garages.*

▸ *__Loading zones.__ Applying and managing loading zones based on proximate delivery space and usage of loading zones. Corresponding policy and price should be adjusted as well.*

Performance Metrics and Evaluation Criteria

● The following performance metrics should be used initially to address the policy analytics:

▸ **Parking pricing.** Occupancies below 65% should see decreased pricing. Occupancies above 90% should see increased pricing. Occupancies within 5% of those targets are considered on the cusp of needing price changes and should be monitored. Occupancies between 70% and 85% should see rates held constant.

Watch List — Target Range — Watch List

65%   70%   75%   80%   85%   90%

Lower the rate, consider splitting into subareas and increasing time limits.

Increase the rate, considering decreasing time limits.

▸ **Time regulations.** Reviewing parking durations and corresponding policies and citations should provide guidance on how and when to adjust time regulations. For example, in a section of street with two-hour time limits, if the average duration is routinely three hours and citations indicate a trend of overstaying time limits, regulations should likely be adjusted up (or patrons should be educated of off-street options). Using average durations from data collection (manual or LPR) will provide the guidance needed to set effective regulations.

▸ **Hours of enforcement.** Using occupancy thresholds defined in number one above, the City can effectively monitor nighttime demands, especially in the vicinity of commercial areas. Consistent parking occupancies at or above 90% after enforcement hours indicates that enforcement hours should be extended.

▸ **Oversell rates.** Off-street parking facility occupancy thresholds are similar to on-street pricing thresholds listed in number one above. The off-street facilities should target occupancy levels at 85% or above during peak conditions. This should be inclusive of both committed/permitted spaces and transient spaces. If trends over time indicate that permit users are not maximizing utilization of their spaces, the City should provide those available spaces to transient users until permit trends dictate otherwise.

▸ **Loading zones.** Much like the on-street thresholds for vehicular parking, the City should consider demand-based policies and pricing for loading zones throughout the community. In areas where loading zones are in high demand, their location, management and pricing should be dictated by the demand for use. This should include time of day policies for managing loading zones that price use higher during peak congestion periods.

Demand-Based Pricing Policies

● The data-driven policies listed in this section are intended to influence all facets of the program. One primary component is the introduction of demand-based pricing to influence the distribution of parking demand throughout the entire system. More efficient and effective distribution of parking demands will lead to reduced congestion, better access decisions, and a more balanced utilization of the entire transportation mobility systems. The following principles should be implemented as the City moves to a more data-driven pricing model for both the on-street and off-street systems.

Define pricing types to be utilized:

▸ **Dynamic or variable pricing.** Differing parking prices based on observed or historical demands. Each transaction in an area is still governed by time limits and is set to a specific per hour price level

▸ **Progressive pricing.** *Prices for parking fluctuate by length of transaction. Time limits are effectively eliminated and duration of stay decisions are monetized. For example, a two-hour transaction could be $2 per hour, while a three-hour transaction would be $2 per hour for the first two hours and then $3 per hour for the third hour. The intent is to remove restrictions and direct behavior through price.*

▸ **Discount pricing.** *For areas or facilities that are underutilized, the application of discount pricing (when combined with escalating prices in high demand areas) could incentivize higher use of the facilities.*

Lessons from the Expert Panelists

The Seattle Department of Transportation (SDOT) uses parking occupancy data to adjust on-street parking rates through its Performance-Based Parking Pricing Program, which began in 2010. This data-driven approach to rate-setting uses the principles of supply and demand to ensure appropriate management of the curbspace and to provide reliable access and parking availability. This ensures that parking is well-utilized in high-demand areas, but that drivers can reliably find a space near their destination. SDOT is recognized as a leader among peer cities in implementing such a data-driven program and more cities are moving toward a similar system. From 2010 through 2016, SDOT has made more than 140 changes to rates, time limits, and paid parking hours based on Annual Paid Parking Study results. Prior to 2016, SDOT generally set one rate over the entire day of paid parking hours. Because demand can vary greatly over the course of the day, in 2015, SDOT began managing parking by time of day.

Define rate setting policies and practices:

▸ **Adjustment periods.** *Predefine adjustment periods for rates, including necessary time for data collection and analytics. Initially, the City should strive to do this annually.*

▸ **Rate ceiling and floor.** *Define a minimum and maximum rate that program managers can work within to guide the annual rate setting process. Based on an existing rate of $2 per hour, the City should institute a ceiling of $5 per hour and a floor of $1 per hour.*

▸ **Rate adjustment interval.** *Predefine the adjustment interval so that annual rate changes are predictable and affordable. Based on existing rates, the City should institute a rate adjustment interval of $.50 to $1 per hour.*

TRINITY UNITED METHODIST CHURCH

Parking Lot

24 Hour PRIVATE PARKING

TOWING STRICTLY ENFORCED
24 HOURS BY

GILCHRIST / RED DOG TOWING

722-3551

Consider Shared Parking with Private Assets

Priority Rating   ◉ ◯ ◯

Overview

Unlike many other cities, Charleston is involved in all aspects of parking management, including on-street parking, residential permits, and a large, public off-street network of nearly 8,000 stalls. It was noted during the expert panel that none of the panelist's cities (Seattle, WA; Columbus, OH; and Charlotte, NC) have publicly owned off-street parking. Given the way many North American cities developed between the mid-20th Century and today, it is very uncommon for a municipality to have an off-street public parking supply relative to the City of Charleston.

Because of this industry-wide lack of public parking, many North American cities have begun to implement community-wide shared parking programs, led by the municipality in close coordination with the private sector. The intent is to try to create the appearance of public parking supply by leveraging available parking spaces in private facilities. The public entity usually provides support with management, operations, marketing, wayfinding, and enforcement. The private entity provides the capacity at a minimum but may also contribute to management and operations. The benefit of the shared parking system is that shared public parking will expand parking options and improve access by opening parking to the public that may have previously been restricted to specific users.

Key Recommendations:

While shared parking should always be a consideration for the City, both in the application of new parking and the use of existing parking), searching out shared parking opportunities should be a lower priority because the City already has so much public shared parking and much of the non-City owned off-street parking is already publicly accessible (even if privately owned). There are still benefits to managing shared parking, but it is more critical to prioritize the internal operations and management of City assets for the next 5 years.

▸ *With that said, in the event that new parking is required to alleviate localized deficiencies, the City should consider applying shared parking before constructing new parking spaces. The cost to lease private spaces or share the cost to manage private spaces will be considerably lower than the cost to build new public spaces.*

Explore the City's desired role in facilitating shared parking with private facilities. Consider leveraging the City's parking resources for active shared parking management led by the City. This will likely include opportunities to support the private sector with:

▸ *Management and operations*

▸ *Enforcement*

▸ *Wayfinding, branding, and marketing*

▸ *Facility liability insurance*

▸ *Security*

Partner with City business and property owners, community and economic development organizations, and other stakeholder groups to develop and manage a shared parking system for public and private facilities.

Case Study

Sacramento, CA

The City of Sacramento, CA operates a shared public parking system with a combination of public and private parking facilities. The City also manages the parking for State facilities within Sacramento and for a neighboring jurisdiction. The City has developed a common brand for the shared parking system, called SacPark, and has partnered with community and business organizations, such as the Sacramento Downtown Partnership, on marketing and communications. The shared parking program includes large garages and small surface lots, all managed under a common system with hourly, daily, event, and permit parking available through the program. Sacramento passed legislation to allow the City to enforce parking at private facilities through an agreement with the facility owner (see top-right photo). The increased enforcement has reduced parking violations and increased parking availability.

The City of Sacramento has an integrated on- and off-street parking management program with common branding and communication materials. The photo on the middle-right shows branding signage for the Mid-Town District and for on-street parking.

The City of Sacramento has leveraged technology investments to improve parking management for the shared parking program. It is unlikely that individual facility owners would invest in technology, such as LPR, for enforcement (See bottom left) but are not able to contract with the City to provide enforcement.

The shared parking system uses consistent technology for a consistent user experience. The photo in the bottom-right shows a pay station at a private facility that is the same pay station used by the City at specific locations

Leverage and Enhance Parking Technology

Priority Rating

Overview

One of the best ways to improve program performance, increase customer service, and enhance management options is to leverage the capabilities of parking technologies available to the program. The City of Charleston is fortunate that most of the primary technologies governing the program have recently been replaced. So, the intent is to better leverage existing technologies, find companion technologies to support strategies in this report, and integrate technologies in a meaningful way to improve program performance.

One key policy recommendation relative to technology: **the City should seek to procure or purchase technology platforms that are Best in Class rather than trying to add a functionality that its existing technology partners are not capable of providing**. The end result should be a collection of technologies that work together but provide the highest level of customer service to the City and its parking patrons.

Key Recommendations:

▸ *Find ways to optimize and leverage existing technologies as individual components and as a system*

▸ *Implement companion technologies to support program evolution*

▸ *Promoting good integration of technology platforms*
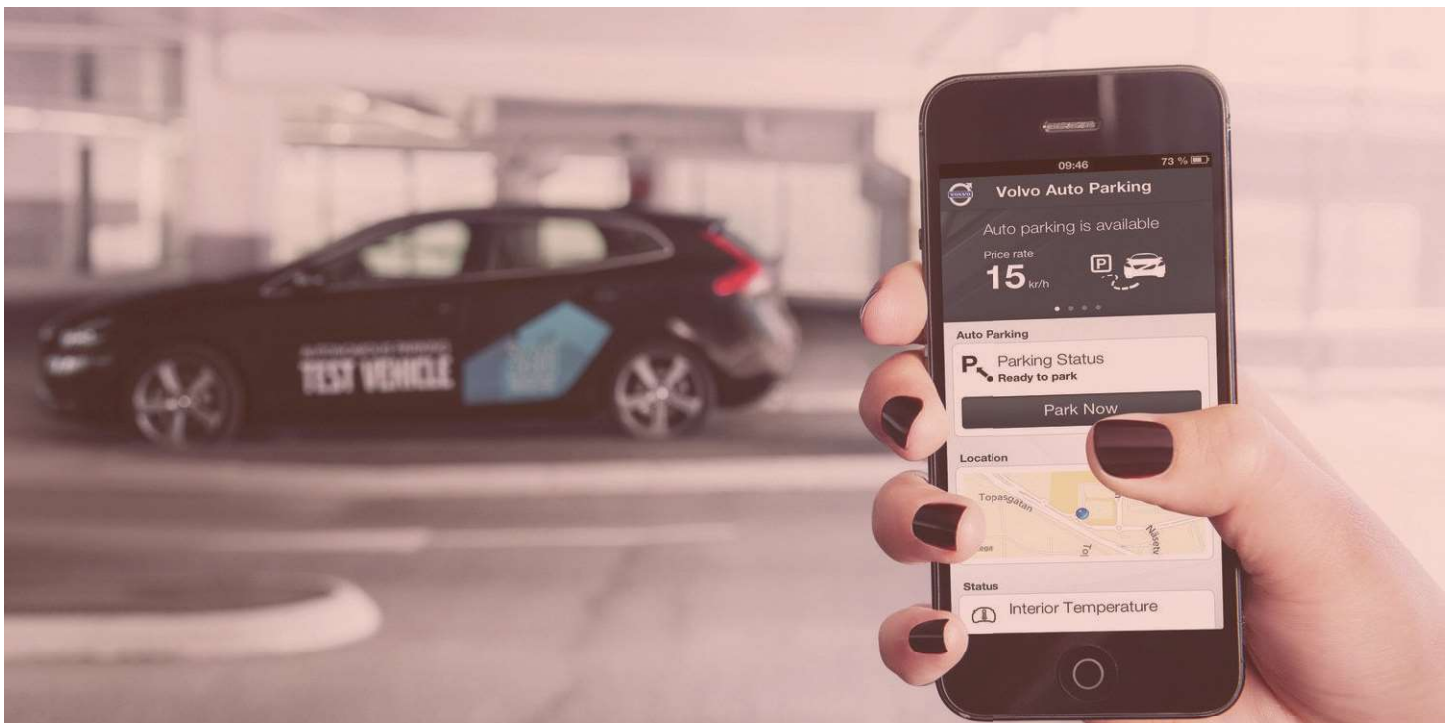
Recommendation Details

The key for successful implementation of technology elements will be leveraging existing resources, layering on companion elements, and ensuring that all components are working together in a way that provides optimal data and management functionality for the City.

Leverage Existing Technology

The City of Charleston has recently invested in significant upgrades to its primary revenue collection and customer facing technologies, including on-street parking meters and off-street PARCS. The following sections describe some of the improvements the City should strive to make with those systems.

On-Street Parking System

The on-street parking system includes single-space credit card enabled smart meters provided by CivicSmart. That system has enabled more seamless customer payment options, a better set of data for the City to use in policy setting, and more dynamic rate-setting at the meters.

Options for immediate improvements:

‣ *The CivicSmart meters can provide quasi-real-time parking occupancy information cultivated from transaction data (i.e., a space is filled if a transaction is current). This data should be leveraged by the City to better analyze parking usage and for policy/price setting. Additionally, this data could be integrated with a mobile payment application that provides both real-time occupancy information and the ability to pay for the space upon arrival.*

‣ *The CivicSmart meters could be outfitted with parking space sensors that collect real-time occupancy based on vehicle presence, reset the meter when a vehicle leaves, apply progressive and dynamic-pricing capabilities based on vehicle length of stay, and provide enhanced enforcement as real-time violations are collected in the system. The City should pilot test these sensors and their functionality as part of the existing CivicSmart contract.*

‣ *The CivicSmart back-end system (PEMS) provides an enhanced data stream to support on-street operations. As the City gets more comfortable with the data sets and potentially hires data analytics staff, the City should be able to leverage more information from the system including better managing the City's curb space. The CivicSmart system also has the ability to coordinate data with the off-street PARCS equipment (TIBA) to provide the City with one seamless stream of on- and off-street data for program management and policy setting.*

Off-Street Parking System

The City's off-street parking system is being upgraded to new PARCS equipment provided by TIBA parking systems. That system will improve customer payment options, reduce operational needs in the off-street facilities, reduce inefficiencies in management, and provide a deeper set of data for analytics within the off-street system and the overall parking system

Options for immediate improvements:

‣ *The TIBA equipment provides options for entry/exit configuration and ticket processing options, including configuration with credit/debit card, hotel keys, validations, and monthly access cards. The City should leverage all payment options and ensure that entry/exit is seamless for the variety of users in the off-street environment.*

▸ *The TIBA equipment provides an LPR option that allows for license plate credentialing and potentially frictionless entry/exit. This would allow for a more efficient operation from an enforcement and management standpoint and richer data related to individual transactions. The City should consider this application in certain settings that have a high rate of repeat monthly users who could be converted to virtual permitting and access.*

▸ *The TIBA back-end (Spark) provides a seamless dashboard for managing off-street PARCS equipment, providing a rich set of data that can be used to optimize operations, improve utilization, allow for better oversell of facilities, and generally improve the management functionality available to the City. The City should leverage this platform and ensure that data available from the Spark system can be integrated with on-street data for overall program management.*

▸ *The TIBA system includes an eValidation system that provides the City and local merchants the ability to provide customer validation. The City should apply the validation component as requested by local merchants who want to help support customer satisfaction through merchant validation.*

▸ *The TIBA system provides multiple mobile application add-ons, primarily merchant, owner, and operator focused. The merchant-focused application allows for mobile validation of transactions through a smartphone. The owner/operator side provides mobile management of the off-street system through mobile control, which supports facility management and ParkBlue, which provides cloud-based management, transaction management, and development of a branded mobile app. The City should explore the use of these mobile add-ons. However, development of a mobile application for user payment and system information should only be developed if it can provide and demonstrate best-in-class service for both the off-street and on-street system.*

Companion Technology to Support Program Evolution

● The City of Charleston has recently invested in significant upgrades to its primary revenue collection and customer facing technologies, including on-street parking meters and off-street PARCS. The following sections describe some of the improvements the City should strive to make with those systems.

● Mobile Payment Platform

A phone or smartphone-based application that allows patrons to pay for parking without interacting with revenue control equipment (meters or PARCS). Basic functions include paying for parking, with advanced functionality providing navigation and program information.

Considerations - The mobile payment platform should have the ability to:

▸ *Manage payment for both on-street and off-street through one app*

▸ *Communicate with patrons about transactions*

▸ *Extend parking transaction remotely*

▸ *Find available parking supply (either static or real-time)*

▸ *Perform in a dynamic-pricing environment*

▸ *Pre-reserve parking spaces (off-street only)*

▸ *Communicate with connected vehicles*

Timeframe – Immediate
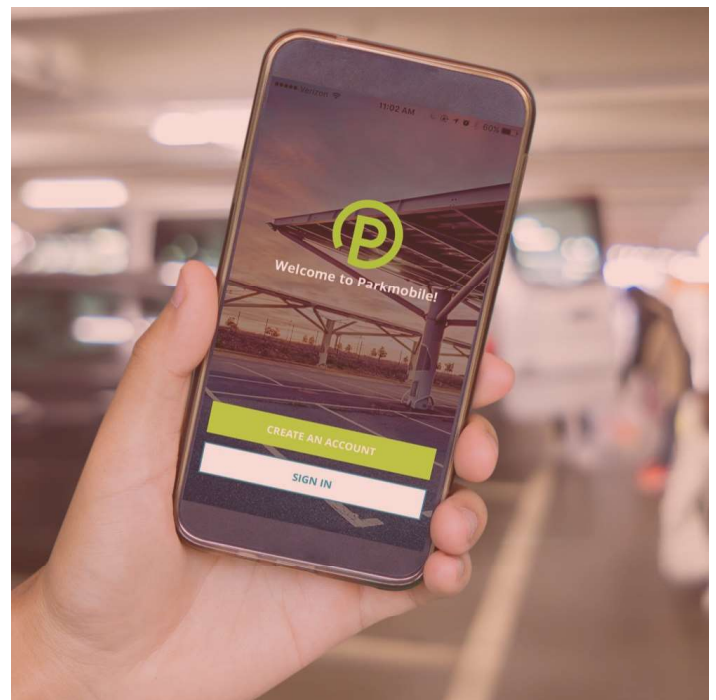
License Plate Recognition (LPR)

A mobile mounted camera system that records license plate information and improves efficiency of enforcement practices. The system reduces the need for enforcement officers to manually record vehicle information, chalk tires, and determine validity of parking transactions.

Considerations - The City should consider the following in the application of the LPR equipment:

▸ *In normal on-street settings, the LPR may not be an effective replacement for typical enforcement. If officers are currently chalking tires from a moving vehicle, you likely won't gain much efficiency. Also, overstay violations or unpaid violations won't be picked up unless the LPR and meters are directly linked and license plates are ties to transactions. Instead, in the on-street environment, the LPR is typically used for scofflaw, registration violations, and stolen vehicles. Therefore, it may not be an effective replacement to staff on foot.*

▸ *In addition, congestion in places like King Street and Broad Street will likely minimize the efficiency of the LPR collection if the vehicle is constantly stuck in traffic. Enforcement officers on foot are still likely more effective (if they have the proper handheld tools for enforcement).*

▸ *The LPR would be a great improvement in residential neighborhoods. If the neighborhood permit program were to go virtual (no hang tags/stickers, validation through a license plate), the City would be able to quickly monitor those areas and assess misparked vehicles. In a benefit district environment (discussed in the Neighborhood Parking Section), the combination of virtual permits and mobile payment would allow formuch more seamless management of the street parking environment.*

▸ *The City may find itself writing more tickets because of higher coverage area. There needs to be a discussion of the practice of regulatory citations versus promoting compliance through better payment methods. The intent should be to promote better payment through more flexible options, rather than managing through citations.*

▸ *If the City sees an uptick in citations, there may be a need to consider additional staff to process citations and handle vehicle impoundment.*

▸ *Compliance should go up over time as the City sees impacts from better management of on-street parking spaces*

Timeframe – within 1-2 years, in conjunction with improvements to the neighborhood parking program

Enhanced Enforcement Technology

Beyond the addition of LPR equipment to support more efficient enforcement of street parking in non-commercial areas, the City also needs to likely consider improved handheld equipment for its enforcement staff. Based on conversations with staff, the existing equipment does not integrate especially well with the new on-street meter technology, has connectivity issues in the field, and limits the efficiency and effectiveness of enforcement practices.

Considerations - when evaluating new enforcement equipment, the City should consider the following:

▸ *IThe enforcement equipment and back-end management system should be able to integrate seamlessly with the on-street meter equipment (CivicSmart) and off-street PARCS equipment (TIBA). Given the prevalence of enforcement practices in the on-street environment, priority should be given to integration with CivicSmart, but TIBA integration should be a consideration for selection.*

▸ *The enforcement equipment and back-end management system should also integrate with proposed equipment integrations like mobile payment and LPR. The intent would be for enforcement staff to be able to conduct all functions from one handheld unit that pulls information from multiple back-end management sources.*

▸ *Enforcement equipment should communicate in real-time between enforcement officers to provide better data related to ticket issuance, digital chalking, and route coverage.*

‣ *Enforcement equipment should provide program managers more seamless and real-time information related to officer productivity, routing, ticket issuance, and in the field performance to assist with dynamic policy development, support efficient operations, and provide enforcement oversight for productive management.*

‣ *The enforcement equipment should be able to perform in both a manual and virtual environment, meaning that tickets can be produced manually in the field or transmitted virtually through vehicle registration (if the program ever goes partially or fully virtual).*

Timeframe - Immediate

Integration with Multiple Payment Options

As a prime destination for tourists, travelers, and people relocating, the City of Charleston could benefit from the ability to integrate multiple payment platforms into their service offerings. As an example, if someone visiting the City used a specific mobile payment platform that was not the prime vendor for the City, they could pay for parking within their preferred platform and have that payment process through the City's back-end.

Considerations - This type of integrated payment platform is not necessarily available in the market today but could be a near-term evolution that the parking industry sees. The City should be prepared to integrate a platform like this, should it become available. The platform should:

‣ *Integrate multiple payment options, seamlessly to the consumer*

‣ *Integrate with the City's preferred enforcement equipment/vendors*

‣ *Provide data streams the City can use to manage parking and mobility practices and policies*

‣ *Integrate with multiple access modes, including transit, TNCs, personal mobility devices, etc.*

‣ *Provide real-time data to legacy mapping platforms (Google Maps, Waze, etc.) to help improve navigation in the system*

Timeframe – Within 3 to 5 years, as platform capabilities emerge

Technology Driven Data Collection

As the City considers enhanced management policies defined in this report, there will be a need for more technology-driven data collection, including sensors, video analytics, LPR data streams, and meter data.

Considerations - The data collection technology will likely vary by location, facility type, and need. The key intention is to provide the City with a stream of data that helps with data-driven decision making (see Data-Driven Policies section). The combination of technologies should:

‣ *Provide streams of data that can be aggregated into the necessary data points for decision-making*

‣ *Provide streams of data that are automated and do not require City manual manipulation*

‣ *Integrate into one back-end dashboard for City analytics purposes*

‣ *Provide real-time data to support smartphone navigation applications or integration with legacy mapping platforms (Google Maps, Waze, etc.)*

‣ *Serve multiple functions; for example, LPR that is used for both virtual neighborhood permitting and occupancy/duration data collection by neighborhood area or sensors that provide occupancy and reset meters after vehicles leave a space*

‣ *Provide a defined return on investment, including the ability to generate additional revenue (with a focus on patron compliance over additional citation revenue), provide data streams that serve analytics purposes, and integrate with other program technologies*

Timeframe – Various components of the technology will be integrated as the technology improvements in this section are realized

Integration of Technology

Each of the technology recommendations described in this section indicate a need to integrate with other technologies implemented by the City. This is critically important, because the less individualization realized by the City, the better the data stream available to influence policy, price, and practice. It is highly unlikely that the integration of all technologies will be seamless, especially as the City focuses on purchasing technology platforms that are best in class, rather than trying to shoehorn in one vendor with less than ideal technologies. That said, the introduction of a data aggregation platform that can read and report outcomes from the various data streams will be critically important to reaching this integration. And wherever possible, the City should strive to achieve integration with its existing revenue control platforms (CivicSmart and TIBA) as a foundation to maintaining a seamless set of data.

Implement a Comprehensive and Dynamic Curb Lane Management Program

Priority Rating | ● ● ○

Overview

With the rise of new mobility and parking trends, curb space is arguably the most important and precious resource in our cities today. Demand for curb space is increasing as cities work to balance transit demand, on-street parking, TNC passenger loading/unloading, truck loading/unloading, personal deliveries (e.g., package delivery such as UPS, FedEx, and Amazon, and food delivery services such as GrubHub), dockless, on-demand mobility devices such as bikes and scooters, emergency services, pedestrian streetscape amenities, and other users. All these users want free and unimpeded access to curb space, and like other public resources, cities must operate and manage the curb effectively to provide access for a variety of users, while optimizing overall public benefit.

The core tenets of an effective flexible and dynamic modern-day curb lane management program are that:

▶ *The program prioritizes and manages often competing curb uses by location, day of week, type of user, and time of day compared to the relative value each of them brings.*

▶ *The program articulates objectives for different curb uses and different parts of the city (i.e., mobility/ Single-Occupancy Vehicle (SOV) reduction, parking occupancy goals, revenue, maximization of passenger curb access, etc.).*

▶ *The program includes a comprehensive inventory of curb uses across the City.*

▶ *The program clearly outlines when, where, and how to implement changes to curb use designations.*

▶ *The program includes a process for monitoring the use of the curb with technology (LPR, space sensors, Bluetooth, parking transactions, etc.) for enforcement, effective curb pricing and payment, curb demand management, and data analytics.*
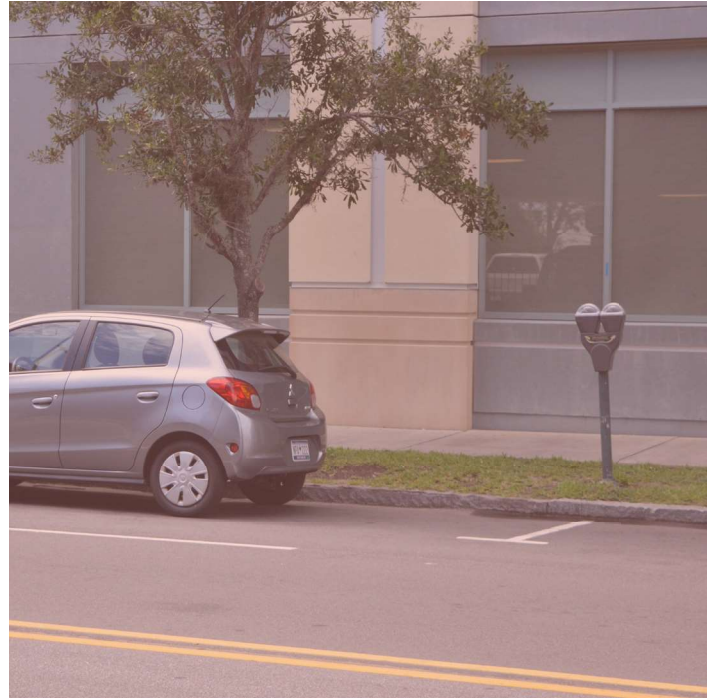
Key Recommendations:

▶ *The City should develop and execute a comprehensive curb lane management program. That includes adopted changes to the City's standing and stopping ordinance to allow for curb lane flexibility and correlation with the rules that govern the curb along state-owned roads on the Peninsula.*

▶ *Comprehensive curb lane management should be coupled with the adoption of mobile payment, virtual permitting, curb space monitoring technology, and dynamic on-street parking pricing.*

Recommendation Details

The following sections describe some of the improvements the City should strive to develop in relation to its curb lane management program.

Conduct a Curb Lane Inventory

One of the first critical steps to efficient curb management is gaining the knowledge of what is actually occurring at the curb. The inventory data developed as part of this study is an excellent first step in cataloging the uses along the curb. It identifies block-by-block capacity of parking, loading, and restricted spaces. The City should continue to move forward with this dataset and maintain its accuracy as changes are adapted along the curb.

To improve the information available about curb uses, the City should further collect additional data about signage, alternative curb uses, markings, and other variations along the curb. One tool that is available for public use is Coord's Surveyor app, a mapping application developed by Sidewalk Labs (a subsidiary of Google). The smartphone-based application allows staff to walk the curb side and quickly input information about curb use, restriction, and signage. That information would then be uploaded into cloud-based mapping for use by the City. Once uploaded, the information becomes an extremely valuable resource for communication, decision-making, and management of the curb.

Develop Curb Lane Priorities

The City will need to establish prioritization for curb lanes based on surrounding context and user need. There will very likely be a need for different priorities in different areas. For example, priorities on King Street will differ greatly than priorities south of Broad Street. On King Street, priority will likely skew towards passenger loading, commercial loading, and parking, while south of Broad will be heavily favored towards residents and their parking and loading needs. The Seattle DOT uses three distinct priority sets to define how to allocate curb space based on setting (Shown to the right). Those priorities are used to clearly communicate how decisions are made relative to curb space use.

	Residential	Commercial & Mixed Use	Industrial
1	Support for Modal Plan Priorities	Support for Modal Plan Priorities	Support for Modal Plan Priorities
2	Access for People	Access for Commerce	Access for Commerce
3	Access for Commerce	Access for People	Access for People
4	Greening	Activation	Storage
5	Storage	Greening	Activation
6	Activation	Storage	Greening

http://www.seattle.gov/transportation/projects-and-programs/programs/parking-program/parking-regulations/flex-zone/curb-use-priorities-in-seattle

Identify Optimal Usage of Curb Space

Once the City has established priorities, it should use those to guide decisions about how to implement changes to the curb space. Defining and allocating curb space should be data-driven and use many of the tools outlined in the Data-Driven Policies section. Using realistic data about the context of the curb space being modified, the City will likely complete the following process when identifying changes:

▸ *Refer to the curb lane inventory to determine what is in place today*

▸ *Identify how the adjacent land uses need to use the curb and how they might react to changes*

‣ *Identify alternative curb lane configurations or proposed changes, using prioritization, stakeholder input, and data analytics to define preferred solutions*

‣ *Implement preferred treatments*

‣ *Monitor data and determine refinements to achieve goals*

● As the City follows this process, the next step will likely be where most time is spent defining approaches for changing curb space. There are typically three general approaches to changing curb space:

‣ **Clustering uses.** *This approach seeks to relocate uses so that there is more clarity and efficiency. For example, on blocks where parking and loading spaces are intermingled, defining who can use which space and promoting efficient use of space is difficult without significant signage. And in the case of commercial loading, fragmented spaces may limit access to only vehicles that can fit in a singular parking space. Clustering uses aims to structure them more predictably. The City of Charlotte took this approach with their curb lane program and were able to increase parking capacity by locating it center block and placing accessory uses at the ends of street blocks. The result was an easier parking experience as well as a more predictable and accessible environment for loading vehicles.*

‣ **Modifying uses.** *This approach simply converts the existing use to something that is more appropriate based on the surrounding context and prioritization. For example, in restaurant and entertainment areas, on-street parking might be removed for passenger loading to support rideshare trips in the area. In areas where on-street parking demands are lowered, this is a good option to promote alternative mode usage to access destination areas.*

‣ **Defining flexible uses.** *This approach combines the clustering and modifying approaches and creates distinct uses by time of day or during different demand periods. Taking this approach requires a more comprehensive approach to communication (and likely technology) but will serve the most users throughout the day. A simplistic example is to have a commercial loading space transition to a passenger loading space based on the time of day. This requires the least amount of impact to parkers and takes advantage of space availability for curb uses when they are needed the most. In extreme situations, entire blocks convert based on the time of day. Washington, D.C. has piloted converting daytime parking to nighttime passenger loading to accommodate higher volumes of rideshare services at night.*

The International Transport Forum released a paper entitled **The Shared-Use City: Managing the Curb**, which listed as a primary finding that flexible and dynamic curb uses are likely key to unlocking the ever-changing mobility environment and supporting efficient movement. Modeling completed in conjunction with the report indicated that flexible uses have the most likely outcome of improving access and reducing congestion related to competing uses along the curb.

As the City assesses the curbside environment within the community, these approaches should be applied to spaces, blocks, and areas to support more efficient use of the curb throughout varied demand periods.

Monitor Curb Space Use

● As curb changes are implemented in the Charleston community, it will be imperative that the City monitors how changes along the curb impact not only the curb, but also the adjacent street space, pedestrian access, and business success. The analysis of curb use will be driven by much of the data defined in the Data Driven Policies section. The City should define the goal of the analysis and use the necessary performance metrics to support the evaluation.

Recent research has tried to indicate that there can be distinct equations for evaluating curb performance. While the intent of that research is positive, it is solely focused on activity along the curb (See: *https://www.wired.com/story/uber-city-equation-curb/*). The City should use activity (parking transactions, transit loading, passenger loading, etc.) as a metric. Of equal importance are concepts like business support (from parked cars), availability of space from turnover, balanced mode share and community access, and street performance.

Utilize Curb Lane Management Technology

Current technologies are quickly being adapted to help support the rapid move to flexible and dynamic curb space. Unfortunately, no one technology has entered the market that is ready to support completely dynamic curbs. Parking meters are able to be adapted to support changing rates or access configurations. But signage and communication are not readily available to communicate flexible space changes. The City should work with its vendors to understand what technology is available to support more efficient curb management. As mobile payment platforms are introduced, the City should require that the selected vendor has the capability to provide real-time information about curb use that is operated in a dynamic environment.

Specific Curb Lane Considerations

The previous sections all described curb lane management program strategies. The following sub sections define some considerations for the Charleston Peninsula area and surrounding communities. The Institute of Transportation Engineers (ITE) recently released a technical resource, the Curbside Management Practitioners Guide. These considerations are defined based on a literature review of that document.

Living Previews

The concept of a living preview (essentially a pilot test) is to temporarily install some or all of a curb treatment, even if it is only done with moveable barriers or temporary signage. The living preview allows the surrounding businesses, residents, and patrons to interact with a change before it is permanent. The test also allows for real-time collection of data associated with the treatment to determine refinements needed before permanent adaptation.

Adapting Urban Loading Practices

In high-density congested urban cores, introducing freight or commercial loading movements can often lead to intense competition for curb space and rapidly increasing congestion. A few of the concepts outlined in the practitioner's guide may be applicable on the Charleston Peninsula, including:

▸ *Monetized freight zones.* Having paid commercial loading areas can help reduce the duration loading vehicles stay in a space and increase the availability of spaces. When coupled with mobile pay and real-time availability applications, it can increase the predictability of the commercial loading exercise.

▸ *Peak and non-peak delivery pricing.* Encouraging off-peak delivery by providing free or low-cost access during non-peak periods. Conversely, peak period deliveries would be priced higher to discourage use during those periods. In cities that have implemented these programs, delivery drivers indicated that non-peak delivery movements were easier due to less congestion, faster travel, more abundant parking and less time for delivery activities.

▸ **Delivery vehicle staging zones.** *Designating staging zones for delivery trucks to queue up before accessing available loading spaces can reduce congestion and occurrences of double parking. By combining this approach with commercial vehicle reservation systems and/or real-time availability, the City could manage the flow of delivery vehicles onto and around the Peninsula.*

▸ **Urban consolidation centers for last mile delivery.** *Having these centers creates a centralized hub where packages are delivered before being consolidated into smaller government-run delivery vehicles that reduce redundancy of vehicles and support more efficient goods movement in urban environments with less roadway capacity.*

▸ **Moving loading to side streets.** *Loading movements times are much shorter than other curb movements and are often lower in the priority chain than parking or passenger movement. Because of this, some cities are moving loading spaces off primary corridors and onto adjacent streets where demands might not be as high. For example, this would move delivery movements off King Street and locate them down adjacent side streets to reduce conflict on the already congested King Street corridor.*

Enhance Residential Parking Practices

Priority Rating

Overview

The City's residential parking permit program provides low-cost parking permits ($10 per year) for residents to park on the street and restricts parking for non-permit holders typically to 1 to 2 hours of parking. The City currently has 11 residential parking areas, with nearly 6,000 residential permits and slightly more than 10,000 on-street parking spaces in those areas. The permit program is important for many residents who have limited or no off-street parking and, in some cases, for neighborhood business districts that depend on on-street parking to meet customer needs.

Given the limited space on the Peninsula, lack of off-street parking for many of the historic homes, and constant spillover pressures from thriving commercial areas, the management of residential permit spaces is a critical element of this parking study. The intent of improved policies in the residential areas is to support resident needs first, maximize support to adjacent commercial when available, and manage this limited asset to the best of the City's ability.

Key Recommendations:

▸ *Update the policies for the residential parking permit program to better clarify the program goals and priorities.*

▸ *Consolidate management of the residential permit program with the Traffic and Transportation department as part of the overall on-street management consolidation.*

▸ *Evaluate increasing the price for residential parking permits to encourage the use of available off-street parking facilities. Permit prices should vary by permit zone based on the demand for permits and availability of off-street parking.*

▸ *Implement virtual permitting and LPR-based enforcement to improve management of residential areas.*

▸ *Prioritize on-street parking based on the primary street level-land use or zoning. On commercial streets, on-street parking should be prioritized for short-term visitor access. On residential streets, parking for residents should be prioritized, with short-term parking allowed when there is more parking availability.*

▸ *Consider creating parking benefit districts for the residential permit program that would invest a portion of revenues in neighborhood-specific improvements or incentives.*

▸ *Evaluate other strategies to manage parking demand, such as further limits on the number of permits per household, total permits, and restrictions based on the availability of off-street parking.*

Recommendation Details

The implementation of advanced neighborhood parking permit policies will likely require some advanced technology and policy considerations. The following sections describe some examples.

Virtual Permitting

- Converting the system from a manual permit to virtual permitting would be a singular strategy that could improve enforcement, operations, and management of the residential parking program. In a virtual permitting environment, residents would simply register their vehicles license plate numbers rather than having to request, obtain, and display a hangtag or sticker. The same regulations on numbers of permits would apply to residents, with multiple license plates being eligible up to the maximum number of permits.

  For guests, the residents would have the option to pre-register guests using either a smartphone application, the City's website, or by calling the City. In any case, they would simply communicate the guests license plate information. If using the smartphone application option, the process is typically as simple as taking a photo of the guest's license plate and confirming the correct license plate number after the system processes the data.

  In the case of contractors or workers who obtain guest permits to work in neighborhood areas, many cities have allowed those vehicles to be pre-registered by the contractor or worker. Those laborers would register their vehicles plates, the length of time the job would be occurring, and the area the job (or jobs) would be occurring. This allows for more flexibility for home repairs or renovations and takes the onus off the homeowner to manage the permit.

  The enforcement of virtual permits is conducted using LPR equipment (as described in the technology section). The enforcement staff would simply drive through the neighborhood areas and confirm the validity of permitted vehicles and presence of unregistered vehicles. During time periods where unregistered vehicles can park for periods of time, the LPR equipment can digitally chalk the tires and evaluate whether those vehicles are staying over the defined time.

Implementing Benefit Districts

- One of the primary tools parking programs have developed over the past decade in and around neighborhood areas is applying parking benefit districts. The intention of a benefit district is to manage access into the neighborhood area, allow for parking to support local business, and protect residential parking needs during peak conditions. This is typically accomplished by implementing paid parking in the district.

  The residents would be exempt from the paid parking using their virtual permit. Non-residents would be allowed to park during non-peak conditions, typically during the day or early evening before residents need the spaces. Non-residents would pay using a mobile payment application and enforcement would be conducted using LPR equipment. The time limits, hours of allowable parking, and price for parking would all be defined using the data-driven methodologies defined in previous sections.

> **Lessons from the Expert Panelists**
>
> The City of Columbus recently implemented a parking benefit district in its Short North neighborhood to manage spillover impacts from area businesses, provide space for employees to park when demands were low in neighborhoods, and create a revenue stream that could support enhanced transportation options for residents, businesses, and employees in the area. The ultimate goal is to balance access and parking demands as well as support community growth and preservation of neighborhood character.

The benefit this type of district is that revenues in excess of operations and maintenance costs would be returned to the district, typically in the form of streetscape, aesthetics, maintenance, or transportation improvements.

● **Monetizing Residential Areas**

Implementing paid parking in residential areas requires a greater level of review and management as the intent isn't directly the same as in commercial areas. While both are rooted in managing parking demands and promoting space availability, the true intent in a neighborhood area is to manage the impacts of spillover demands from commercial areas. Much like implementing time-limited parking in neighborhood areas, paid parking should only be implemented during times of day when residential demands allow for sharing the on-street parking capacity.

Prices should be set such that spillover demands are minimized only to the capacity available, rather than promoting patrons to circulate through the neighborhoods looking for cheap parking options. The same data-driven principles discussed in previous sections should be applied in neighborhoods. That is, if demands dictate higher prices, the City should not hesitate to raise prices to control the flow of traffic into neighborhoods.

Monetization of neighborhood parking should also be limited to mobile payment options. Residents are likely not going to respond well to parking meters in their streets, so a simple combination of signage and mobile payments should monetize the parking without degrading the aesthetics of a neighborhood. The mobile payment platform also allows the neighbors to park without having to validate their vehicle, since the enforcement would be license plate based and virtual.

● **Outreach and Interaction**

Implementing paid parking in residential areas requires a greater level of review and management as the intent isn't directly the same as in commercial areas. While both are rooted in managing parking demands and promoting space availability, the true intent in a neighborhood area is to manage the impacts of spillover demands from commercial areas. Much like implementing time-limited parking in neighborhood areas, paid parking should only be implemented during times of day when residential demands allow for sharing the on-street parking capacity.

Prices should be set such that spillover demands are minimized only to the capacity available, rather than promoting patrons to circulate through the neighborhoods looking for cheap parking options. The same data-driven principles discussed in previous sections should be applied in neighborhoods. That is, if demands dictate higher prices, the City should not hesitate to raise prices to control the flow of traffic into neighborhoods.

Monetization of neighborhood parking should also be limited to mobile payment options. Residents are likely not going to respond well to parking meters in their streets, so a simple combination of signage and mobile payments should monetize the parking without degrading the aesthetics of a neighborhood. The mobile payment platform also allows the neighbors to park without having to validate their vehicle, since the enforcement would be license plate based and virtual.

Residential Parking Recommendation Map

● The map to the right showcases the recommendations for residential parking areas on the Peninsula. These recommendations should help to guide future decision making for parking in residential areas.

Legend

- Consider for Paid Parking & Benefit District
- Consider for Virtual Permitting
- Existing Residential Parking District
- Study Area
- **P** Public Garage
- **P** Public Surface Lot
- ✖ Private Garage
- Bike Share Hub
- CARTA Stop
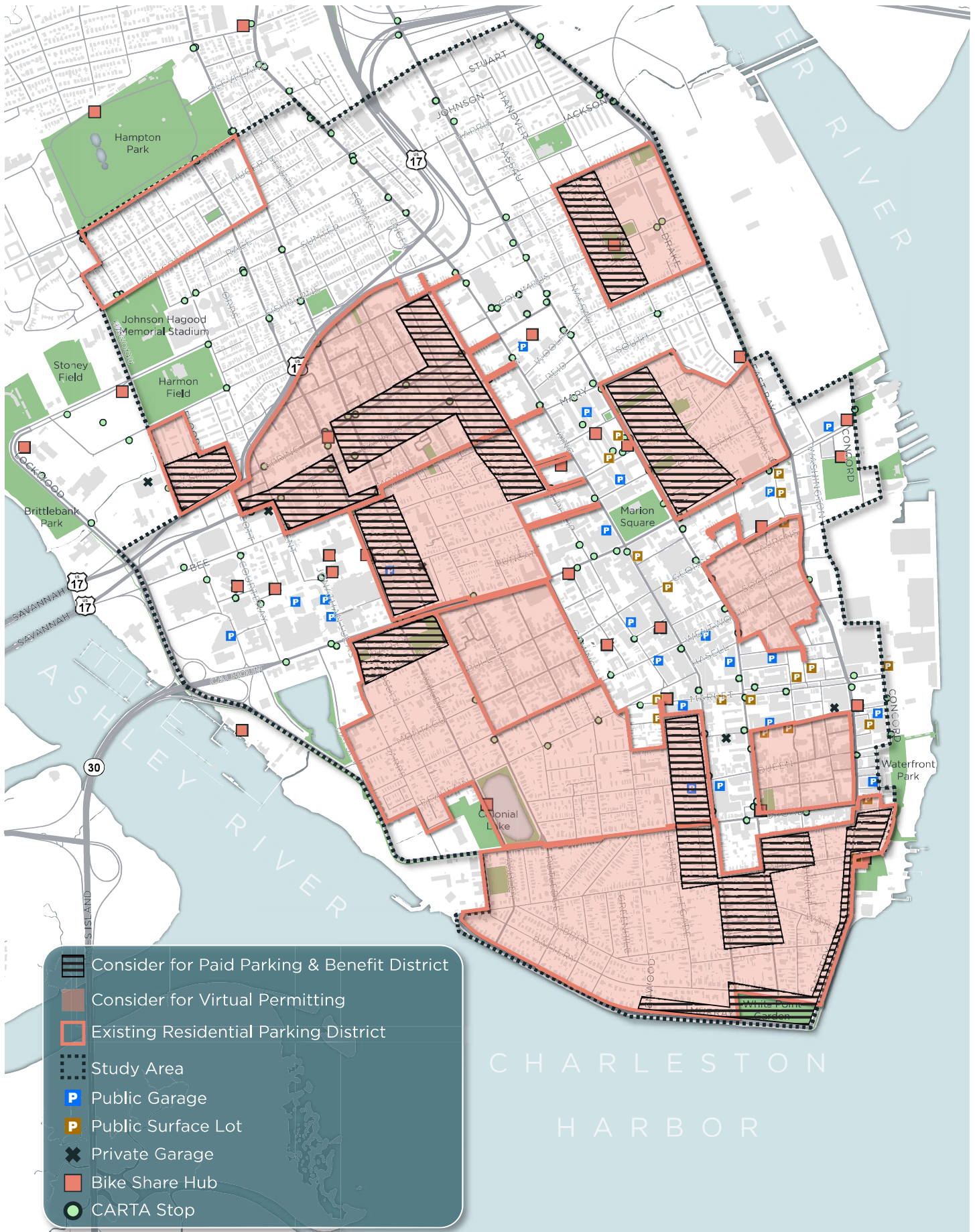
Right-Size Parking Codes/Ordinances/Policies

Priority Rating

Overview

In the past decade, a movement has grown in the parking and planning communities to "right size" codes, ordinances, and policies related to the provision of parking. Parking codes and ordinances meant to help protect communities from an influx of cars parking in wayward areas actually have worked against the design of functional and walkable development and streets. While Charleston has largely been insulated from overdevelopment of large surface lots and fragmented parking areas that cripple good urban design and walkability, the City's parking codes have obstructed redevelopment and relegated an extensive, public off-street parking system to support development. The private parking that has been developed is largely underutilized, as described in the Existing Conditions Report.

What does "right-sized" parking mean?

It means developing context-appropriate codes and regulations that are designed to capture the character and intent of an area, rather than applying blanket policies to an entire area out of context. Right-sized policies can:

‣ Support economic development by reducing barriers to building mixed-use developments in urban centers

‣ Reduce housing costs and household monthly expenditures, allowing a larger demographic to participate in the urban, infill housing market

‣ Encourage use of transit, rideshare, biking, and walking

‣ Reduce vehicle miles traveled (VMT) and greenhouse gases (GHG).

Key Recommendations:

There are several steps that need to be considered to create right-sized parking codes, ordinances, and policies. The two primary components this study focuses on are:

‣ *Modernizing parking requirements*

‣ *Implementing a fee in lieu of providing on-site parking*

These two elements will likely have the highest impact on reducing the over-supply of parking in the community and promoting smarter design elements.

Recommendation Details

Many cities have either reduced or eliminated off-street parking requirements in urban districts by either "right sizing" the requirements or implementing a market-based approach that allows the developer to determine how much parking should be built. Right-sized parking requirements are typically based on data collected locally and aligned with observed parking demand. A market-based approach eliminates all requirements for off-street parking and allows the private sector or developer to decide how much parking is necessary. Reducing or eliminating off-street parking requirements reduces the cost of development and increases affordability, supports the use of other modes of transportation by not overbuilding parking, and allows for a more flexible approach to developing off-street parking. In addition, in historic cities like Charleston, reducing or eliminating off-street parking requirements allows for development consistent with the historic character of the City, where many lots do not have off-street parking.

The City should:

▸ *Review existing parking requirements on the Peninsula and consider reducing or eliminating the off-street parking requirement in commercial and mixed-use districts.*

▸ *Consider a small lot, off-street parking exemption to support infill development and consistency with the historic pattern of development in Charleston.*

▸ *Exempt small-scale, pedestrian-oriented development from requiring off-street parking–such as businesses less than 3,000 square feet. This is consistent with the historic development pattern that makes much of Charleston such a walkable city.*

▸ *Expand opportunities for shared parking in the zoning code. Currently shared parking has to be within 400 feet and requires a 10-year lease. The distance should be expanded and lease requirements reduced. Allow all parking to be managed for shared public parking and not be an accessory to specific land uses.*

▸ *Aim to reduce the use of variances from parking requirements and instead, provide for context -sensitive solutions through exemptions, shared parking, parking reductions (e.g., for mixed-use development), and other strategies.*

Another related option for the City is to develop a fee in-lieu program to allow developer to pay a fee to the City for access to off-street parking. The fee would be placed in a fund to pay for existing or new parking stalls and access rights for the payee.

▸ *Implement a fee in lieu of providing off-street parking, where developers can pay a fee for access to off-street parking. The fee-in-lieu requirement can be tailored to specific uses, such as shared public parking for retail/restaurant uses and assigned parking for residential and office uses with a sliding fee schedule.*

▸ *Define as a use for the in-lieu fee fund parking improvements, transportation/transit improvements, and mobility enhancements.*

▸ *Consider establishing parking districts in the City where parking is managed primarily at the district level. As an initial step, assess the amount and use of parking within each of the proposed parking districts for both on- and off-street parking. Develop strategies to improve the efficiency of parking management within each district.*

Modern Mitigation

Recent efforts in the planning and urban design communities have created an approach called modern mitigation that focuses less on vehicular capacity improvements as a result of new land use investments. Instead, the concept of modern mitigation focuses on TDM as the first choice, making traffic reduction and parking demand a priority. Conventional approaches to development oftentimes require more investment than development is capable of providing, creates more traffic and congestion on adjacent roadways, and reduces the likelihood that non-automotive modes will find increased usage. The primary principles of modern mitigation focus on the following:

▸ *Reducing reliance on single occupant vehicle trips*

▸ *Considering parking/traffic and congestion impacts to the entire transportation system*

▸ *Applying practices that are context-sensitive*

▸ *Maintaining a predictable process*

▸ *Designing solutions for all stakeholders*

The process is intended to help developers understand mitigation options, rather than simply pointing to code-required parking and traffic improvements. Many communities have created TDM calculators as part of the development review process, helping developers realize multiple concepts to support demand mitigation. Some examples of measures that are used in place of parking and transportation capacity include:

▸ **Active transportation improvements.** *Physical transportation network improvements that encourage people to walk and/or bicycle to community destinations, including sidewalks, bike lanes, and better roadway crossings. These types of improvements serve not only the development, but also the community surrounding it. These are typically candidates for in-lieu fee funds.*

▸ **Bicycle facilities.** *Bike parking/storage above code requirements, bike showers/lockers, bike share, and other cycling amenities for the development and surrounding community.*

▸ **Carpooling and ridesharing.** *Development-based ridesharing subsidies, shuttling, guaranteed ride home, and carpooling programs to support reduced vehicle ownership.*

▸ **Carsharing.** *Shared cars on the site of the development, incentivizing a reduction in car ownership.*

▸ **Unbundling parking.** *Removal of free parking in housing or office space and having tenants pay the true cost for that parking to reduce the reliance on the personal automobile and incentivize better commute decision-making.*

▸ **Centralized shared parking.** *In the place of on-site parking, development pays into a fee-in-lieu program to promote more centralized parking and reduce the number of spaces contained in a community.*

▸ **Promoting transit**. *Developers provide subsidized transit, provide shuttles/connectors to destination areas or contribute to transit system improvements (vehicles, routes, stops, etc.).*

▸ **Affordable housing**. *Affordable housing in development to trigger mitigation points that lessen the transportation and/or parking burden.*

▸ **Education, Marketing, and Information.** *Developers contribute funds to the City's non-automotive education programs to educate users and the surrounding community of the benefits of using non-vehicular means.*

As the City implements the modernized recommendations associated with parking requirements and the in-lieu fee program, the concepts of modern mitigation should be adopted to further reduce the reliance on the personal automobile on the Charleston Peninsula and in the surrounding community.

Investment Policies and Strategy

Priority Rating

Overview

Given how much available public supply already exists on the Peninsula, this study does not recommend prioritizing investing in new parking infrastructure in the near term. Even if new parking appears to make sense from a development standpoint, including new parking spaces may not work in concert with the goals and objectives of this study, and could likely contribute to more traffic congestion and competition for space on the Peninsula.

Key Recommendations:

Do not prioritize new parking since the prevalence of public parking on the Peninsula is adequate. Instead, skew investments more towards mobility, transportation, and management enhancements in the near term.

Update policies for the Parking Enterprise Fund to add mobility as part of the program. Establish policies regarding decision-making for investments in new parking supply that prioritize management of the current system. This study recommends no investment in new parking until results are seen in improving the efficient management and operation of existing parking. Investments should be made in mobility and management strategies as articulated in this section.

▸ *Develop a 10-year budget plan for the Parking Enterprise Fund, including revenue and expenditure forecasts.*

▸ *Assess parking pricing strategies, such as demand- or performance-based pricing, for on- and off-street facilities to understand revenue potential and impact on parking demand.*

▸ *Consider the advantages of establishing parking benefit districts in the City that would share a portion of parking revenue for neighborhood-specific investments that may include infrastructure, transit incentives, and other strategies.*

Recommendation Details

Based on the program investment recommendations, the following strategies should be adopted and implemented by the City.

Parking Enterprise Fund

According to the City of Charleston's official budget document for 2018, the Parking Enterprise Fund is expected to have an ending year balance of approximately $76 million. Overall parking operating revenues have increased approximately $12 million annually between 2009 and 2018, representing an increase of approximately 75%. The Parking Enterprise Fund resources represent a significant opportunity for the City to improve management of the parking program, enhance the customer experience, and invest in mobility that reduces that demand for parking and increases transportation options. However, to be effective, the City must develop a long-term plan and investment strategy for the Parking Enterprise Fund.

Enhancements to the customer experience should include mobile payment options for both on-and off-street parking; a trip planning app with integrated parking and transportation options and pricing, reserved event parking, navigation, transit improvements; and expanded parking options through shared parking.

Mobility investments may include transit enhancements and expansion, safety improvements, and neighborhood or place-based investments that enhance livability and the economy. Investments in mobility will likely vary based on the needs of each neighborhood, such as the Downtown, neighborhood business districts, residential neighborhoods, or institutional districts.

The City should move forward with a planning effort that addresses long-term management of the parking and mobility program, including anticipated revenues, expenditures, and mobility investments. In the near term, the City should focus less on investing in new parking and more on improving management of the current system and monitoring the program to ensure program goals are being met. This will produce better information for the City to make management and investment decisions, including whether additional parking is a wise investment compared to other options, such as transit investments

Parking Investment

While the majority of this strategy document focuses on more efficient use of the existing system, enhanced management to promote better access, and collective ways to implement mobility and parking solutions, the City may need to implement new parking investments in the community at some point. This need may be driven by demand issues, economic development goals, or opportunities for collaboration with the private sector.

Whatever the reason, it is imperative that the City make good decisions related to the investment in new off-street parking spaces—especially those that are located in off-street parking structures. In 2018, the national average to construct a parking garage was approximately $20,000 to $25,000 per parking space. A miscalculation on investment strategy can have tremendous financial impacts to the City.

The following sections serve as a guide for evaluating the feasibility and potential of structured parking investments:

Factors Impacting Investment Strategy

The first step in evaluating potential parking investments is to define the factors that contribute to the success of building new parking capacity. These factors could include:

▸ **Location.** *The parking facility should be within an ideal proximity of high-intensity destinations that require parking. While a parking facility may be located to serve the development around it, it should also be able to provide demand mitigation for other community destinations.*

▸ **Ability to mitigate demands.** *The parking facility should be designed and managed to support community parking demands, rather than simply supporting the development associated with its construction.*

▸ **Ability to serve multiple users.** *The parking facility should be managed to support the peak demands of multiple user types (e.g., commuters and tourists during the day and those going to entertainment venues in the evening and on weekends), preferably over multiple demand periods. Ideal parking garages operate 24/7, generating revenue and mitigating demand issues throughout the entire day.*

▸ **Revenue generating potential.** *The parking facility should be developed and managed to generate revenues in excess of operating costs, at least after several years of operation.*

▸ **Ability to leverage community and economic growth.** *New parking facilities should serve more than a single user type, such that their introduction into the community creates new opportunities for development/redevelopment around them that are supported by centralized shared parking.*

▸ **Ability to balance mobility and access away from core.** *For those parking facilities that are not located in high-demand areas, they should still serve a purpose by incentivizing fringe area parking with transit access into the core. Alternatively, the parking facility should serve as a "mobility hub" with rideshare, transit, and other mobility elements integrated within the facility.*

▸ **Associated costs.** *The per-space cost to build the parking structure, as defined by probable engineering estimates of cost, land acquisition costs, and even ongoing maintenance and operational costs.*

▸ **Access to Public-Private Partnership.** *Some parking facilities are collaborative efforts between the City and private entities. These arrangements often have the mutual benefit of shared costs, reducing the burden on both parties and creating successful opportunities to promote a more mixed-use of parking facilities.*

These are initial thoughts on investment factors. The City should certainly add to this list and further evaluate as it encounters parking investment opportunities.

Alternatives to Parking Investment

When considering parking investments, the City will also need to determine whether funds are better spent on transportation and mobility improvements than parking capacity. In many cases, the dollars spent on parking capacity can be stretched further and serve a more diverse subset of the population over a greater geographic area. When considering parking investments, the City should also consider the following:

▸ **Transit investment.** *Replacing existing fleet, purchasing smaller vehicles to access more of the community, defining new routing and connectivity, and improving stops and hubs to better support the community*

▸ **Mobility investment.** *Implementing enhancements to bicycle, pedestrian, and shared mobility systems to help support better movement around the community without relying on a SOV*

▸ **TDM investment.** *Coordinating demand reduction strategies with employers, developers, and property owners by investing money in TDM elements*

Draft Parking Investment Scorecard

Using these concepts, the City can create a scorecard that determines the benefits of investing community funds into completing a particular parking facility. The table below provides an example of a scoring matrix using the factors discussed previously. The scorecard evaluates the positives and negatives of the investment and provides a scale the City can use to make decisions. The City would need to adapt this approach to better prioritize elements that are most important to community growth and development in Charleston.

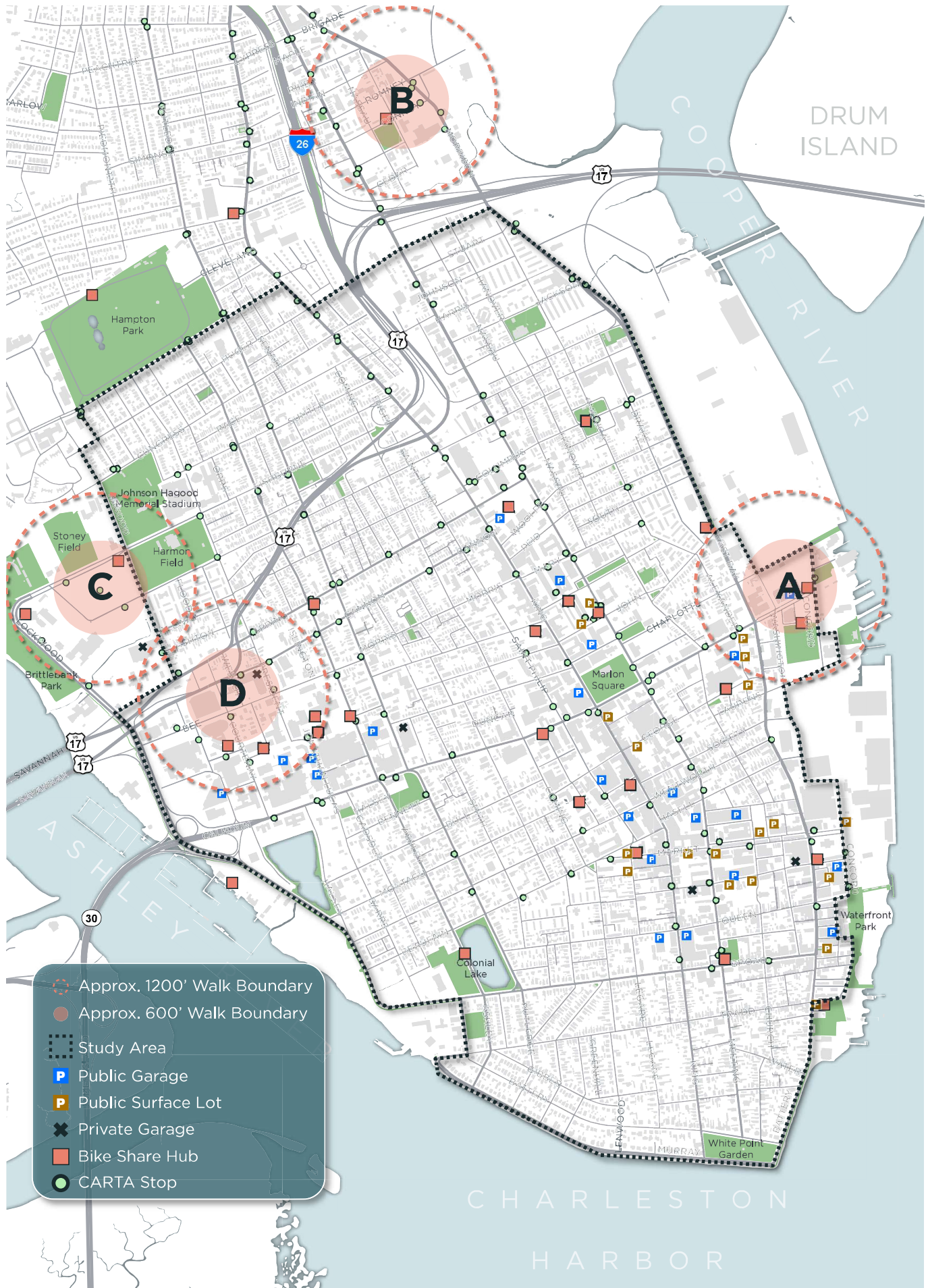| Factor	Low Score (0 points)	Medium Score (1 points)	High Score (2 points)	Score
Location	More than ¼ mile from destination areas	Between 1/8 and ¼ mile from destination areas	Less than 1/8 mile from destination areas	
Demand Mitigation	Supports demand from associated development only	Offsets up to 100 spaces of parking deficit in adjacent developments	Offsets more than 100 spaces of parking deficit in adjacent developments	
Multiple Users	Supports demand from associated development only during one-time period (weekday, weekday night, weekend)	Supports demand during two time periods (weekday, weekday night, weekend)	Supports demand during three time periods (weekday, weekday night, weekend)	
Revenue Potential	Does not cover operational costs	Covers operational costs with little to no excess	Covers operational costs plus surplus	
Community/ Economic Growth*	Does not contribute to surrounding area growth	Stimulates moderate amount of surrounding growth	Stimulates significant amount of surrounding growth	
Balance Mobility/ Access	Does not contribute to changing mobility patterns	Contributes to marginal mobility changes (e.g., first/last mile connectivity)	Contributes to significant mobility changes (e.g., park-and-ride activity)	
Costs**	More than $25,000 per space	Between $20,000 and $25,000 per space	Less than $20,000 per space	
Public-Private Parternship	Does not include a public-private component	Small number of public spaces in largely private garage	Full shared parking facility in public-private facility	

*The City will need to define appropriate levels for moderate and significant development

**Costs should include construction, land acquisition, design, operations and maintenance; inclusion of these elements will change scoring structure

Total:

Based on this example scorecard, the City could simply tally the results of the analysis and determine the viability of the investment. The following results would drive the decision-making process:

‣ *A score between 12 and 16 points would indicate an investment that meets the needs of the community and would serve the parking and transportation system well.*

‣ *A score between eight and 12 points would indicate a strong investment consideration, but one that should be weighed against other transportation investments before finalization.*

‣ *A score between four and eight points would indicate a weak investment consideration, unless factors can be significantly modified in the decision-making process. Transportation investments would be a smarter investment decision.*

‣ *A score below four points represents an investment that should not be considered.*

Legend

- Approx. 1200' Walk Boundary
- Approx. 600' Walk Boundary
- Study Area
- P Public Garage
- P Public Surface Lot
- X Private Garage
- Bike Share Hub
- CARTA Stop

Case Studies

The following sections review various parking investment opportunities that have arisen during the life of this study process. The intent of these reviews is to present how the evaluation process could work, not necessarily to make a definitive choice for these locations. In fact, several factors have been removed from the analysis (costs and revenue) because the project team was not aware of those factors. These areas are shown on the map to the left.

Location A - Aquarium Garage Expansion

The first investment opportunity is an expansion of the current Aquarium garage to serve high demands in that area as well as new demands from the International African American Museum, which is slated to open in 2020. The scoring is shown to the right with the following factor descriptions.

▸ **Location.** The garage would be within proximate walking distance of the museum, aquarium, and East Bay Street, but not other commercial areas

▸ **Demand Mitigation.** The garage would serve demands on East Bay Street and some potential spillover demands from the Eastside neighborhood within a quarter mile

▸ **Multiple Users.** The garage would likely serve tourism needs and residential needs if spillover from the Eastside neighborhood occurs

▸ **Community/Economic Growth.** This garage could accommodate growth around the new museum and along the waterfront

▸ **Balance Mobility/Access.** This garage would not likely have much impact on shifts in access or mobility

▸ **Public-Private Partnership.** This garage could include private components related to development around the museum or waterfront

Based on the evaluation, the garage would score five out of a possible 12 points, making it an unlikely candidate for investment without some significant enhancement in mobility options or development potential.

Factor	Ranking	Score
Location	Medium	1
Demand Mitigation	Medium	1
Multiple Users	Medium	1
Community/Economic Growth	Medium	1
Balance Mobility/ Access	Low	0
Public-Private Parternship	Medium	1

Total: **5/12**
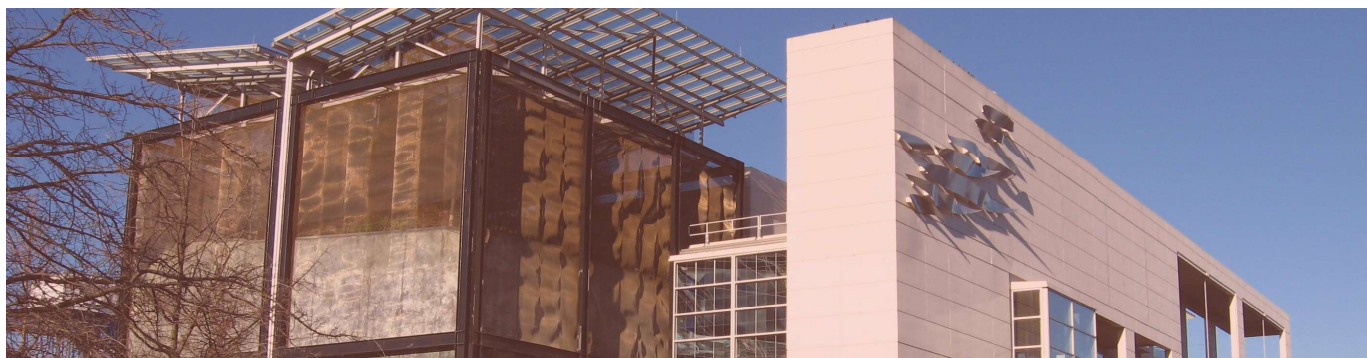
● **Location B -** Hospitality on the Peninsula Lot

The second investment opportunity would be to build on top of the existing temporary park-and-ride lot for the HOP. It also would serve proposed development in the vicinity of the new facility. The scoring is shown to the right with the following factor descriptions.

▸ *Location.* The garage would be within proximate walking distance of the NOMO area and proposed development around it, but not in current high-demand areas

▸ *Demand Mitigation.* The garage would take demand from new development and growing NOMO area and continued park-and-ride needs from the HOP, which could lessen the burden on high-demand areas

▸ *Multiple Users.* The garage would likely serve development needs, entertainment needs from the growing NOMO area, and park-and-ride needs from Peninsula patrons

▸ *Community/Economic Growth.* This garage could serve to accommodate continued growth in the NOMO area

▸ *Balance Mobility/Access.* This garage would allow HOP to increasingly serve the Peninsula and serve as a mobility hub for the NOMO area

▸ *Public-Private Partnership.* This garage could include private components funded by the proposed tech sector development in the area

Factor	Ranking	Score
Location	Low	0
Demand Mitigation	Medium	1
Multiple Users	Medium	1
Community/Economic Growth	Medium	1
Balance Mobility/ Access	High	2
Public-Private Parternship	Medium	1

Total: **6/12**

Based on the evaluation, the garage would score six out of a possible 12 points, making it a moderate candidate for investment, especially if the transit linkages and mobility hub elements were included.

Location C - Parking Expansion near Medical District

The third investment opportunity is constructing a parking garage on the large surface parking lot that serves as spillover parking from MUSC and the Medical District. The scoring is shown to the right with the following factor descriptions.

▸ **Location.** The garage be would within proximate walking distance of the medical district, potentially enhanced by shuttling. The garage could also serve event demands for the minor league baseball stadium

▸ **Demand Mitigation.** The garage would serve existing demands from the hospital campuses and demands associated with the growing West Edge area

▸ **Multiple Users.** The garage would likely serve hospital and college needs and event demands

▸ **Community/Economic Growth.** This garage could serve to accommodate continued growth in the West Edge area

▸ **Balance Mobility/Access.** This garage would not likely have much impact on shifts in access or mobility, and could likely incentivize more auto travel into the medical district

▸ **Public-Private Partnership.** This garage could include public-private partnerships between hospital entities and the City

Based on the evaluation, the garage would score six out of a possible 12 points, making it a moderate candidate for investment, especially if investment can be shared with hospital entities and private development.

Factor	Ranking	Score
Location	Medium	1
Demand Mitigation	High	2
Multiple Users	Medium	1
Community/Economic Growth	Medium	1
Balance Mobility/Access	Low	0
Public-Private Parternship	Medium	1

Total: **6/12**

MUSC ASHLEY RIVER TOWER

● **Location D -** Public-Private Investment near Medical District

The final investment opportunity is an example of a private parking facility built within proximate walking distance of the Medical District, with the potential for public-private partnership to realize mitigation of public and private demands.

▸ **Location.** The garage be would within proximate walking distance of the medical district, as well as the growing Spring-Cannon neighborhoods

▸ **Demand Mitigation.** The garage would serve existing demands from the hospital campuses and demands associated with the growing Spring-Cannon area

▸ **Multiple Users.** The garage would likely serve hospital and college needs, with some minimal use by neighborhood and commercial area users

▸ **Community/Economic Growth.** This garage could serve to accommodate growth around the medical district and along the Ashley River waterfront

▸ **Balance Mobility/Access.** This garage would not likely have much impact on shifts in access or mobility and could likely incentivize more auto travel into the medical district

▸ **Public-Private Partnership.** This garage could include public-private partnerships between the private sector and the City, allowing for joint investment and lessening of the financial burden

Factor	Ranking	Score
Location	Medium	1
Demand Mitigation	High	2
Multiple Users	Medium	1
Community/Economic Growth	Medium	1
Balance Mobility/Access	Low	0
Public-Private Parternship	Medium	1

Total: **6/12**

Based on the evaluation, the garage would score six out of a possible 12 points, making it a moderate candidate for investment, especially if investment can be shared between the private sector and the City and promote public parking demand mitigation in that area of the Peninsula.
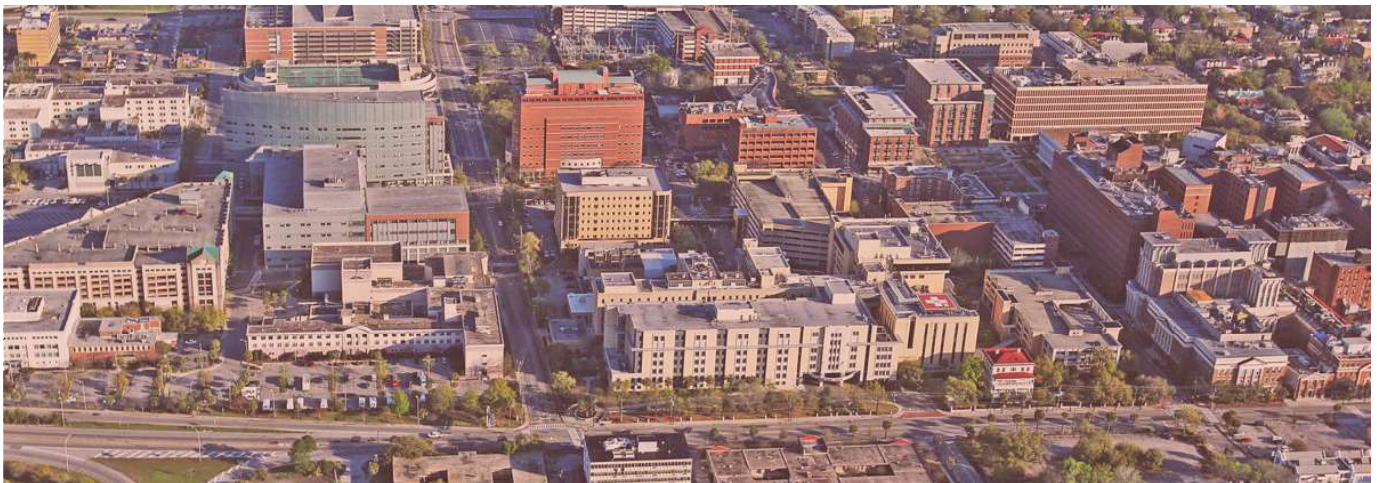
Implementation Timeline

This section outlines the timeline for implementing the recommendations. The timelines are broken down into combined categories based on the earlier sections in the chapter. Each recommendation is given an implementation timeframe, a timeframe for evaluation, and a type of evaluation. These timelines will help guide the City when making future parking decisions. The four time frames are listed below:

Immediate *(Year 1)*	Near-Term *(Years 1 - 2)*	Mid-Term *(Years 2 - 5)*	Long-Term *(Beyond 5 Years)*

Consolidated Management

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Consolidate all On-Street management functions with the Traffic and Transportation Department	Immediate	Near-Term	Data Analytics
The Off-Street parking system should re-advertise the off-street parking management function	Immediate	Mid-Term	Data Analytics
Develop a detailed 10-year policy and budget plan for the parking enterprise fund	Immediate	Long-Term	Data Analytics
Determine the optimal location for consolidating all parking management functions	Near-Term	Long-Term	Data Analytics
Establish a Parking Management Task Force with internal city departments to more collaboratively manage the systems	Immediate	Near-Term	Perception
Define parking program organizational chart and roles, hire a parking manager, hire staff	Near-Term	None	None
Evaluate outsourcing parking system operations versus insourcing staff	Near-Term	Long-Term	Data Analytics

Codes and Policies

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Remove minimum parking requirement	Immediate	Long-Term	Data Analytics
Set context sensitive maximum parking requirement	Immediate	Long-Term	Data Analytics
Implement fee in lieu of parking program	Near-Term	Long-Term	Data Analytics
Consider area parking districts for fee in-lieu investments	Mid-Term	Long-Term	Perception

Mobility and Transit

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Place additional park-and-ride locations off of the Peninsula	Near-Term	Long-Term	Data Analytics
Identify ideal locations and amenities for transit landings on the Peninsula	Immediate	Long-Term	Data Analytics
Implement express, limited-stop service from peripheral areas into downtown Charleston	Mid-Term	Long-Term	Data Analytics
Work with employers to institute transportation demand management (TDM) policies	Near-Term	Long-Term	Data Analytics
Develop a mobile trip-planning app platform that can serve as a "one-stop-shop" for trip and commute planning	Mid-Term	None	None
Identify and leverage flexible micro-transit opportunities to supplement existing CARTA service	Near-Term	Long-Term	Data Analytics
Leverage MaaS to support first and last mile connectivity	Near-Term	Long-Term	Data Analytics
Develop policies for funding bike/pedestrian programs with parking revenues using program-wide or neighborhood specific revenues	Near-Term	Long-Term	Data Analytics
Develop a street master plan for the Peninsula and other Neighborhood Districts to improve safety, mobility, and curb space management	Mid-Term	None	None
Adopt the Vision Zero target for zero fatalities involving road traffic and leverage parking revenues to fund portions of the program	Immediate	Long-Term	Data Analytics
Investigate opportunities for cycle tracks and off-street paths, or bicycle lanes that are buffered/separated from moving vehicular traffic	Mid-Term	None	None
Retrofit existing on-street parking spaces as corrals for bike parking and for parklets	Near-Term	Long-Term	Perception
Explore the conversion of streets to car-free "Woonerf" style areas where pedestrians, bicycles, and dockless devices are prioritized	Long-Term	None	None
Designate curb space for rideshare pick-up and drop-off	Near-Term	Long-Term	Data Analytics
Cluster Mobility as a Service options and connect them with transit	Near-Term	Long-Term	Data Analytics
Adopt policy and program frameworks that manage services and monetize access	Immediate	Long-Term	Perception
Embrace new shared mobility devices	Immediate	Long-Term	Perception

Branding and Wayfinding

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Full program branding efforts	Mid-Term	Long-Term	Perception
Develop a branded wayfinding strategy	Mid-Term	Long-Term	Perception
Marketing and messaging campaigns	Near-Term	Long-Term	Perception

Technology and Data Analytics

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Use existing and potential data collection sources to catalogue parking system data	Immediate	Long-Term	Data Analytics
Explore ways to aggregate existing and future data into a singular platform	Near-Term	Long-Term	Data Analytics
Implement data analytics practices and processes in the parking and mobility program	Immediate	Long-Term	Data Analytics
Define metrics and indicators to define policy changes	Immediate	Long-Term	Data Analytics
Evaluate demand-based pricing practices for parking system	Near-Term	Long-Term	Data Analytics
Find ways to optimize and leverage existing technologies as individual components and as a system	Immediate	Long-Term	Data Analytics
Mobile Payment procurement	Immediate	Long-Term	Data Analytics
Enhanced Enforcement procurement	Immediate	Long-Term	Data Analytics
LPR procurement	Near-Term	Long-Term	Data Analytics
CivicSmart sensor pilot	Near-Term	Mid-Term	Data Analytics
Mobile Pay Integrations	Mid-Term	Long-Term	Data Analytics
Technology for data collection (ongoing)	Immediate	Long-Term	Data Analytics

Curb Management

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Complete curb inventory	Near-Term	Long-Term	Data Analytics
Define curb priorities	Immediate	Long-Term	Perception
Evaluate optimal curb usage (ongoing)	Near-Term	Long-Term	Data Analytics
Monitor curb use (ongoing)	Near-Term	Long-Term	Data Analytics
Invest in curb technology (as available)	Mid-Term	Long-Term	Data Analytics

Neighborhood Parking

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Update the policies for the residential parking permit program to clarify the program goals/priorities.	Immediate	None	None
Consolidate management of the residential permit program with Traffic and Transportation	Immediate	Near-Term	Perception
Evaluate increasing the price for residential parking permits (permit prices should vary by permit zone)	Near-Term	Long-Term	Data Analytics
Implement virtual permitting and LPR-based enforcement to improve management of residential areas.	Near-Term	Long-Term	Data Analytics
Consider creating parking benefit districts for the residential permit program that would invest a portion of revenues in neighborhood specific improvements or incentives	Mid-Term	Long-Term	Perception
Evaluate further limits on the number of permits per household, total permits, and restrictions based on the availability of off-street parking	Near-Term	Long-Term	Perception