DOWNTOWN PHOENIX

Comprehensive Parking Study

2022

Prepared by:

Kimley»Horn

City of Phoenix

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Executive Summary

Overview

The downtown core has seen significant changes over the last several years. Along with the success of the area, there has been an increase in parking demand that has placed pressure on the public parking assets. To promote continued growth and vitality of the downtown area, parking efficiency needs to increase to ensure current and anticipated future parking demand is met while supporting the multimodal transportation vision of the area.

This Comprehensive Parking Study evaluated the supply and demand of the existing parking inventory in the downtown area using on-street parking occupancy, public and private off-street parking occupancy and general curb usage during various events and times. With the parking needs quantified, information provided by means of public engagement on the challenges presented by parking downtown informed the development of several recommendations. This study will be used to prioritize the recommended strategies that encourage adequate and efficient parking functionality in downtown Phoenix and enable the mobility and evolution of growth in the core of the city.

Executive Summry

Each strategy area is give a priority rating that communicates which elements are most important based on the existing conditions analysis, public and stakeholder engagement, and discussions with City staff, as shown below:

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

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

Priority Rating | ● ● ● — **Highest** Tier Priority

Recommendations

Promote Efficiency through Parking codes, Ordinances and Policies	*Priority Rating* / ● ● ●	*Establish guiding principles as policies for the management of public parking in Downtown Phoenix.*
Data-Driven Policies to Support Balanced System Utilization	*Priority Rating* / ● ● ●	*Linking management decisions to key performance measures to enable more efficient and object decision making.*
Leverage and Enhance Parking Technology	*Priority Rating* / ● ● ●	*Better leverage existing technologies and find companion technologies to improve program performance.*
Improve Wayfinding, Branding, and Messaging	*Priority Rating* / ● ● ●	*Improve wayfinding, branding and communications about where and how to park to enhance user experience.*
Dynamic Curb Lane Management Policies	*Priority Rating* / ● ● ○	*Develop and execute comprehensive curb lane management program to provide access for a variety of users.*
Parking Investment Strategy	*Priority Rating* / ● ● ○	*Assess parking pricing and focus investment on mobility and management strategies.*
Evaluate and Standardize Parking Rates	*Priority Rating* / ● ● ○	*Establish standard minimum and maximum on-street rates, and adjust rates based on measured demand.*
Sunburst Event Management Plan Update	*Priority Rating* / ● ○ ○	*Plan update to focus heavily on improving traffic travel times during major events and improving safety conflicts.*
Parking System Organization	*Priority Rating* / ● ○ ○	*Consider streamlining and centralizing the management of public parking through consolidation.*
Enhanced Residential Parking Practices	*Priority Rating* / ● ○ ○	*Update the policies for residential parking to expand the program and better clarify program goals.*
Improved Bicycle/Pedestrian Environment	*Priority Rating* / ● ○ ○	*Develop policies for funding bike and pedestrian programs and projects to enhance safety and mobility.*
Improved Transit Access to and Within Downtown Phoenix	*Priority Rating* / ● ○ ○	*Identify ideal locations and amenities for transit to connect riders to destinations and route connections.*

Introduction

Overview

Downtown Phoenix has been going through a major increase in growth over the last few years and is transforming from an office hub to a vibrant, 24/7 neighborhood. With that shift, the needs for the parking system have evolved from simply accommodating peak office or event-driven needs to also include supporting other land use types, adding to the urban fabric of the area, and ensuring that land in the downtown area is operating at its highest and best use. Simultaneously, the City is also investing heavily in transit and active transportation through projects such as the South Central Light Rail Extension and the Third Street Promenade to make using alternate modes of travel more comfortable and convenient.

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., Uber, Lyft, 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 is not just about parking anymore, it is 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, cities are using parking supply and effective 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, management systems, license plate recognition [LPR], transactional data) are being used to better parse information about the system and set policy, price, and practice.

What is a Comprehensive Parking Study?

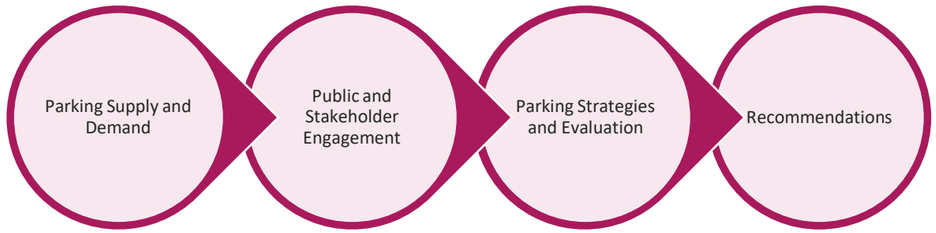
The Downtown Phoenix Comprehensive Parking Study offers a comprehensive analysis and set of recommendations for the parking system for Central Phoenix. The City of Phoenix (City) will use this document as a guide for future decision-making, resource allocation, and investment choices. This Study focuses mainly on the parking and mobility in Downtown Phoenix. However, the recommendations and analysis consider and are integrated with the rest of the city and improving connections into and out of Downtown Phoenix for the rest of the region.

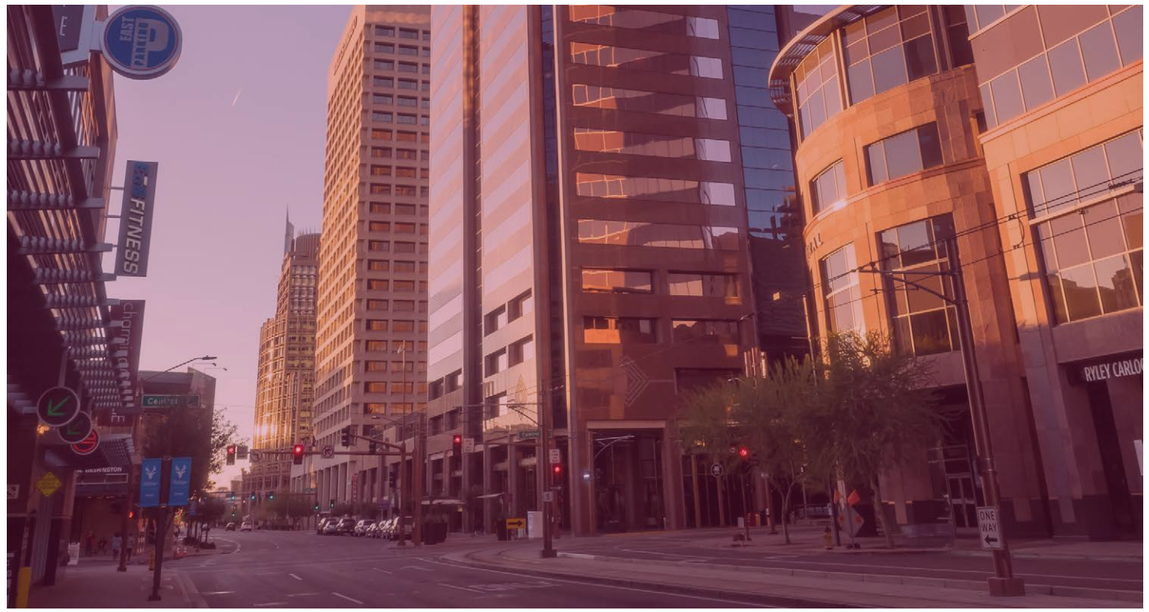
Planning Process

The planning process for the Downtown Phoenix Comprehensive Parking Study is broken into four major phases as shown in **Figure 1**. These phases each correspond with a chapter in this document.

- **Parking Supply and Demand** provides an overview of the current inventory of parking spaces in the study area and the occupancy, or percentage of spaces that are used, at various times of day and under varying conditions such as special events.
- **Public and Stakeholder Engagement** provides results from the two primary methods of outreach performed to gain a full understanding of the parking system's current pros and cons from a variety of users.
- **Parking Strategies and Evaluation** provides a broad menu of potential parking strategies that could be used to address deficiencies in Downtown Phoenix's parking and mobility system along with anticipated benefits, drawbacks, and implementation steps for each strategy.
- **Recommendations** provides a relative prioritization and specific steps, decision-making frameworks, and case studies for implementing the recommended strategies.

Figure 1. Comprehensive Parking Study Planning Process





Study Area

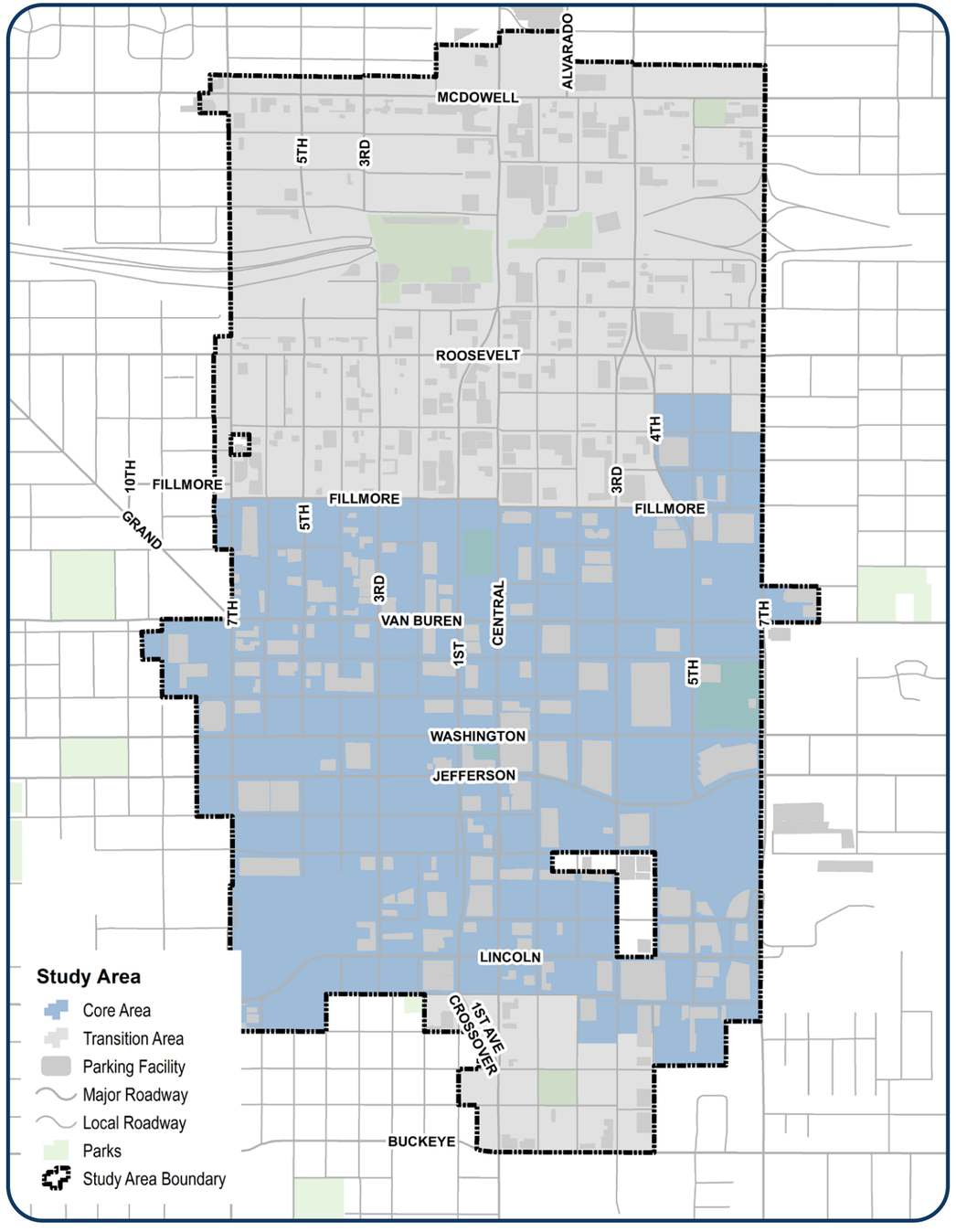
The study area was divided into two key areas: Downtown Core and Transition areas.

The Core Area includes the Business Core, Van Buren, Warehouse, and BioSciences Campus neighborhoods. The Core Area makes up more of a 'traditional downtown' with an emphasis on employment centers and event venues. This area includes many office buildings and sports stadiums, including Chase Field and the Phoenix Convention Center.

The Transition Area includes Roosevelt, Downtown Gateway, Townsend Park, East Evergreen, Evans Churchill, and McDowell neighborhoods within downtown. Unlike the Core Area, the Transition Area is typically comprises commercial businesses and residential neighborhoods.

This section highlights the two areas at various conditions on weekdays and weekends. An overall map of the study area and the key areas is shown in **Figure 2**.

Figure 2. Study Area



Parking Supply and Demand

Overview

The Downtown Phoenix Comprehensive Parking Study seeks to assess the parking conditions in the downtown area 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 in downtown. This Parking Supply and Demand section documents findings from the parking inventory and data analytics elements of the study process.

The Parking Supply and Demand section shows the realities of parking through:

- Showcasing the existing parking inventory
- Displaying parking occupancy at various times throughout the study area
- Providing parking turnover rates to understand alignment with current regulations

Parking Inventory

Overview of Parking Inventory

A parking inventory was conducted for the study area, including off-street parking, on-street parking, and curb usage. Downtown Phoenix has a total parking supply of **60,254 spaces. Table 1** provides a summary of parking inventory within the study area.

Table 1. Parking Inventory

On-Street Facilities

Parking Type	*Undefined*	*Metered*	*Loading Zone*	*Permit Restricted*	*Time Restricted*	*Total*	*% of Total*
Total	*2,605*	*1,532*	*32*	*275*	*396*	*4,840*	***8%***

Off-Street Facilities

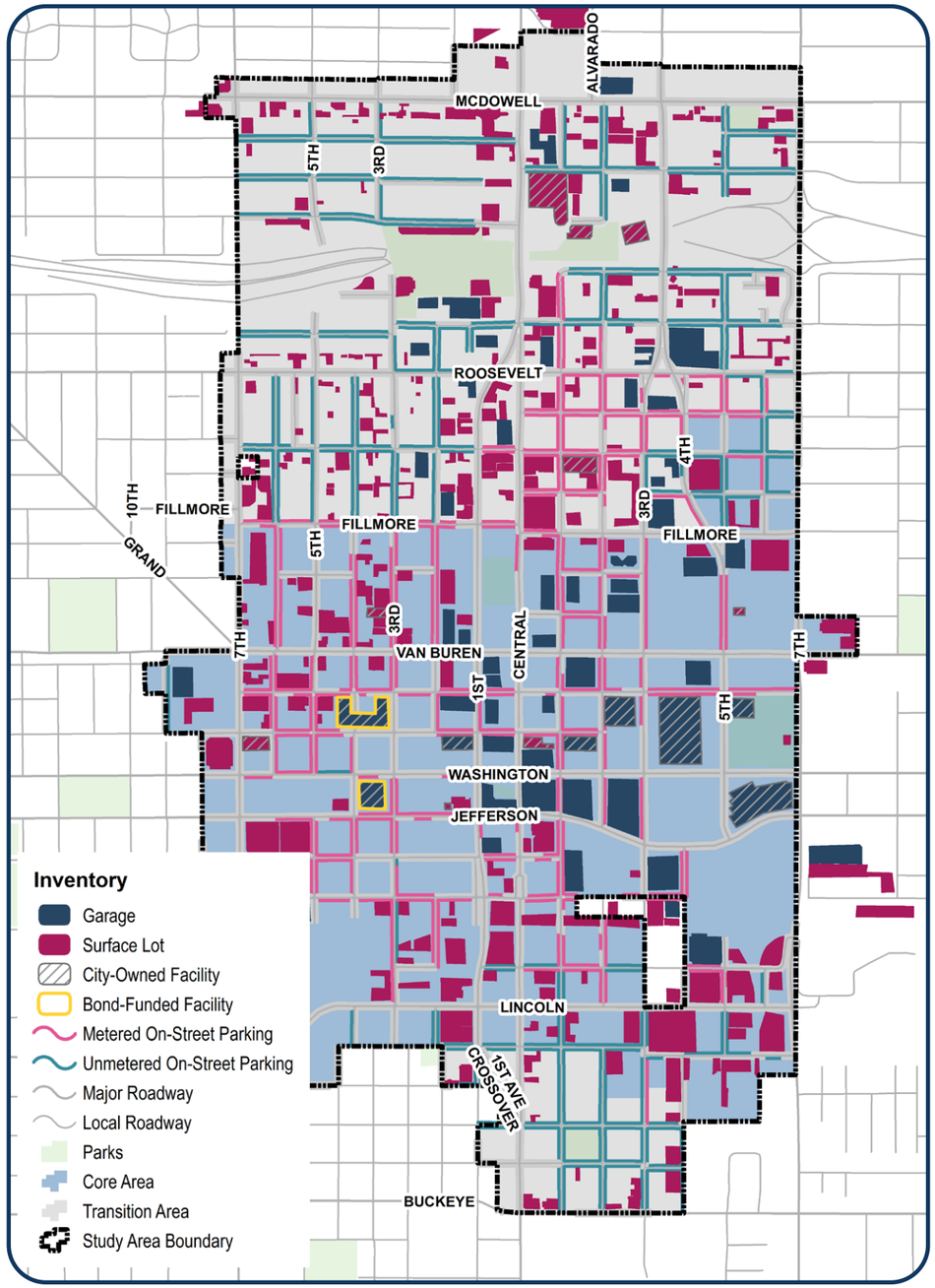
Parking Type	*City of Phoenix*	*Other Public*	*Private*	*Total*	*% of Total*
Surface Lot	*35*	*1,681*	*14,779*	*16,495*	***27%***
Garage	*8,895*	*16,187*	*13,837*	*38,919*	***65%***

Parking supply within the study area is heavily skewed towards off-street facilities, specifically garage parking, which accounts for almost 65% of all spaces. Most parking spaces within the study area are privately owned, with six privately owned off-street spaces for every one publicly owned off-street space. On-street parking accounts for just 8% of the available parking. Just over 32% of on-street spaces are metered. A map of publicly available parking facilities in the study area is shown in **Figure 3.**

Bond-Funded Garages

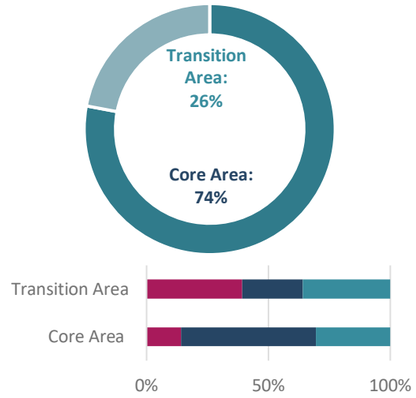
Two City of Phoenix-owned garages were constructed using bond funding, the 305 Garage and the Adams Street Garage. This funding mechanism comes with restrictions on pricing and public accessibility that do not apply to most city-owned garages, strictly limiting the changes that can be made to react to changing needs and goals for the downtown area. These bonds are anticipated to continue to be a factor through the short- and mid-term implementation timeframes in this plan.

Figure 3. Inventory of Facilities



Parking by Location

The Core and Transition areas were analyzed independently for parking supply.



The Core Area accounts for 74% of all parking spaces. The Core Area primarily comprises garage parking, accounting for 80% of off-street facilities within the area. All publicly owned garage parking is within the Core Area.

The Transition Area comprises mostly surface lot parking, with minimal garage spaces available. The Transition Area exceeds the Core Area's on-street parking inventory by 500 spaces.

The Core area on-street parking makeup differs greatly from conditions in the Transition Area. The ratios of metered to unmetered on-street parking spaces is:

1 ***Metered space*** *for each unmetered space in the Core Area*

5 ***Unmetered spaces*** *for each metered space in the Transition Area*

The Core Area has a balance of metered and unmetered spaces, with a ratio of one metered space to each unmetered space within the area. The Transition Area has a highly skewed on-street parking system, with five unmetered spaces for each metered space.

Curb Uses

To get a better understanding of on-street parking infrastructure, curb usage was inventoried in the Core Area. Inventory categories were:

- No Parking or Standing
- Freight and Passenger Loading
- Unregulated Parking
- Time-Limited Parking
- Paid Parking

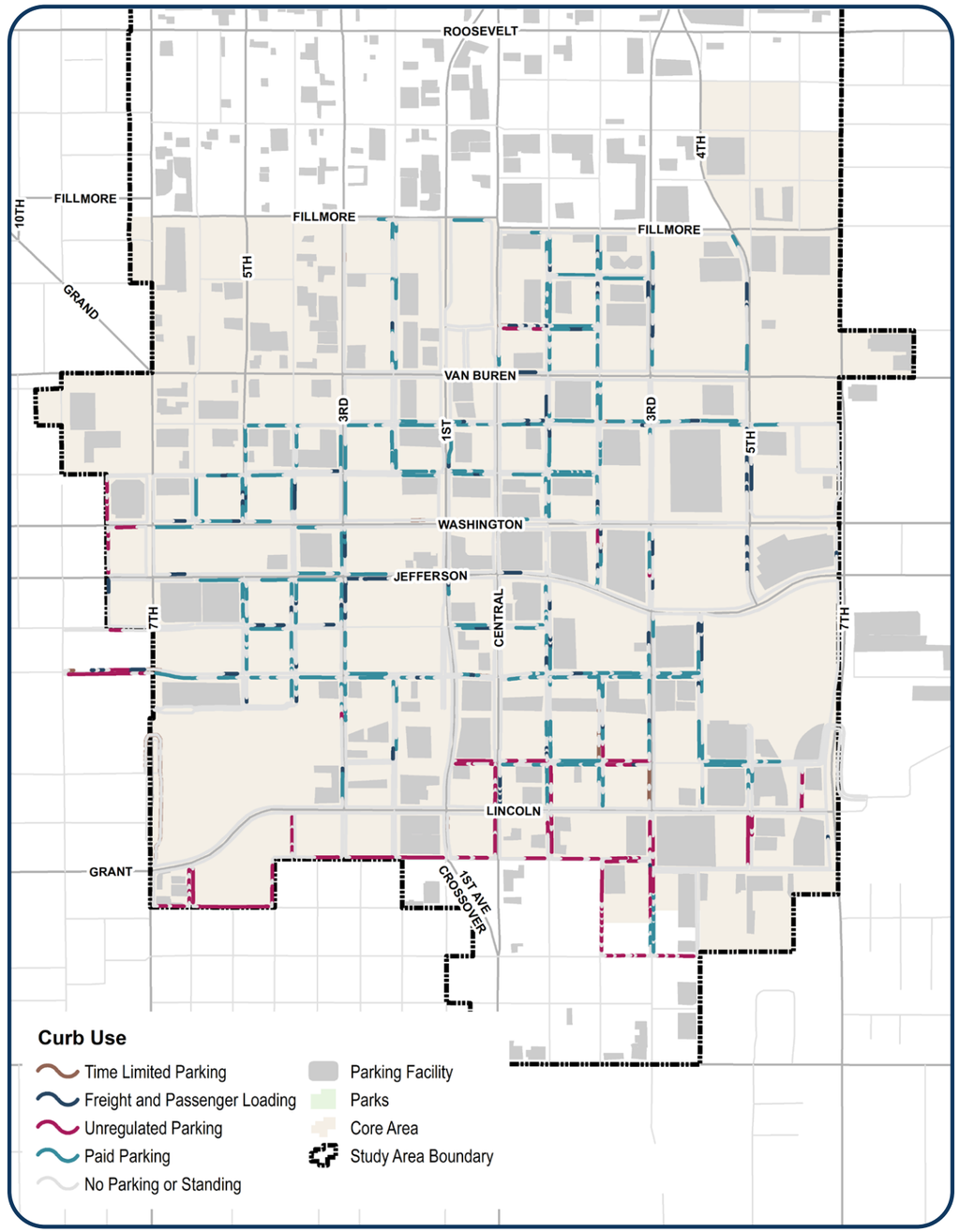
Collected curb use is shown in **Figure 4.**

The most common curb usage in the Core Area is unregulated parking in the north and south portions of the Core Area and paid parking throughout the central business district. Unregulated parking is surrounding the Business core, most common in the Warehouse District, south of Buchanan, and north of Monroe Street. Paid parking is largely bounded by Monroe Street to the north, 4th Avenue to the west, Jackson Street to the south, and 4th Street to the east. Additional areas where paid parking is present include near the Arizona State University (ASU) Downtown campus and near Chase Field.

Freight and Passenger Loading zones are spread throughout the Core Area, with a high concentration near Jefferson Street, from 3rd Avenue to 1st Avenue, near Van Buren Street and Central Avenue, and along 3rd and 5th streets north of Jefferson Street.

Time-limited parking is the least common curb use throughout the Core Area. Time-limited parking is present along 2nd Street and 3rd Street from Washington Street to Lincoln Street.

Figure 4. Curb Use



Key Takeaways

- Ninety percent of publicly accessible parking in the study area is off-street, most of which is owned by private landowners.
- In the Core Area, there is a balance of metered and unmetered on-street parking. In the Transition Area, a large majority of on-street parking is unregulated.
- Outside of the dense, mixed-use portions of the study area, most of the curb space is unregulated.

Parking Occupancy

The study team collected parking occupancy for a variety of areas and contexts to get an understanding of how, where, and when parking is used in Downtown Phoenix.

Data Collection Plan

Occupancy data was collected for parking facilities throughout the study area. The two fundamental goals of the data collection effort was to collect publicly owned parking and privately owned but publicly available parking. Data collection was a joint effort by Kimley-Horn and the City of Phoenix. **Figure 5** shows the facilities by collector. Data collection efforts included four categories of collection:

Parking Occupancy is the percentage of available spaces that are occupied at a given time. Typically, **85% 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.

Core Area

Collection captured weekday daytime conditions in the Core Area for selected facilities. Parking occupancy was collected twice for each facility:

- **Morning Collection** (9:00 AM – 12:00 PM)
- **Afternoon Collection** (1:00 PM – 4:00 PM)

Transition Area

Parking Occupancy within the transition area was collected under weekday daytime conditions for identified facilities. Collection was done once for each facility under typical weekday conditions, between 9:00 AM to 5:00 PM.

Event

Downtown Phoenix holds many events, sometimes multiple on a single night. These conditions are considered maximum-demand situations and present a strain on the parking system. To understand event conditions, the following days were collected:

- **Saturday, February 19th,** 5:30 PM – 8:30 PM
  Symphony Hall, Orpheum, AZ Federal Theater, Phoenix Convention Center
- **Friday, March 4th,** 6:30 PM – 9:30 PM
  M3F Music Festival, Suns Home Game, First Friday
- **Friday, March 18th,** 6:30 PM – 9:30 PM
  Typical weekend evening demand near Roosevelt Row

Turnover

Segments within the Core Area and the Transition Area were collected from 9:00 AM to 5:00 PM in 30-minute intervals to evaluate the duration of time people are typically parked on-street.

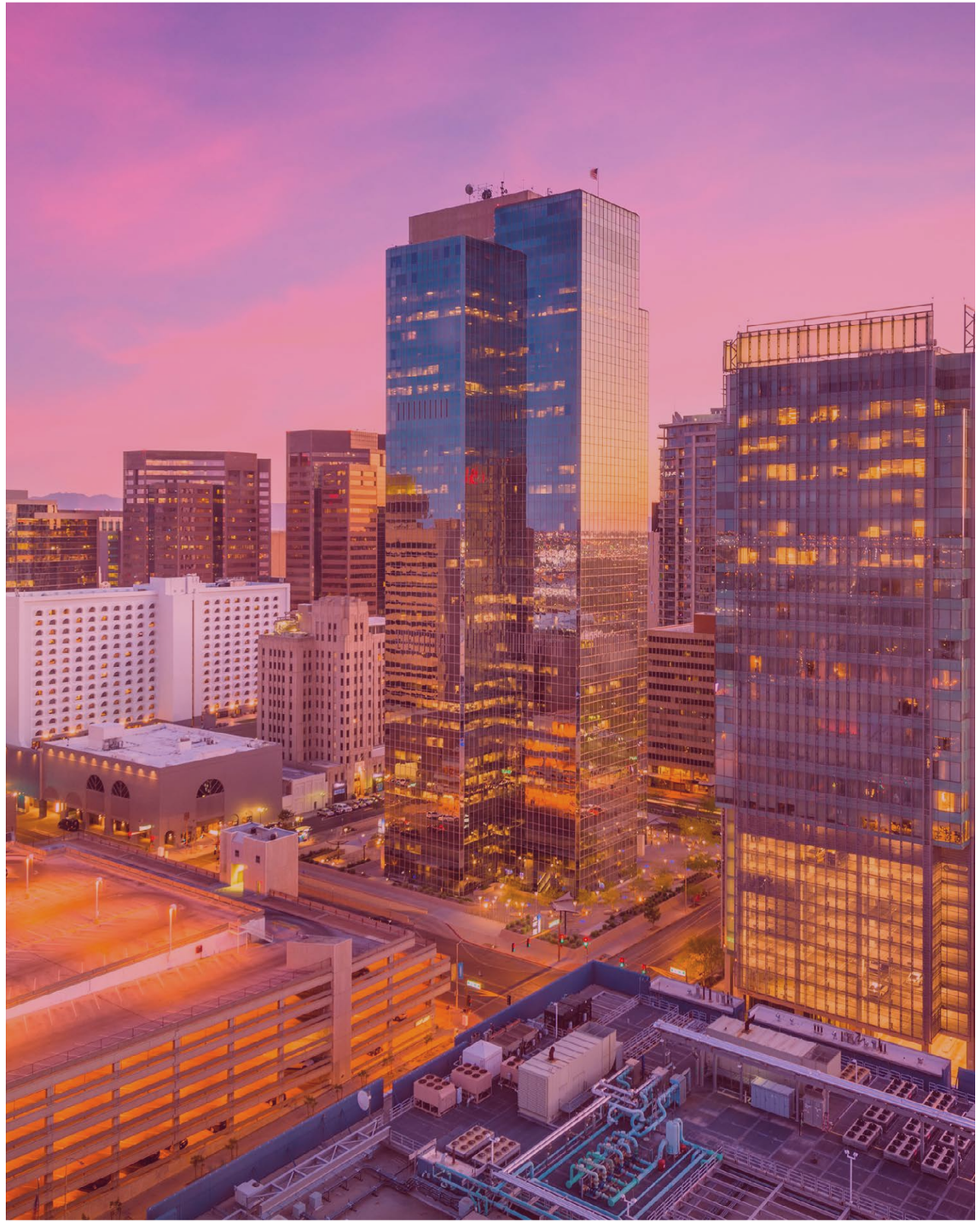
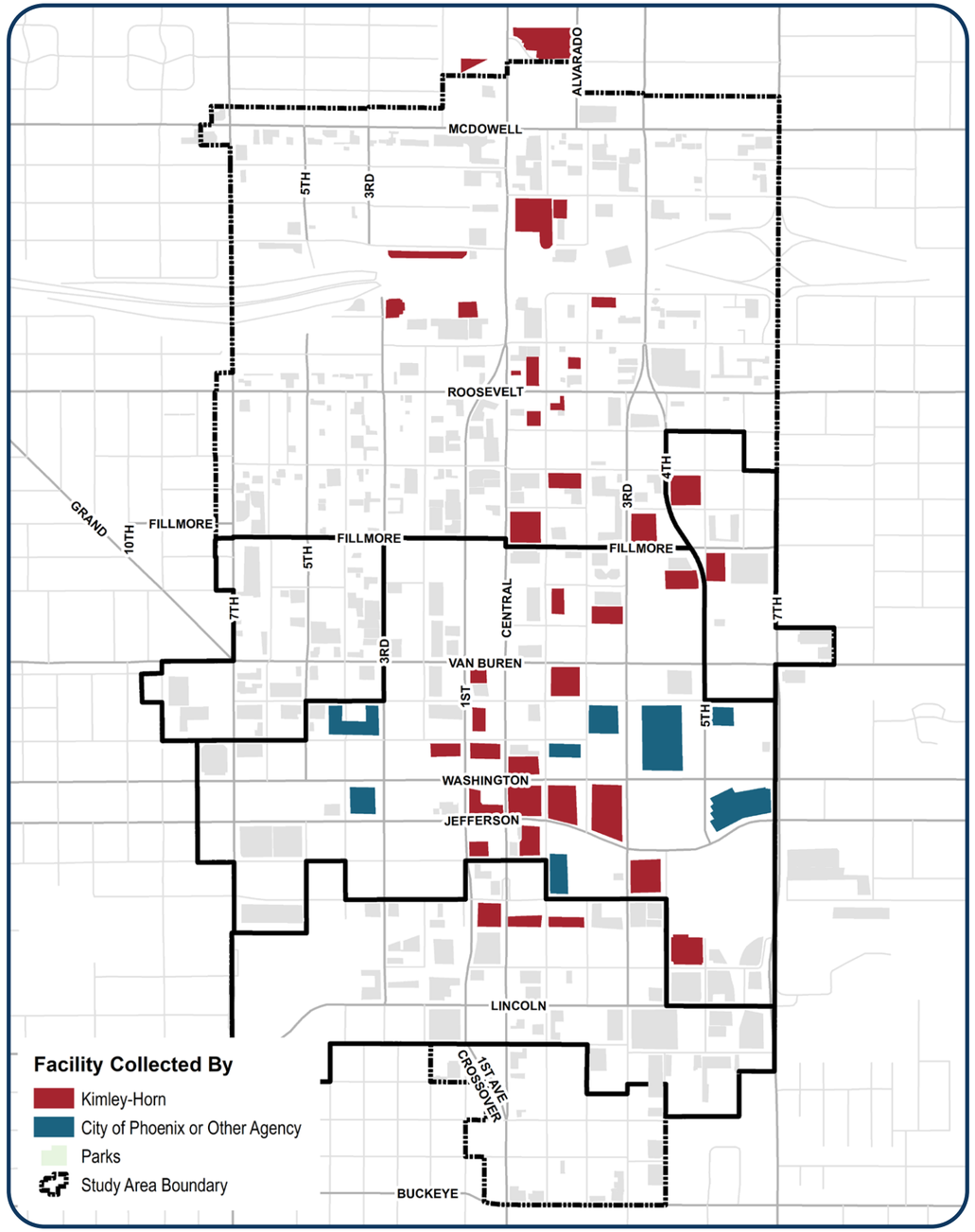


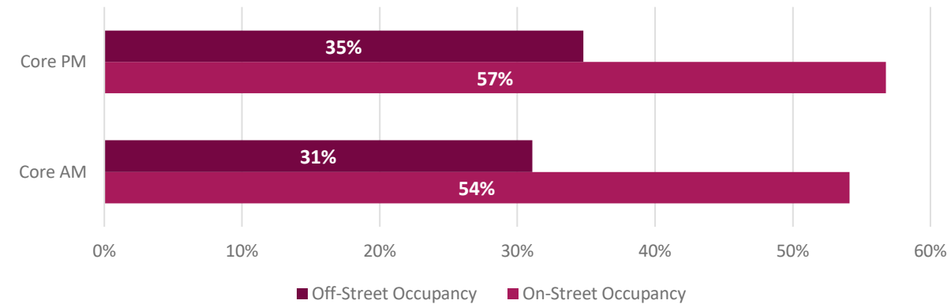
Figure 5. Facility by Collector



Core Area Parking Occupancy

The Core Area was collected in the morning and afternoon to compare typical weekday conditions. The overall occupancy of the collected facilities is shown in **Figure 6**. Parking occupancy by facility for the morning and afternoon are shown in **Figure 7** and **Figure 8**, respectively.

Figure 6. Core Area Weekday Occupancy



Although the observed afternoon occupancy is approximately 4% higher than the morning, the Core Area had substantial parking availability throughout weekday daytime conditions. On-street facilities had a higher occupancy compared to off-street facilities. Well utilized on-street facilities were 1st Street between Jefferson Street and Fillmore Street, and 4th Avenue, south of Fillmore Street.

No off-street facilities were at capacity. Low utilization of the off-street facilities is likely impacted by the change in work routine following COVID-19. Many downtown employers are implementing hybrid schedules or are fully virtually, reducing the number of employees commuting to Downtown Phoenix.

Figure 7. Core Area AM Occupancy

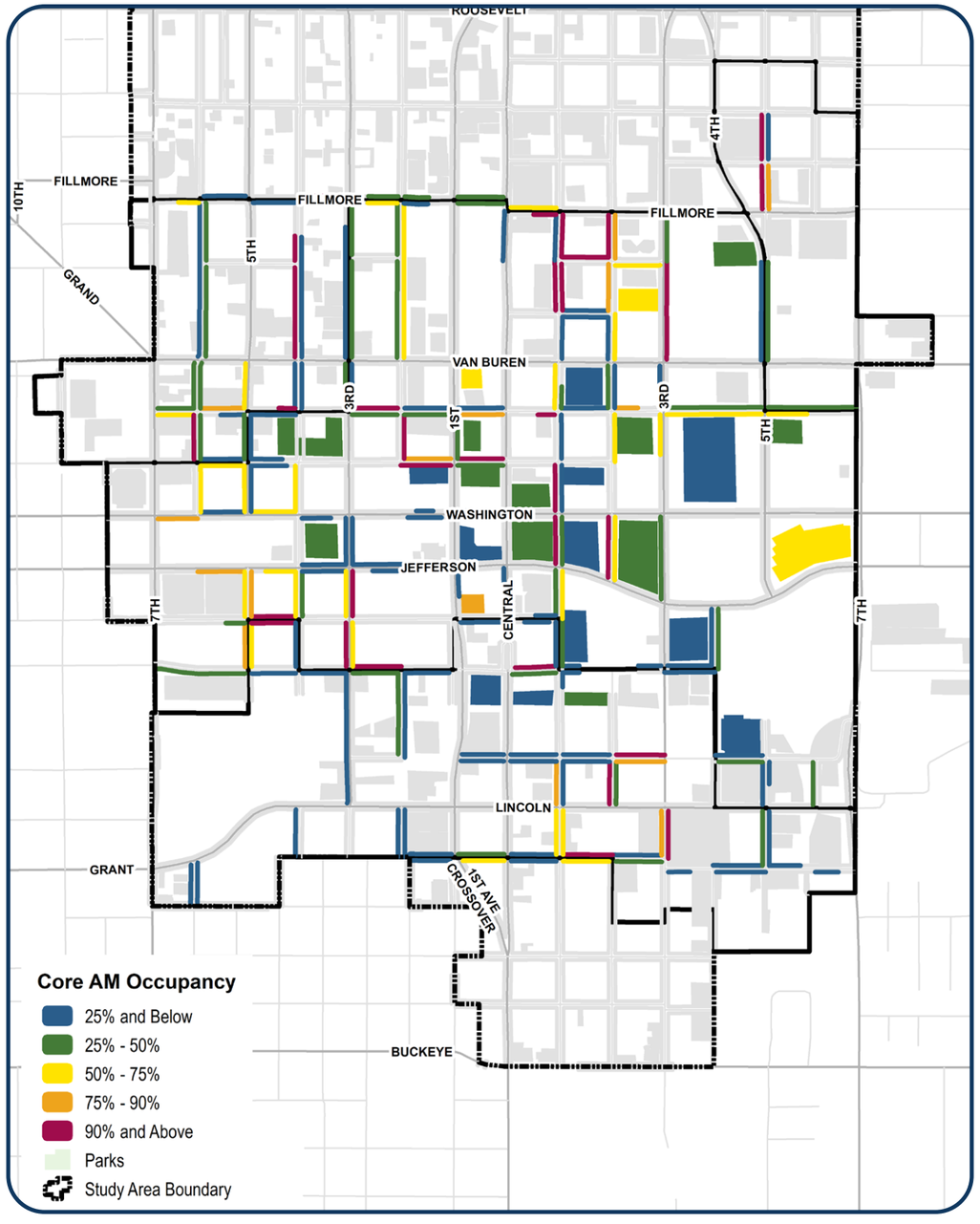
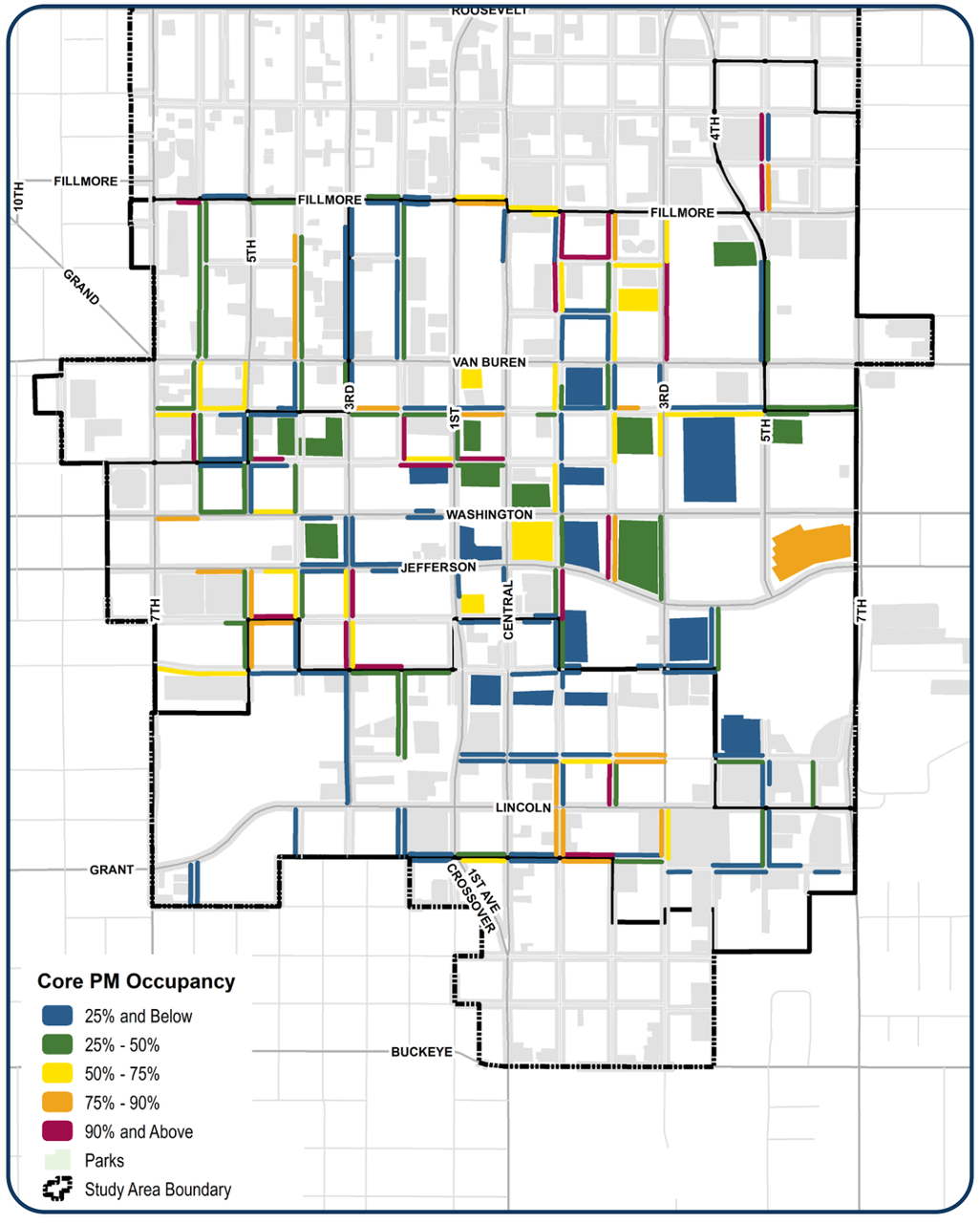
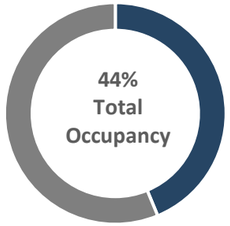


Figure 8. Core Area PM Occupancy



Transition Area Parking Occupancy

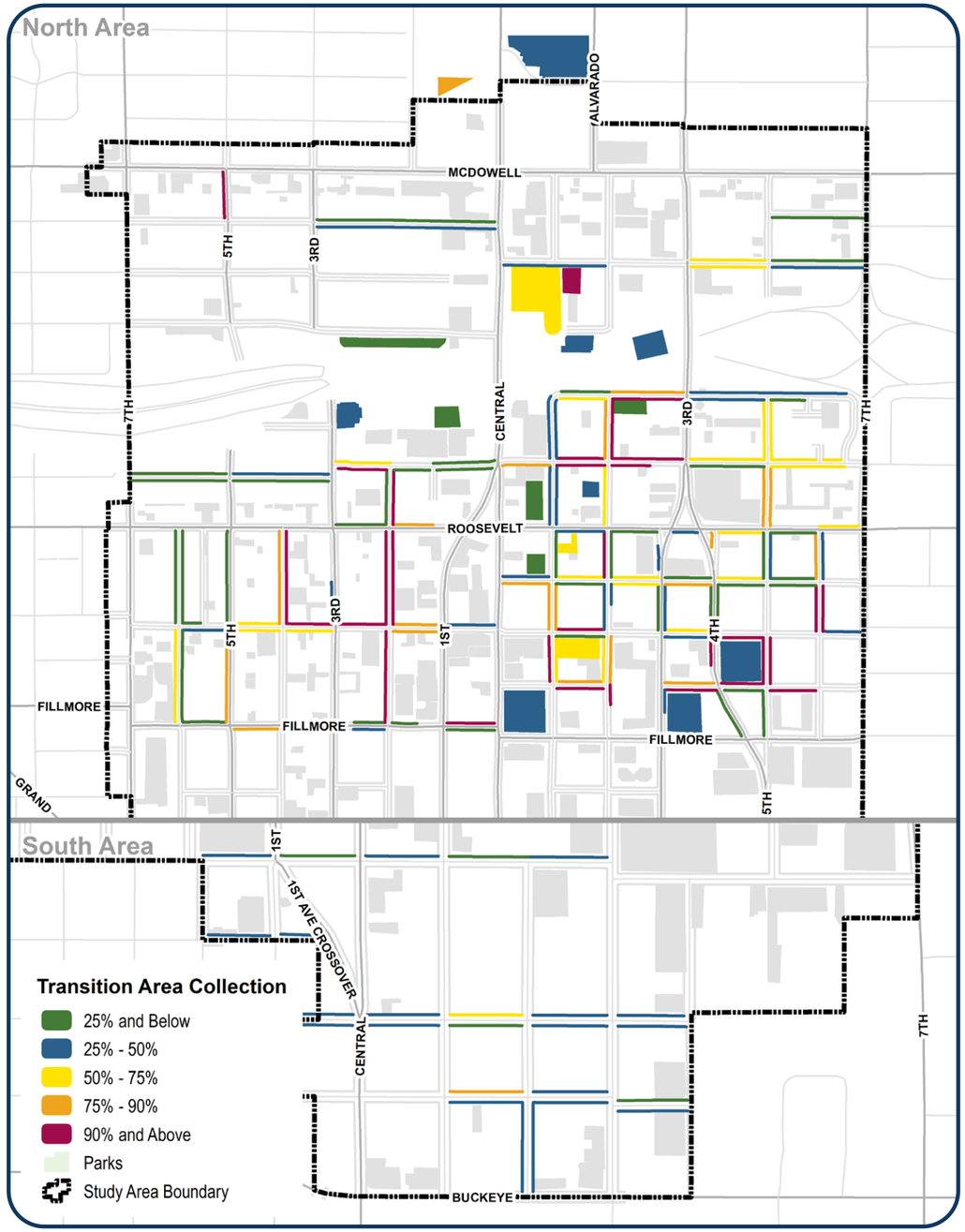
The Transition Area collection shows typical daytime weekday conditions in the study area north and south of the Core Area.



On-street occupancy was 65% and off-street occupancy was approximately 40%. Higher on-street occupancy could be attributed to unregulated on-street parking as well as the proximity to ASU's Downtown Campus.

Figure 9 shows occupancy by facility for the Transition Area collection. The Central Park district south of the Core Area has low on-street parking occupancy compared to the northern portion of the Transition Area.

Figure 9. Transition Area Occupancy



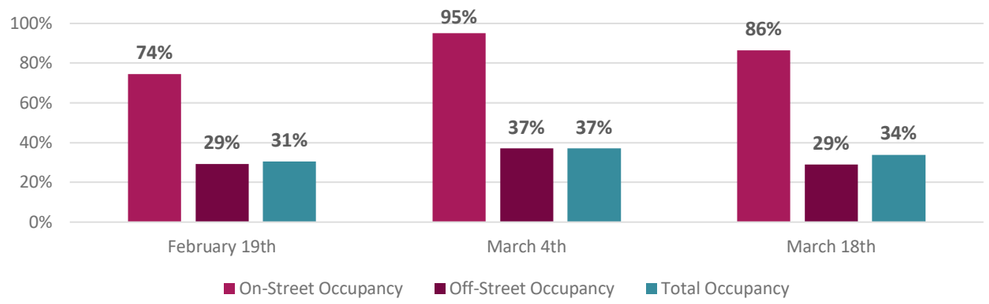
Event Parking Occupancy

Three occupancy collection efforts were undertaken to capture Downtown Phoenix's event conditions:

- February 19th captured the Core Area on a Saturday evening from 5:30 PM to 8:30 PM with events at the Symphony Hall, Orpheum Theater, Arizona Federal Theater, and Phoenix Convention Center.
- March 4th observed peak event conditions in both the Core and Transition areas on a Friday evening from 6:30 PM to 9:30 PM with major events at Hance Park, Footprint Center, and First Friday in Roosevelt Row.
- March 18th captured typical weekend evening occupancy in the neighborhoods surrounding Roosevelt Row.

The observed occupancies from the event collections are shown in **Figure 10**

Figure 10. Event Occupancy



February 19th event collection is shown in **Figure 11**. Most on-street facilities within the Core Area were at effective capacity. Most off-street facilities were underutilized, below 20%. However, some garages south of Jefferson Street were at or over effective capacity.

March 4th event collection is shown in **Figure 12**. On-street facilities were at effective capacity throughout the study area. Off-Street facilities open to the public north of Fillmore Street were largely at or over effective capacity. Off-street facilities within the Core Area were typically underutilized except for the Collier Center and Arena Park Place.

March 18th event collection is shown in **Figure 13**. On-street facilities were typically well utilized, especially near the ASU Downtown Campus and unmetered on-street parking. Off-street facilities were typically underutilized except for the Knipe House parking lot.

Figure 11. February 19th Event Occupancy

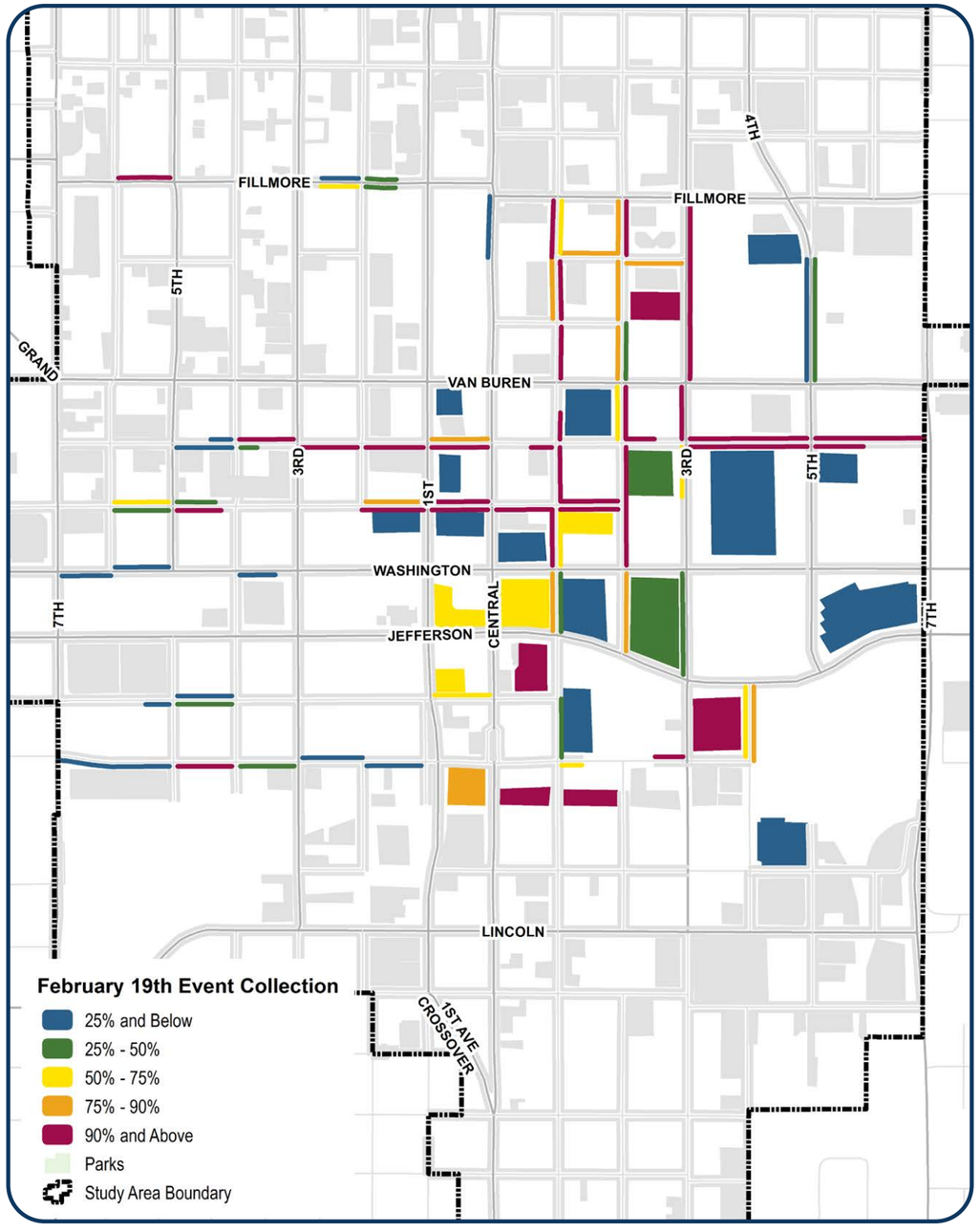


Figure 12. March 4th Event Occupancy

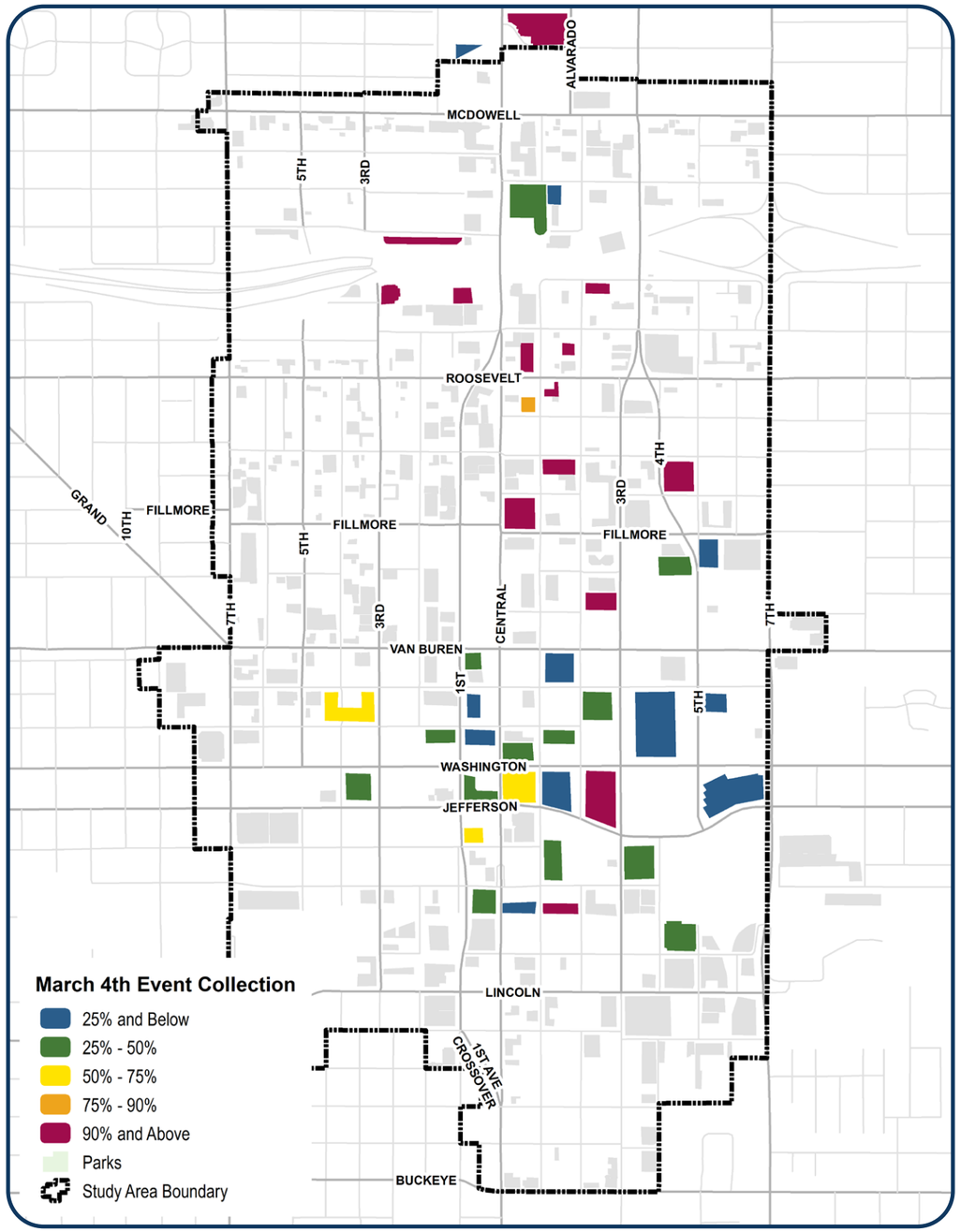
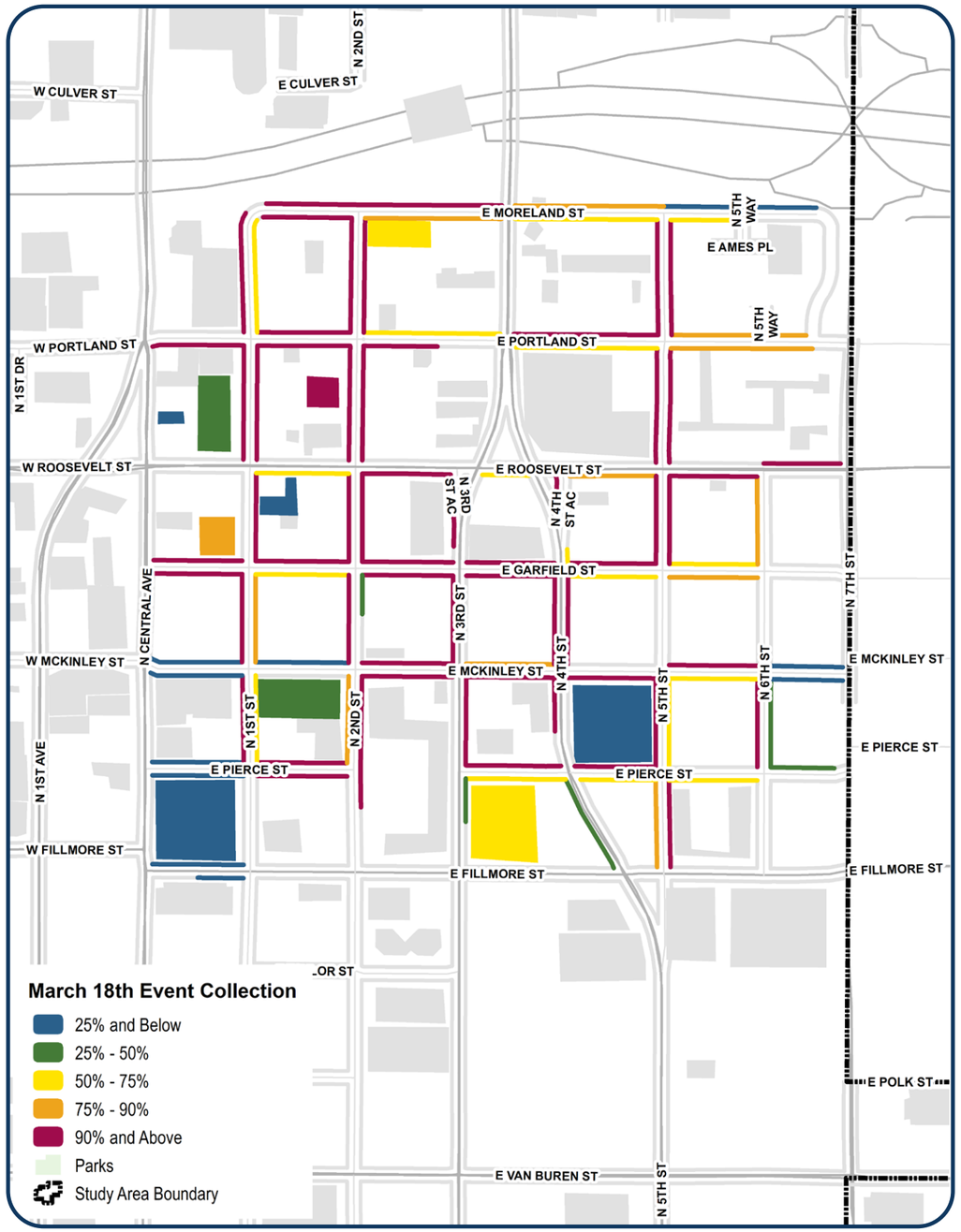


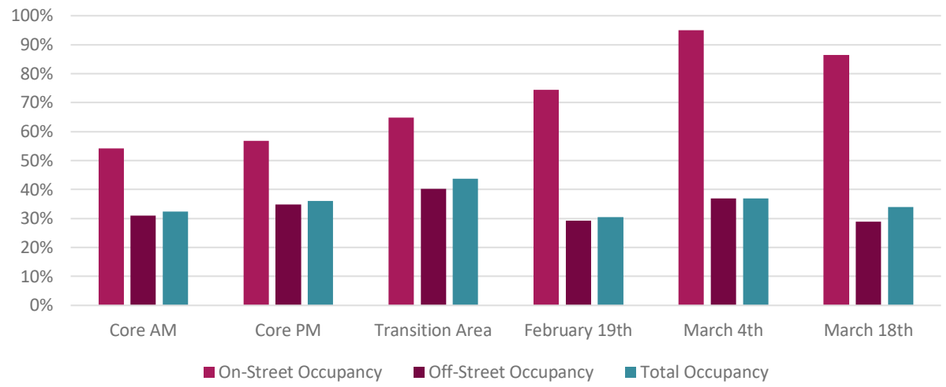
Figure 13. March 18th Event Occupancy



Key Takeaways

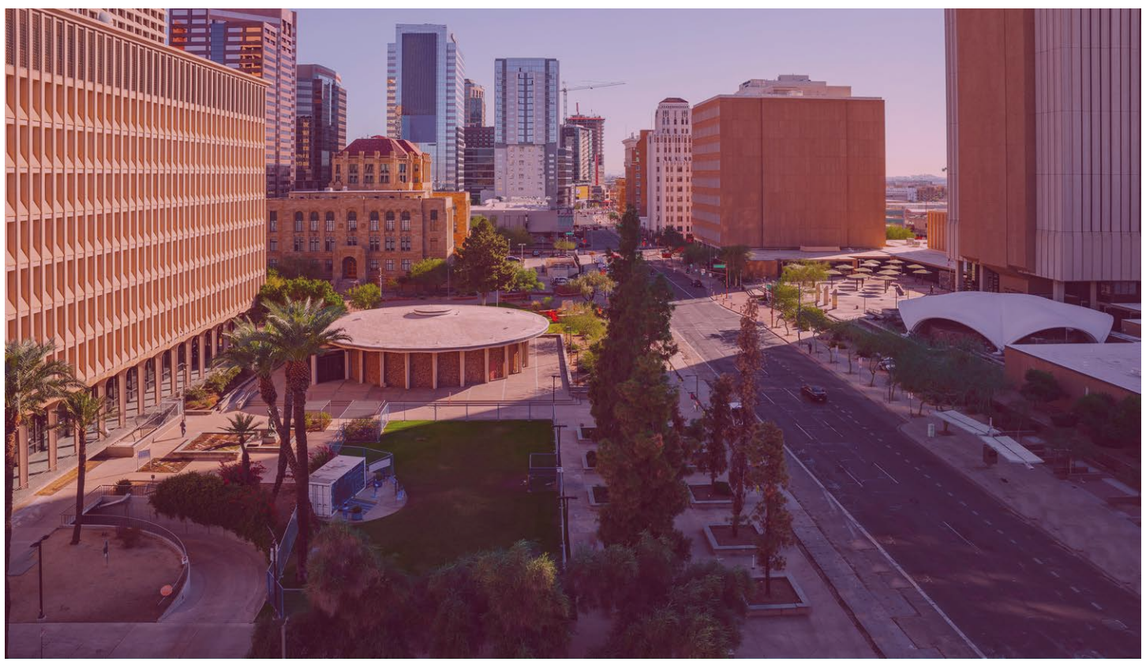
Figure 14 shows a summary of the occupancy for each data collection effort.

Figure 14. Summary of Event Occupancies



Trends identified from data collection efforts include:

- On-Street parking is preferred over off-street parking facilities
- Off-street parking facilities are typically underutilized, even during event conditions
- Unmetered spaces are being filled before metered spaces



Parking Turnover

Parking turnover was collected by selecting 20 on-street parking block faces, 10 in the Core Area and 10 in the Transition Area. Collectors observed parking turnover at each block face in 30-minute intervals from 9:00 AM to 5:00 PM on typical weekday.

Core Area Parking Turnover

The Core Area turnover collection was conducted on the 10 block faces shown in **Figure 15**. All spaces were metered, with a 90-minute time limit. The area had an average turnover of one hour and 23 minutes. The data shows that time restrictions are being followed by users in the Core Area.

Transition Area Parking Turnover

The Transition Area turnover collection was conducted on the 10 flock faces shown in **Figure 16**. The segments along 2nd Avenue are unmetered spaces with no restrictions. The segments selected to the east are metered, with a 90-minute time restriction.

The area had an average turnover of **one hour and 47 minutes**, although the unmetered and metered segments had a large variance in turnover. Unmetered spaces had an average turnover of **four hours and three minutes** and metered spaces had an average turnover of **one hour and 13 minutes**. This variance shows that long-term parkers are using unmetered parking while they are at work or school in the study area.

Key Takeaways

- Metered parking time limits are generally being followed by users
- Unmetered parking has a significantly longer turnover than metered parking spaces, indicating that long-term parkers working or going to school are using these on-street spaces during the day

Figure 15. Core Area Turnover

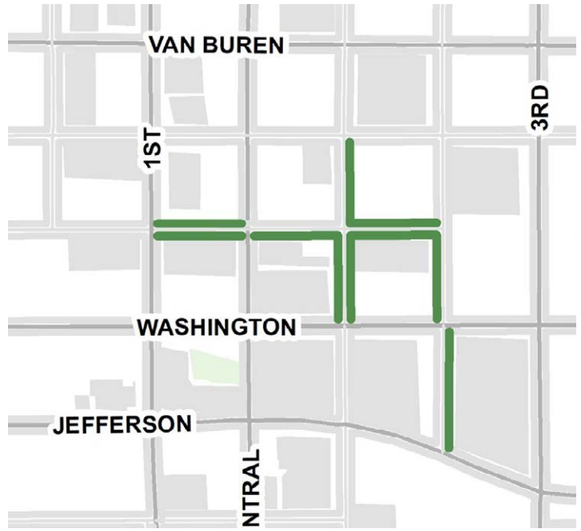
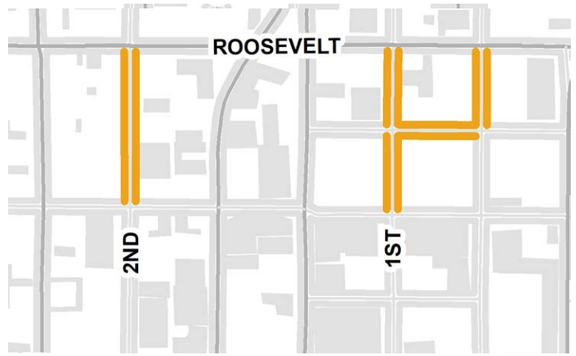


Figure 16. Transition Area Turnover



Public & Stakeholder Engagement

Overview

The Downtown Phoenix Comprehensive Parking Study values integration with community-driven values and goals. The City of Phoenix has engaged and will continue to engage with a wide variety of community members with interest in the study.

The Public and Stakeholder Engagement section highlights public input from:

- Virtual public survey
- In-person stakeholder focus group

Public Survey

A virtual public survey was available from March 18th to May 1st of 2022, with the partnership of Downtown Phoenix, Inc.

Survey Advertisement and Administration

Downtown Phoenix Inc. aided the City of Phoenix in marketing the public survey. The survey targeted downtown residents, employees, and visitors. Prior to the launch of the survey and throughout its duration, the survey was advertised in the form of flyers, posters, direct stakeholder emails, and public facing marketing email communications. The flyer is shown in **Figure 17**.

Figure 17. Survey Flyer

Survey Questions

Below are the questions included in the public survey:

Question 1. What is your primary reason for being in or near Downtown Phoenix? (Select all that apply)	*a. I live in downtown* *b. I work in downtown* *c. I operate a business in downtown* *d. I am a student* *e. I regularly (3+ times a year) visit the downtown area for retail, dining, or entertainment* *f. I visit downtown for special events such as concerts, sporting events, etc.*
Question 2. Who is your employer?	*(Free Response – only asked if Option B or C were selected in Question 1)*
Question 3. What school do you attend?	*(Free Response – only asked if Option D was selected in Question 1)*
Question 4. If you work downtown, do you primarily:	*a. Physically commute and report to work* *b. Telecommute* *c. Use flex schedule (hybrid of in-person and telecommuting)*
Question 5. If you work downtown, when do you typically arrive and depart for work?	*a. I have a traditional full-time workday (ex. 9 a.m. to 5 p.m.)* *b. I work early shifts and arrive early and leave in the afternoon* *c. I work late or overnight shifts* *d. I have a flexible work schedule and my arrival times vary*
Question 5. If you work downtown, when do you typically arrive and depart for work?	*a. I have a traditional full-time workday (ex. 9 a.m. to 5 p.m.)* *b. I work early shifts and arrive early and leave in the afternoon* *c. I work late or overnight shifts* *d. I have a flexible work schedule and my arrival times vary*

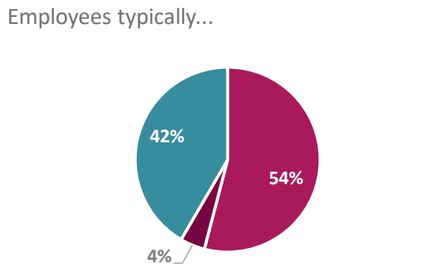
Question 6. If you work or are a student downtown, do you pay for your own parking, or does your employer or school provide parking and/or transportation subsidies?	*a. I pay to park at my workplace or school* *How much per month?* *b. My employer or school provides my parking for free* *c. My employer or school provides a transit pass or similar subsidy* *What type of transit pass or similar subsidy is provided?* *d. My employer or school does not arrange for my parking*
Question 7. If you work or attend school downtown, how many times in a typical day do you move and re-park your car?	*a. 0 times per day* *b. 1-2 times per day* *c. 3-5 times per day* *d. 5 or more times per day*
Question 8. What zip code are you traveling to Downtown Phoenix from?	*(Free Response)*
Question 9. On average, how long does it take you to drive downtown?	*a. 0-5 minutes* *b. 5-10 minutes* *c. 11-15 minutes* *d. 16-20 minutes* *e. 21-30 minutes* *f. More than 30 minutes*
Question 10. What type of parking and/or travel mode do you typically use to access downtown? (Select all that apply)	*a. I don't have a car, so I don't park* *b. I have a car, but primarily use another mode of transportation (rideshare, public transportation, bike, walk, etc.) to access downtown* *c. I have a car, and sometimes use another mode of transportation (rideshare, public transportation, bike, walk, etc.) to access Downtown* *d On-Street Metered* *e. On-Street Free* *f. Garage* *g. Surface Parking Lot*
Question 11. How far away from your destination do you typically park?	*a. Less than 1 block* *b. 1-2 blocks* *c. 3-4 blocks* *d. More than 4 blocks* *e. I usually can't find a parking space* *f. Varies depending on availability*
Question 12. If you work or attend school downtown, how long are you typically parked?	*a. Less than 30 minutes* *b. 30 minutes to 1 hour* *c. 1 to 2 hours* *d. 2 to 3 hours* *e. 3 to 4 hours*

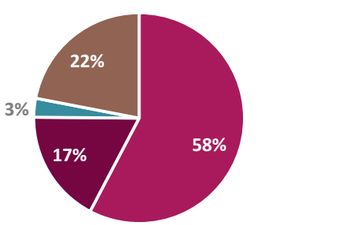
Question 13. What scenario best describes your use of other modes of transportation, besides a car to travel to or within the downtown area:	*a. I drive downtown but then use rideshare, scooter, bike, or walk to get around the downtown area* *b. I carpool/vanpool downtown* *c. I use another form of transportation other than a car to get to or around downtown (i.e., I take rideshare, public transportation, bike, walk etc.)* *d. I do not use other modes of transportation besides a car to travel to or within the downtown area*
Question 14. Please rank how likely the following would convince you to choose other modes of transportation to travel to/within Downtown Phoenix? (1=Lowest Priority, 5=Highest Priority)	*a. More shaded sidewalks and pedestrian amenities (benches, lighting, etc.) (provide some examples of pedestrian amenities)* *b. Increased frequency of transit (increased bus service, increased light rail service, et al.)* *c. Subsidized public transportation fares (from employer or other source)* *d. More bike paths and bike lanes*
Question 15. How do you prioritize the following improvements to parking in the downtown area? (1=Lowest Priority, 5=Highest Priority)	*a. Improved directional signs and wayfinding to parking facilities* *b. Creation of an Online Parking Tool showing all parking locations* *c. Real-time information available in-person and online showing parking availability in each parking facility* *d. Ability to pre-pay for parking via an Online Parking Tool* *e. Improved parking facility lighting and cleanliness* *f. Additional charging stations for electric vehicles* *g. Better pedestrian access into/out of parking facilities to reduce conflicts with vehicles* *h. Improved landscaping in/around parking facilities (i.e., flowers, shade trees, drought tolerant plants)* *i. Installation of public art in/around parking facilities (i.e., murals, interactive pieces)* *j. Improved design features in/around parking facilities (i.e., gateways, decorative lighting)*
Question 16. What is your biggest concern or source of frustration about parking in and near Downtown Phoenix? (1=Least Source, 5=Biggest Source)	*a. Lack of wayfinding to parking facilities/confusion about where to park* *b. Availability of parking spaces* *c. Price of parking* *d. Cleanliness* *e. Parking management and policies (restricted use facilities, lack of continuity among facilities, etc.)* *f. Encourages more driving instead of use of other forms of transportation* *g. Ingress/egress from parking garages* *h. Availability of garages after hours* *i. Special event parking* *j. Safety* *k. Other*

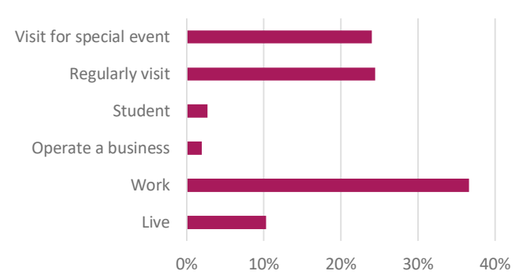
Question 17. What changes would you most like to see made in the parking system of downtown Phoenix? (Select all that apply)	*a. Improved directional signs and wayfinding to parking facilities* *b. Creation of an Online Parking Tool showing all parking locations* *c. Real-time information available in-person and online showing parking availability in each parking facility* *d. Ability to pre-pay for parking via an Online Parking Tool* *e. Improved parking facility lighting and cleanliness* *f. Additional charging stations for electric vehicles* *g. Better pedestrian access into/out of parking facilities to reduce conflicts with vehicles* *h. Improved landscaping in/around parking facilities (i.e., flowers, shade trees, drought tolerant plants)* *i. Installation of public art in/around parking facilities (i.e., murals, interactive pieces)* *j. Improved design features in/around parking facilities (i.e., gateways, decorative lighting)*

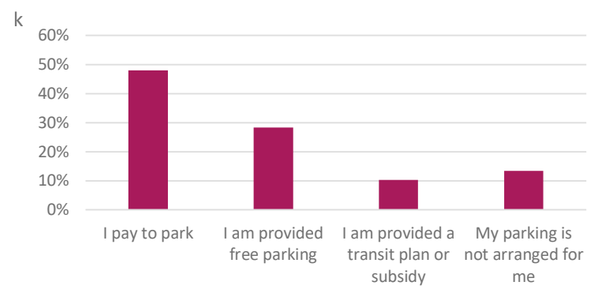
Survey Results

The survey generated **1,587 responses** over the collection period. Respondents reported that they were employed by a variety of companies including representatives from universities in the study area, government staff, Upgrade Inc, WebPT, and a variety of local businesses. Public opinion from the survey questions above are summarized within this section.



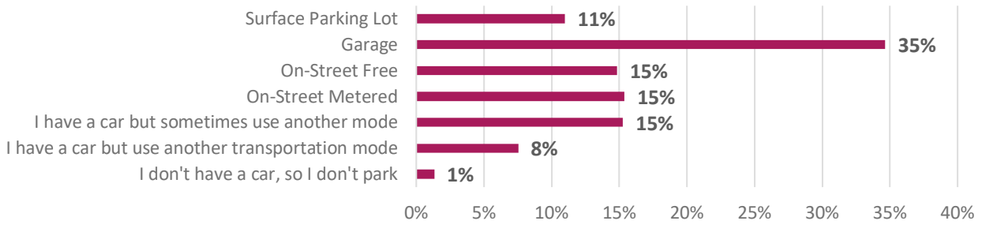




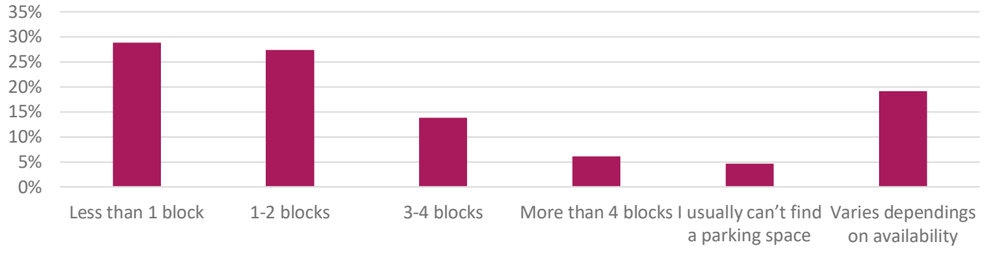


- The most common subsidy provided is a monthly parking pass (55%)
- 77% of Employees and students do not need to move their vehicle throughout the day
- 28% of respondents have a 30+ minute commute

Parking locations include...



Respondents typically park...



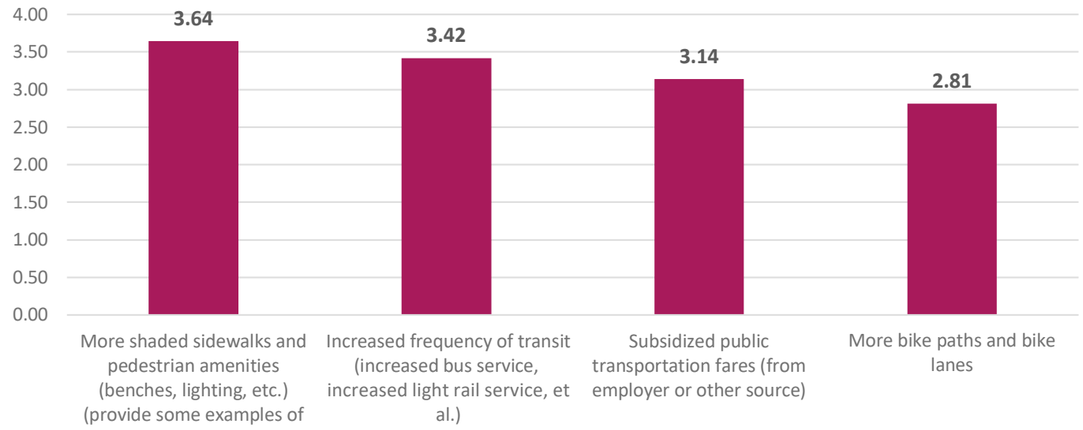
and are typically parked for...

The largest proportion of respondents reported that they do not use other modes of travel besides a personal vehicle to travel downtown, at 41%. When asked why they do not utilize alternative transportation methods, common responses included:

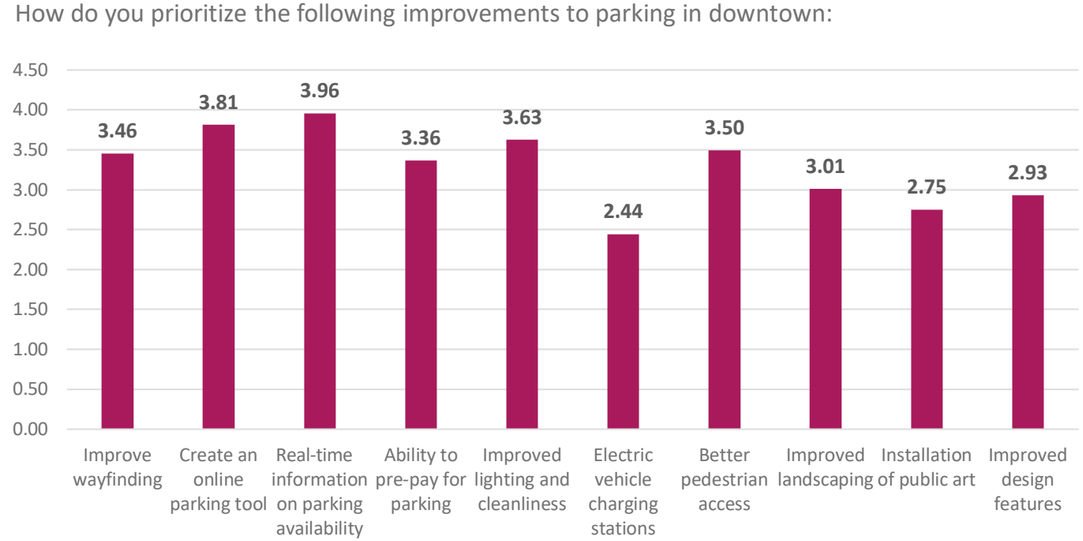
- Cost (too expensive)
- Inconvenience (too far, transit not near destinations)
- Parking is easy to find
- COVID-19 impacts
- Safety concerns

Respondents were asked to rank their opinions on the following topics:
(1=Lowest, 5=Highest)

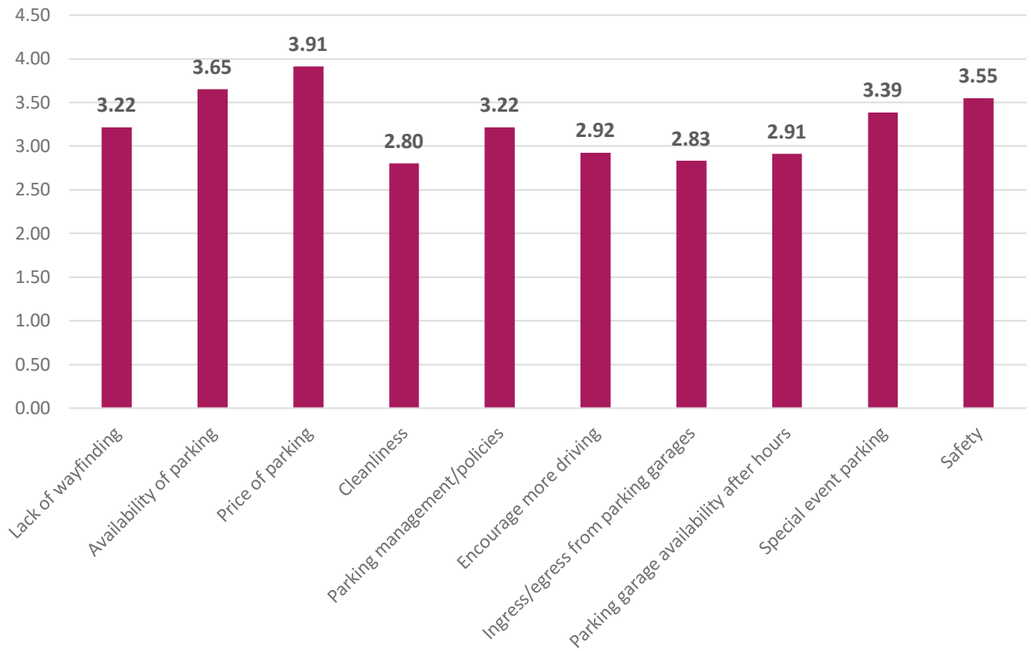
How likely would the following convince you to choose other modes of transportation to travel to/within downtown Phoenix:



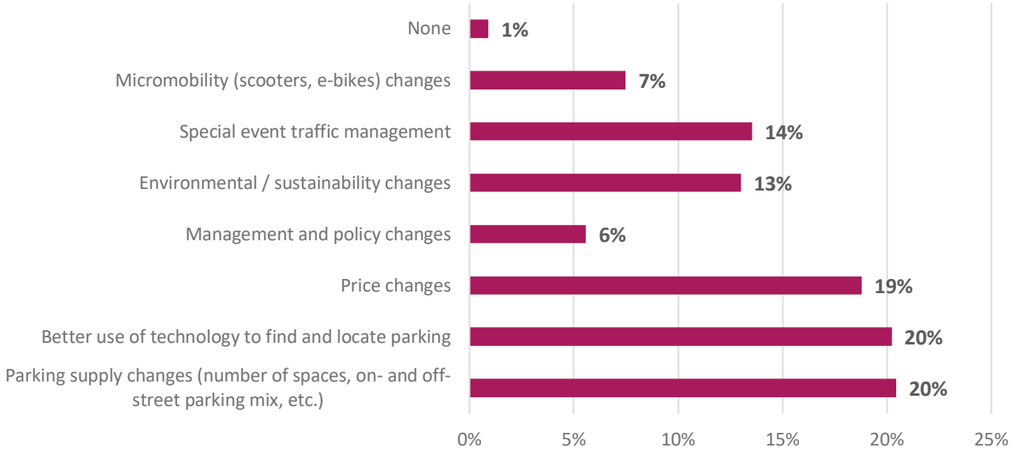
How do you prioritize the following improvements to parking in downtown:



What is your biggest concern about parking in downtown?



Respondents are most interested in seeing the following changes:



Key Takeaways

- Most respondents work downtown with physical commuting with a traditional work schedule.
- Parking subsidies are not common among respondents' employers and schools.
- The largest share of respondents uses a personal vehicle to access downtown.
- Respondents typically choose to park in a garage and do not move their car during their trip. The average respondent is parked from two to three hours per trip.
- Investment in pedestrian amenities and improving streetscapes are most likely to change perceptions of alternative modes of transportation of the provided options.
- There is a need for real-time parking tools to aid users.
- The cost of parking is a concern for most respondents.

Stakeholder Focus Group

The project team hosted a focus group to engage key stakeholders in Downtown Phoenix using hands on activities. The focus group was held on Friday, April 29th, 2022, at Downtown Phoenix Inc from 8:30 AM to 11:30 AM.

Focus Group Participants

The focus group comprised a wide variety of key stakeholders in the Downtown Phoenix community, allowing the project team to better understand their individual needs and wants from the downtown parking system. Representatives were present from:

- City of Phoenix
- Phoenix Police Department
- Urban Phoenix Project
- Downtown Voices
- Downtown Phoenix Inc.
- University of Arizona
- Arizona State University
- Bioscience High School
- Valley Bar/Crescent
- AWS
- Upgrade Inc.
- Kimpton Hotel Palomar
- Phoenix Convention Center
- Greenwood Brewing
- ACE Parking

Focus Group Activities and Results

A variety of activities were conducted with focus group participants to capture the needs of the stakeholders and to spark conversation. An overview of the activities and associated discussions is below.

Comprehensive Parking Study/Parking Master Plan Overview

The project team presented a brief overview of the study scope of work, survey results to date, and conclusions drawn from the data collection efforts.

Current Operations and Challenges

To better understand the current conditions and challenges associated with the parking system, the project team worked through a variety of activities including Current Conditions Polling and Problem and Opportunity Area Identification.

Current Conditions Polling

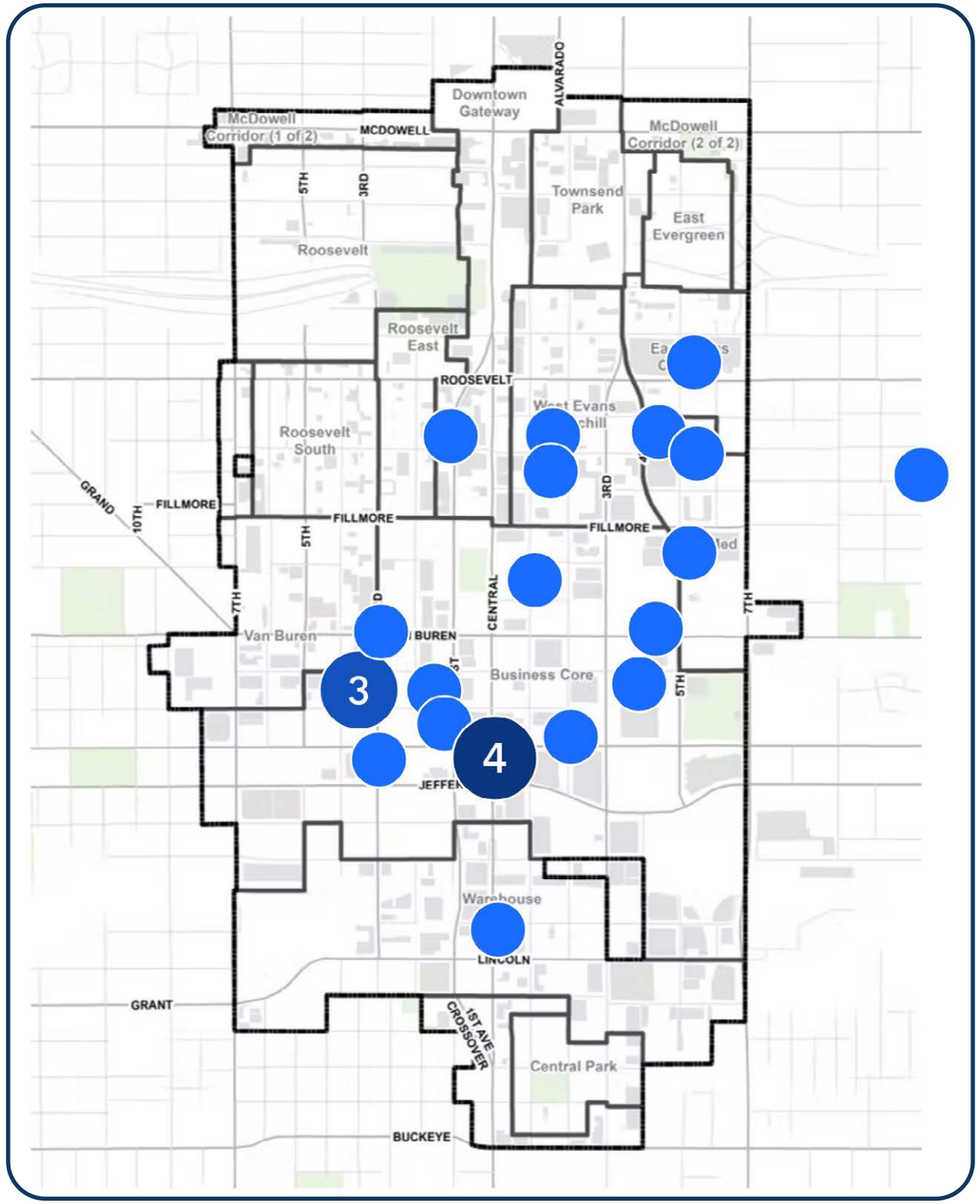
Current conditions live polling was recorded through an interactive software, having participants answer questions on their smartphones. The current conditions polling was intended to identify the stakeholders' existing parking habits, opinions, and needs.

Results

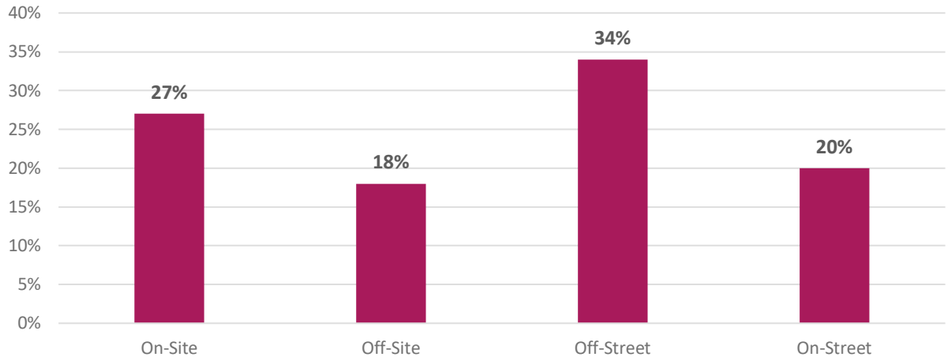
Where do you/your employees/your students/your customers park?

Figure 18 shows where stakeholders utilize parking in the study area. High concentrations of markers are within the Core Area, with a significant number near Washington Street and Central Avenue or 3rd Avenue and Monroe Street. Markers were also placed in the Transition Area but did not go north of Roosevelt Street or west of 3rd Avenue.

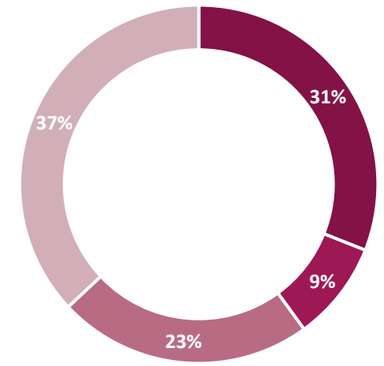
Figure 18. Stakeholder Parking Location



Is your parking on-site or off-site? Off-street or on-street?



What kind of parking agreements do you have with third parties?



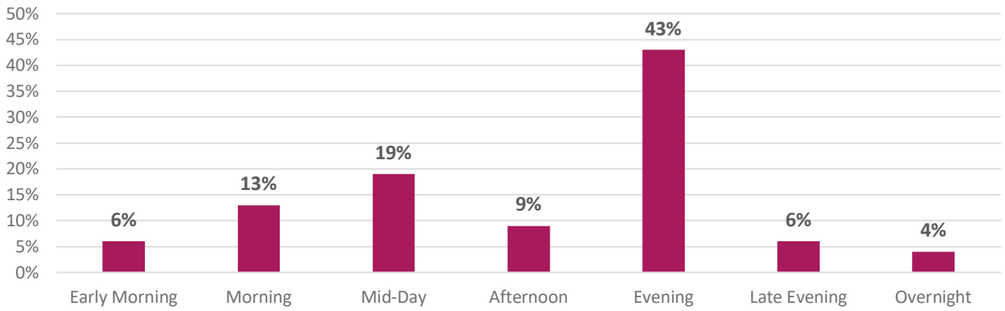
Participants shared that they have the following types of parking agreements:

- Agreements with the City of Phoenix to use on-street spaces that they build and maintain.
- Arizona State University leases parking from third-party providers to provide students with parking.
- Some agreements require students to leave by 5:00 PM which results in parking challenges.
- Shared parking agreements with other parking owners. There have been issues with a lack of monitoring so when the parking facility gets busy, there are not spots available for the reserved spots.

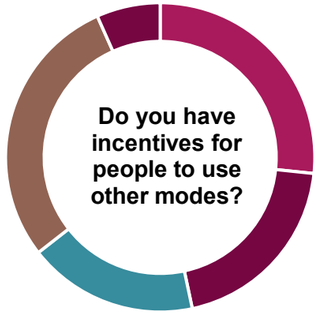
Is your parking constrained? (1= Strongly No, 5=Strongly Yes)

Respondents noted that current parking conditions are not typical and recommended putting an emphasis on pre-COVID parking conditions.

Are there times where parking is particularly difficult?



The time of day reported to be most challenging for parking is highly skewed towards the evening, especially difficult when events are occurring downtown.



In three words or less, what is your main concern in relation to parking in Downtown Phoenix?

Maximizing existing investments	Participants shared that they have requested better management of existing parking and some have advocated for the removal of parking minimums. The group discussed that parking is a "balancing act" to meet the needs of a wide variety of users.
Light Rail expansion/increased transit accessibility	There may be some additional mode shift with an increase in transit accessibility so parking ratios may not need to be as high in the future.
Real-time parking availability	All of the publicly available parking systems would have to collaborate, using the same app, if this were to be successful. Implementation of this technology would get people off the streets and parked quicker.

Curb management	Fifteen-minute parking restrictions are remaining flexible to ensure success for loading zones and pickups. There is a need for 15-minute parking in the Roosevelt Row area, since that area has a lack of short-term parking.
Core Area vs. Transition Area Needs	In the Core Area, there are more parking facilities, whereas Roosevelt does not have as many parking facilities. A common occurrence in the Roosevelt Row area is residents parking on the street. There are also wayfinding issues in this area.
Core Area vs. Transition Area Needs Wayfinding	When visitors come to downtown, especially to go to the courts, there is a lack of guidance on where to park and often causes them to miss important meetings. There is also a large need to consider wayfinding solutions for those who do not speak English.

Problem and Opportunity Area Identification

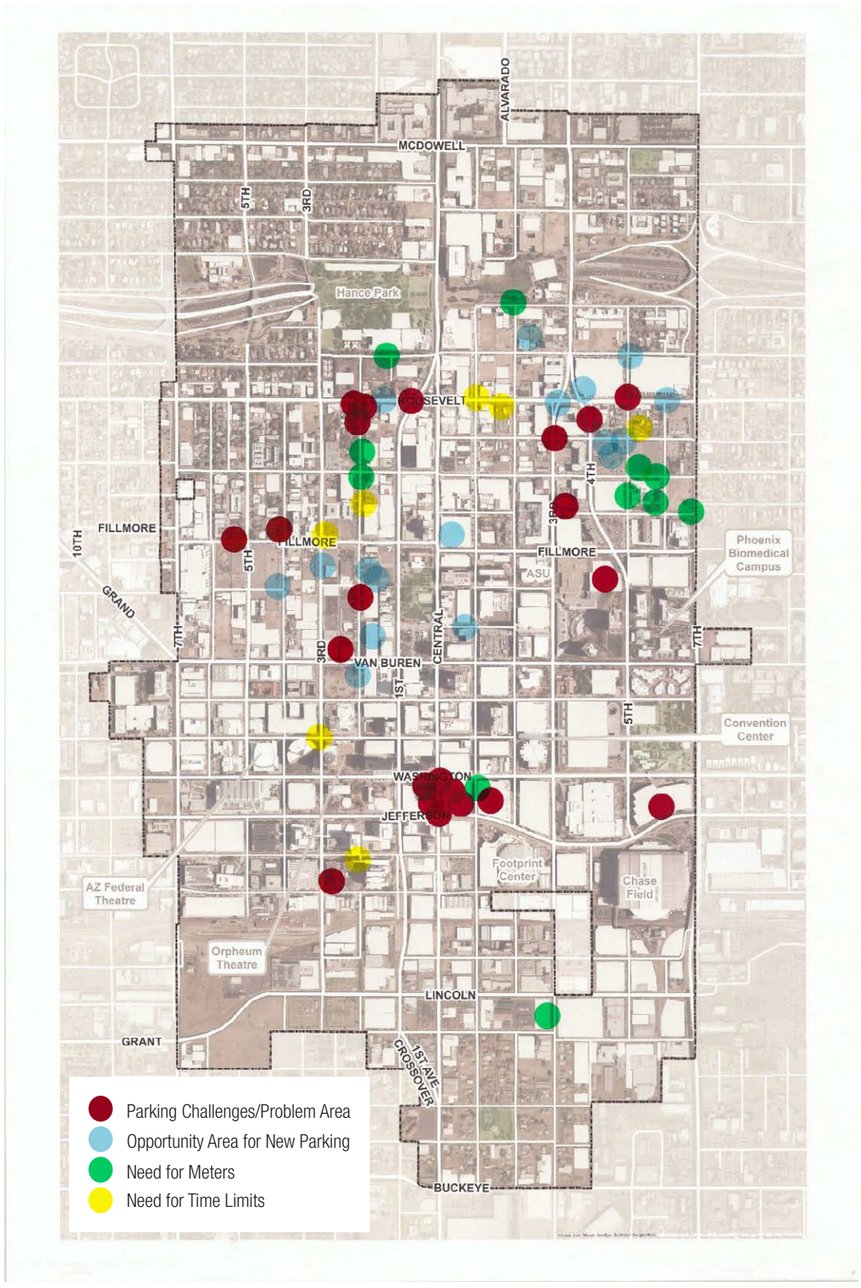
Stakeholders were invited to identify a variety of 'areas' within the study area using colored dots. This activity was meant to aid in discussion of existing problem and opportunity areas to help guide the future considerations and recommendations.

Participants were asked to identify problem and opportunity areas using an individually colored sticker for each of the categories:

1. Red: parking challenges/problem area
2. Blue: opportunity area for new parking
3. Green: need for meters
4. Yellow: need for time limits

The results of this activity are shown in **Figure 19**. Participants shared that 2nd Avenue is a main corridor that is anticipated to be needing assessment in the future. Significant development is occurring in this area and there is a lot of parking there already. Strategies should be identified to how to integrate the parking in this area to be more shared.

Figure 19. Problem and Opportunity Area Identification

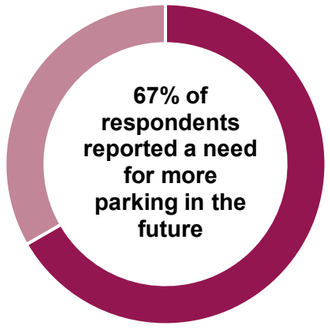


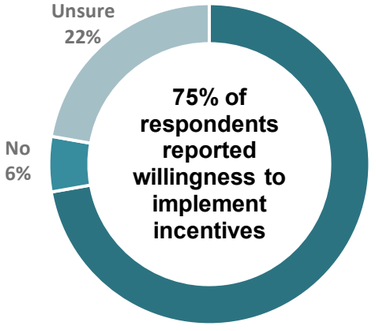
Future Conditions Polling

Following the discussion of existing parking conditions and challenges, a future conditions polling activity was performed to assess the priorities of the stakeholders in the coming years.

Results

In three words or less, what is your main parking concern for the future?





Respondents reported the importance of considering the partial workday shift that is occurring. To support this shift, various parking garages downtown are providing a flex program, which allows employees to reload a pass to use as needed and still receive a discounted rate on parking.

Multiple participants reported currently exploring light rail incentives for their employees or students. Employers shared that parking garages available are not within a desirable walking distance of their office locations, so there is an additional interest in alternative modes of transportation and micromobility.

What could the City do to help address parking concerns?

Participants were asked to provide short responses on what they believe the City of Phoenix could do to mitigate their parking issues. The submitted results are shown in the colored boxes below.

- Less lane restrictions during high event times
- Better signage & wayfinding
- Add more meters
- Coordinate and communicate
- Leverage technology and partnerships
- Better road construction management during peak entry and exit times
- A shared app that has live parking info
- Parking App
- More dedicated sustainable transit options to reduce parking demand
- Help pool area operators to better share resources, technology
- Developmental design enforcement
- More parking & parking meters
- Parking app
- Come up with a solution of shared parking to better utilize current spaces and less reserved parking spaces
- Safe parking surroundings. Wayfinding tech system. Shuttle services. Bike parking
- Incorporate public, bike infrastructure, and streetscape plan with the parking plan
- Parking App
- Give non-car users the same priority as car users
- Remove mandatory parking minimums so that dense development can be built. Building mixed-use buildings with housing and commerce, not parking lots. More people given the option to leave cars=less need for parking like the Dutch did.
- Parking & parking meters
- Parking app / walkability, shaded sidewalks
- Parking app

Discussion

Perimeter parking concept	Participants shared that perimeter transport (having people park at the periphery of downtown and then shuttle them to locations in the Core Area) should be assessed as there is significant space outside of downtown that can be leveraged to remove demand from the Core Area.
Public vs. private parking confusion	Participants stated that it can be unclear what parking is available to the public, especially lots managed by Arizona State University. ▸ A mitigation strategy could be putting a resource on the City's or Downtown Phoenix Inc.'s website to show public parking options. ▸ There is a need for better branding, wayfinding, and information on parking.
Mobile parking application	Inconsistency with the capabilities the current mobile payment platform has at metered spaces cause confusion for visitors. A need for consistency in wayfinding was highlighted.
Parking minimums	Some would be opposed to increased parking minimums or maintaining the status quo for new developments because they will make it difficult to make Downtown Phoenix a more walkable community. However, other participants thought that more parking would help businesses bring in customers from other parts of the Valley and relying on other modes may not be feasible in the short term.

Key Takeaways

- Parking management strategies for local business customers during special events is needed so they do not have to pay event prices for unrelated trips. A solution may be adding more time-limited parking spaces.
- Maximize use of existing parking facilities before building new parking.
- There is a need for improved signage and wayfinding. Real-time parking tools should be explored to provide visitors with a spot identification and wayfinding resource. All publicly available parking systems would need to use the same app for this technology to be successful.
- Participants were supportive of incentivizing parking management strategies and noted the need for increased transit use and more shared parking in the future.

Parking Strategies & Evaluation

Overview

Parking and mobility is a core factor for the user experience in the City of Phoenix. 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 Phoenix'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 section contains various strategic policies for consideration. Each policy is presented with sub-topics for consideration, listed below:

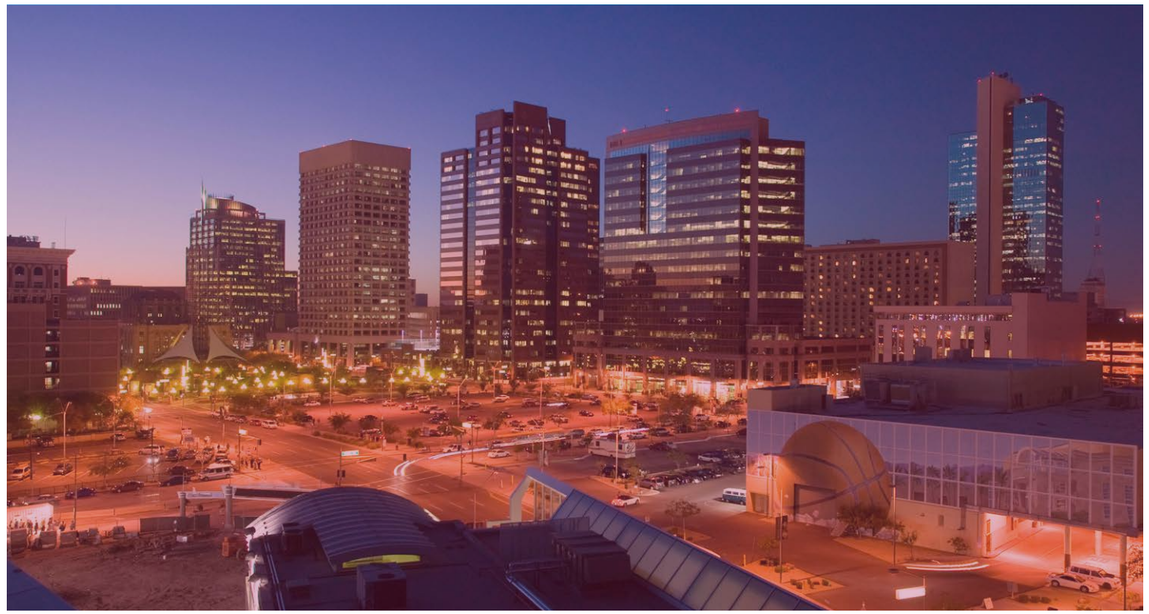
- *Intended Benefits*
- *Potential Challenges*
- *Required Changes (policy, practice, code)*
- *Technology Support and Opportunities*
- *Potential Cost (capital and ongoing)*
- *Implementation Steps*
- *Supporting Strategies*
- *Key Partnerships*
- *Performance Metrics*

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

- Develop an integrated parking and mobility program within the City.
- Define and support balanced access into Downtown Phoenix.
- Redistribute parking demands to alternative modes or lower demand areas.
- Support a more holistic look at mobility in Downtown Phoenix.
- 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.
- Prioritize access for various areas of Downtown Phoenix among different types of users.
- Use the parking system to promote and support advanced transportation options.
- Reduce single-occupant commute trips into Downtown Phoenix.
- Enhance the City's organizational capacity to effectively manage the parking and mobility program.

Summary of Parking Strategies for Consideration

- Promote Efficiency through Parking Codes/ Ordinances/Policies
- Sunburst Event Management Plan(s)
- Data-driven Policies to Support Balanced System Utilization
- Parking System Organization
- Leverage and Enhance Parking Technology
- Improve Wayfinding, Branding, and Messaging
- Dynamic Curb Lane Management Policies
- Enhanced Residential Parking Practices
- Parking Investment Strategy
- Improved Bicycle/Pedestrian Environment
- Improved Transit Access to Downtown Phoenix
- Evaluate and Standardize Parking Rates



Parking Strategies

Promote Efficiency through Parking Codes/Ordinances/Policies

Description

Defines policies and practices that support the vision of Downtown Phoenix through parking requirements and provisions by removing minimum parking requirements in certain areas, 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 Downtown Form-Based 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

- Data-driven policies to support balanced system utilization
- Leverage and enhance parking technology
- Dynamic Curb Lane Management policies
- Parking investment strategy

Key Partnerships

- City Planning and Development 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.
2. Monitor the parking occupancy related to development annually.
3. Revise parking requirements as necessary based on monitoring.
4. Collect and implement fee in-lieu to support shared centralized parking for development.

Sunburst Event Management Plan Update

Description

The Downtown Phoenix Events Management Plan, also known as the "Sunburst" Plan, was originally developed in the 1990s to provide a plan for getting traffic from the regional freeway system to parking for events of various sizes. A full update to this plan would incorporate changes to capacity and access from ongoing light rail construction, new event venue locations and uses, and new technologies to help direct traffic to and from major parking facilities.

Intended Benefits

- Reduce waiting time for event parking ingress and egress.
- Use technology advances to reduce the need for police resources.
- Improve the use of underutilized parking facilities for events.
- Improve the visitor experience for events downtown.

Potential Challenges

- Would require coordination with private parking facility owners to establish consistent availability of event parking supplies.
- Unknown long-term impact of COVID-19 on event attendance.
- Ongoing updates needed to react to future roadway capacity, access, and land use changes.

Required Changes (policy, practice)

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

Technology Support and Opportunities

Utilize dynamic messaging and wayfinding signs for directing traffic to and from parking facilities, indicating temporary lane controls such as extra turn lanes or contraflow lanes, and incorporating dynamic parking availability at facility entrances and remotely at the Traffic Management Center (TMC).

Potential Costs (capital and ongoing)

- Sunburst Plan update (**$125,000 to $250,000** depending on level of traffic modeling and number of scenarios utilizing the VISSIM traffic simulation model developed for the Downtown Transportation Plan Update.)
- Technology cost (**TBD** based on recommendations from Sunburst Plan Update)

Supporting Strategies

- Data-driven policies to support balanced system Utilization
- Parking system organization
- Leverage and enhance parking technology
- Improved wayfinding, branding, and messaging

Key Partnerships

- City of Phoenix Street Transportation Department
- Private parking facility owners

Performance Metrics

- Average travel time from regional freeways to parking facilities and vice versa
- Delay at signalized intersections
- Reduced pedestrian/transit/vehicle conflicts

Implementation Steps

1. Work with the Street Transportation Department to scope and budget for the Sunburst Plan Update and procure a consultant.
2. Conduct the Sunburst Plan Update and establish a list of preferred recommendations, including technology, wayfinding, and management practices.
3. Procure technology improvements for signage, traffic signals, and parking facilities.
4. Establish communications and management protocols for various event sizes and locations.
5. Continually evaluate traffic performance after implementation to identify potential minor changes to event plans.

Data-Driven Policies to Support Balanced System Utilization

Description

Data-driven policies can be used to justify and encourage dynamic pricing and policies, improve marketing, wayfinding, and branding, and create better connectivity in Downtown Phoenix. This 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-utilization 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 data. Reserve the ability to change rates periodically without Council approval (using pre-defined rate ceilings and floors).

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.

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 changes (**$100K per year**).

Supporting Strategies

- Improve transit access to downtown Phoenix
- Leverage and enhance parking technology
- Dynamic curb lane management policies

Key Partnerships

- Business community
- City leadership

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 and education campaigns.

Parking System Organization

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.

Importance of having everything under one department:

- Ability to align policies and programs to support one common vision.
- Ability to utilize technologies and management tools to actively balance parking demand and access.
- 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 among 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.

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 in Downtown Phoenix.

Potential Challenges

- Consensus among departments to consolidate parking and transportation services.
- Decisions to in-source or out-source.
- Consolidating management under one person.
- Policy changes for bond-funded garages.*

Required Changes (policy, practice)

The City will need a reorganization of departments into one centralized location, and reassignment of outsourced contracts under centralized organization.

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 to $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 report through partnership and collaboration.

Key Partnerships

- City Property Department -Real Estate Division
- Community & Economic Development Department
- Streets Department
- Public Works Department
- Finance Department
- City leadership

Performance Metrics

- Program revenue
- System-wide and facility-based occupancy
- Customer satisfaction

Parking Strategies & Evaluation

Implementation Steps

1. Council approval for consolidation of all parking functions under one department.
2. Define appropriate organizational structure.
3. Hire a parking manager and consider whether to in-source or out-source operations.
4. Consider other parking positions like: accounting, operations manager, data scientists, and marketing/communications.

** The City of Phoenix has two bond funded garages, the 305 Garage and The Adams Street Garage, which heavily restricts the City's authority to alter pricing and space availability commitment thresholds while the bonds are active.*

Leverage and Enhance Parking Technology

Description

Data-driven policies can be used to justify and encourage dynamic pricing and policies, improve marketing, wayfinding, and branding, and create better connectivity in Downtown Phoenix. They help to better allocate parking demand to reduce congestion into and around specific parking facilities.

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 smartphone 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.

Technology Support and Opportunities

Smartphone applications and LPR for enforcement and ongoing data management are important technology pieces to improve the system.

Potential Costs (capital and ongoing)

- 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 to $50K per vehicle; $20K to $30K annual software costs**)

Supporting Strategies

- Consolidate parking management into one department
- Dynamic curb lane management policies

Key Partnerships

- Business community
- Chamber of Commerce and hospitality industry (for communication of technology availability)
- City Information Technology staff

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.
2. Develop an online customer parking portal that can facilitate online permitting.
3. Implement LPR-based permitting tied into the online permitting database for enforcement purposes, especially in neighborhoods with residential parking permit programs.
4. Explore real-time parking availability technology.

Improved 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 aid users as they navigate the parking 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.

Technology Support and Opportunities

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

Potential Costs (capital and ongoing)

- Social media campaign (staff time plus **$50K to $75K annual budget**)
- Dynamic messaging signs (**10K to $30K per sign**)
- On-street space detection systems (**$200 to $500 per space annually**)
- Off-street space detection systems (**$500 to $1K per space** capital cost, **$100 to $300 per space annually** for level and space-specific occupancies.

Supporting Strategies

- Data-driven policies to support balanced system Utilization
- Leverage and enhance parking technology
- Enhance residential parking practices

Key Partnerships

- Neighborhood associations
- Business improvement districts to coordinate messaging and branding

Performance Metrics

- Better balance of parking demands in parking facilities
- Reduced congestion
- Increased customer satisfaction

Implementation Steps

1. Develop a plan for wayfinding needs.
2. Develop a consistent theme and brand. Use coordinated education and marketing campaign to communicate theme and brand and begin to re-orient system users.
3. Coordinate the system with the selection and implementation of a smartphone application that provides real-time parking information.
4. Develop signage for new public parking facilities created through shared and leased parking.
5. Create a map of public parking facilities (location and number of spaces) and post to the City or Downtown Phoenix, Inc. website.
6. Leverage social media to communicate information and the wayfinding brand to users.

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 Roosevelt 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 **$4K to $10K per block face** for initial technology)

Supporting Strategies

- Parking system organization
- Data-driven policies to support balanced system Utilization
- Leverage and enhance parking technology

Key Partnerships

- Business community
- Commercial loading operators
- Rideshare 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).

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

3. Work with loading groups (delivery, passenger, rideshare companies) 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. Certain areas within the study area, such as the residential areas between the downtown core and I-10, could benefit from creating dynamic policies that allow some access without over-committing neighborhood streets such as a residential parking permit program that allows for residents to obtain a permit to park on the street and restricts parking for non-permit holders to one to two hours of parking.

Intended Benefits

- Protects neighborhood streets while realizing there is a need to use right-of-way to support 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 program 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.

Technology Support and Opportunities

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

Potential Costs (capital and ongoing)

- Parking meters (**$300 to $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)

Supporting Strategies

- Parking system organization
- Data-driven policies to support balanced system utilization
- Dynamic curb lane management policies

Key Partnerships

- Neighborhood associations

Performance Metrics

- Parking occupancy
- Parking duration
- Resident satisfaction
- Customer satisfaction

Parking Strategies & Evaluation

Implementation Steps

1. Evaluate existing residential parking areas to right-size policy and application.
2. Conduct neighborhood specific outreach to discuss advanced policies and practices.
3. Define neighborhood and commercial area criteria to define how and what to implement in neighborhood areas.
4. Consider implementation of paid parking in applicable neighborhoods, with residential exemptions and benefit district policies.

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 may need to be altered to improve support of parking-related investments.

Supporting Strategies

- Data-driven policies to support balanced system utilization
- Promote efficiency through parking codes/ ordinances/policies

Key Partnerships

- City Planning and Development
- Private sector (development community)

Performance Metrics

- Parking occupancy
- Return on investment from public-private decisions

Parking Strategies & Evaluation

Implementation Steps

1. Define optimal criteria for investment decisions.
2. Develop policy/playbook for investment strategy implementation.
3. Assess new parking decisions on a case-by-case basis.

Improved Bicycle/Pedestrian Environment Strategy

Description

Implement multimodal infrastructure recommendations from the Downtown Transportation Plan Update and the Active Transportation Plan to create connected and calm walking/biking facilities and infrastructure that will help reduce vehicle trips. Providing more bicycle- and pedestrian-friendly options, coupled 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

- Lack of parking investments in areas that do not meet requirements.
- Reliance on private parking in non-investment areas.
- Limited right-of-way.
- Aging road network.
- Limited bike parking.

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.

Supporting Strategies

- Data-driven policies to support balanced system utilization
- Improved transit access to downtown Phoenix
- Promote efficiency through parking codes/ ordinances/policies

Key Partnerships

- Street Transportation Department
- 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
2. Work with State and County partners to implement dedicated, connected, and protected bicycle facilities.
3. Work across City departments to establish policies and regulations that are friendly and welcoming to bike operation and parking.
4. Work with City Street Transportation Department to implement goals from Active Transportation Program.

Improved Transit Access to Downtown Phoenix

Description

The City has been leveraging Transportation 2050 (T2050) revenues to invest heavily in transit infrastructure that will increase access to the downtown area. Both the South Central and Capitol light rail extensions will be completed in the next several years, increasing access from the south and west. The 35th Avenue/Van Buren Street Bus Rapid Transit (BRT) project will further increase access from the north and west. The City should work collaboratively with the Maricopa Association of Governments (MAG) and Valley Metro to plan for and construct park-and-rides. The City should also create first- and last-mile access strategies and 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 Downtown.

Potential Challenges

- Funding for more service to accomplish goals.
- Changing user behavior to accomplish goals.

Required Changes (policy, practice)

Authorization of funding to support multimodal investment will be required.

Supporting Strategies

- Data-driven policies to support balanced system utilization
- Parking system organization
- Improved bicycle/pedestrian environment
- Evaluate and standardize parking rates

Key Partnerships

- Public Transit Department
- MAG
- Valley Metro

Performance Metrics

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

Implementation Steps

1. Work with Valley Metro to define optimal routing and multimodal connectivity downtown to incentivize ridership.
2. Work with strategic partners to continue to identify and communicate existing and new park-and-ride locations outside of the Downtown area where users can park and then board transit to Downtown.
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 (rideshare companies, car share, bike share) that they can utilize to solve first mile/ last mile challenges.
4. Work with employers and stakeholders to offer guaranteed ride home programs for those that commute via transit. This could include subsidizing home trips via rideshare.
5. Identify specific transit stops locations where mobility options can be consolidated to enhance first-mile/last-mile connectivity.
6. Work with partners to aggregate commute/ mobility options into a single mobile and desktop platform that includes real-time parking data and pricing.

Evaluate and Standardize Parking Rates

Description

A cost strategy that will support effective parking requirements and provisions by: identifying and defining rate ceilings and floors, assessing parking maximums, and evaluating and leveraging parking demand and pricing.

Intended Benefits

- A balanced parking system that can accommodate the needs and vision of the City.
- Reduced subsidization of auto trips.
- Adequately fund rehabilitation and maintenance for aging facilities.
- Reduced underutilized restricted parking.
- Setting rates to achieve specific occupancy goals or desired traffic levels.

Potential Challenges

- Determining appropriate rates that affect utilization and demand as intended.
- Coordination of public supply—either existing or future—to support area businesses.
- Policy changes for bond-funded garages.*

Required Changes (policy, practice)

Adjustments would need to be made to the citywide development code, including: parking requirements, shared parking policies.

Supporting Strategies

- Promote efficiency through parking codes/ ordinances/policies
- Parking system organization
- Leverage and enhance parking technology
- Dynamic curb lane management policies
- Parking investment strategy

Key Partnerships

- Convention Center Department
- Street Transportation Department
- City Planning and Development Department
- Invested private-sector developers

Performance Metrics

- Parking occupancy
- Neighborhood spillover impacts
- Downtown traffic levels

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.
2. Monitor the parking occupancy related to development annually.
3. Revise City parking rates as necessary based on monitoring and work with private facility owners to update their rates accordingly.

** The City of Phoenix has two bond funded garages, the 305 Garage and The Adams Street Garage, which heavily restricts the City's authority to alter pricing and space availability commitment thresholds while the bonds are active.*

Recommendations

This section contains the full recommendations of the Comprehensive Parking 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

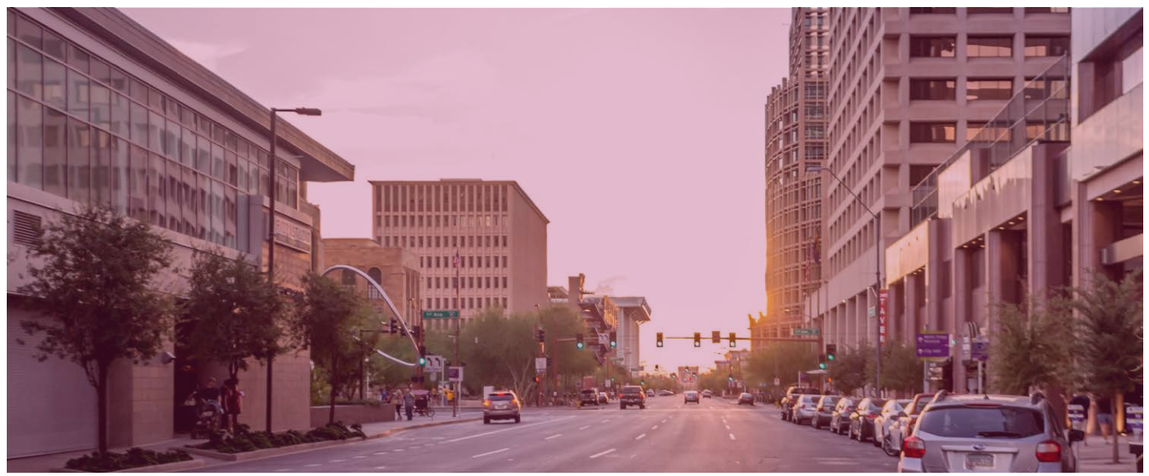
Drawing from the existing conditions analysis, public and stakeholder engagement, and discussions with City staff, this section presents a set of specific infrastructure, policy, and programming strategies for improving the provision, operations, and management of parking and mobility in Downtown Phoenix. These strategies 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



Recommended Strategies

Promote Efficiency through Parking Codes/Ordinances/ Policies

Priority Rating ● ● ●

Overview

One of the most significant challenges of managing a municipal parking system is trying to accommodate the needs of competing user groups. The parking system simply cannot serve all users' needs equally, particularly when the demand for a space occurs during similar peak times. Parking is a scarce and costly resource that needs to be prioritized for the highest and best use.

Knowing there is a limited supply of parking, parking managers must make decisions regarding who should get priority access to specific stalls. Further, when one group is not prioritized, parking managers must consider how and in what form their parking needs should or should not be accommodated. Industry best practices emphasize that there should be a high level of clarity and agreement in identifying priority users of the parking system, particularly for publicly-controlled on- and off-street resources. With a clear understanding of who has priority to a parking spot, policies can be developed that "get the right user to the right space." This outcome should be reflected both in a city's parking policy framework and, subsequently, in its code regulations which are established to ensure parking priorities are delivered.

Key Recommendations:

- *Establish Guiding Principles as policies for the management of public parking in Downtown Phoenix.*
- *Establish a rate policy for adjusting rates in public supply (on- and off-street).*
- *Ensure code provisions for the development of new parking are not excessive, leading to (a) overbuilding parking, or (b) impeding or creating a barrier to desired land use growth in downtown.*

Recommendation Details

Establish Guiding Principles

Guiding Principles for parking management are based on the premise that growth in downtown will require an integrated and comprehensive package of strategies to respond to growth, maintain balance and efficiency within the system, and establish clear priorities necessary to "get the right vehicle to the right parking stall."

As discussed in the Parking System Organization section; the City of Phoenix public parking program is highly distributed across several departments and lacks a clear mission or vision statement which would relate parking policy back to some of the City's broader goals. Some specific duties and functions of the program are outlined in City ordinance, and the detailed organization chart **Figure 21** with oversight responsibilities was provided for the purposes of this review.

Additionally, a review of Section 1206-Parking and Loading of the Phoenix Municipal Code did not have language or guidance specifically related to goals, objectives, or intent related to parking management, in general for the city nor with the downtown study area. Without clear and agreed-upon priorities, it is difficult to initiate solutions requiring changes to the parking system (and the status quo) as well as form partnerships between stakeholders that facilitate success.

It is recommended that Guiding Principles be developed through a process with the Downtown Parking Advisory Committee and formally approved by the City Council in appropriate policy documents that define the City's role in parking management (e.g., code, Comprehensive Plan, Transportation System Plan, etc.). Overall, parking management practices and code requirements related to parking should be highly supportive of desired development and not be a barrier to small and locally-owned businesses. An overall framework for developing priority principles for parking management should involve discussion within the following elements of parking management:

- City role and coordination
- Priority users
- Active capacity management
- Information systems (supply- and customer-based)
- Integration with other modes
- Planning for future supply
- Financial viability

Sample Guiding Principles *derived from other cities* for consideration might include:[1]

- Ensure that the public parking system is financially sound and self-sustaining.
- The City's development code should not be a barrier to new parking development, while ensuring that adequate parking is provided and "right sized" to the City's unique environment.
- Customers and visitors should have priority access to the public on-street system in downtown.
- Allow for reasonable employee parking while managing parking demand to encourage and facilitate increasing percentages of use, particularly by employees, of alternative travel modes to free up parking capacity.
- Use and improve the City's existing residential permit program (through revisions, expansions, and/or enforcement) to preserve priority access in these areas for residents and their guests.
- Include bike parking as a key access strategy for downtown.
- Create a uniform appearance for on- and off-street parking, including signage, striping, and landscaping.
- Extend current brand signage by creating a name, symbol, or design that clearly identifies all public parking.
- Use the 85% Rule to facilitate decision-making.[2]
- Expand off-street shared-use partnerships whenever possible and treat all parking as a community resource.
- Provide a forum for ongoing community involvement in parking decisions.
- Treat downtown parking management as a partnership between the City and the business community.
- Ensure that the City is ready to respond to growth and recognize that funding will require a varied package of resources and partnerships.

Many cities formalize their Guiding Principles in a parking element of their Transportation Master Plan or General Plans.[3] Others include Guiding Principles as a policy element within their municipal codes.[4]

[1] These sample principles are derived from several different cities and are presented here as examples of how those cities prioritize parking outcomes for their unique urban downtown environments. We include them here not as recommendations but to stimulate discussion in future processes for developing Guiding Principles for Phoenix.

[2] The 85% Rule is an operating principle and parking industry standard. When occupancies routinely reach 85% in the peak hour, more intensive and aggressive parking management strategies are called for.

[3] Examples: Bend, OR and Redmond, WA

[4] Example: Portland, OR includes their Guiding Principles as policy elements within Title 33.510 of their code.

Establish a Rate Policy for Adjusting Rates in the Public Supply

A key element of parking management and sound fiscal policy concerns the management of parking rates, both on-street and off-street. Understandably, adjusting parking rates is a very controversial topic among stakeholders in downtowns. However, if parking rates are not routinely reviewed and adjusted within the context of a clear, fair, and objective policy framework, then when rates are increased, the increase can be substantial as an extended period (i.e., years) passes before fiscal challenges or occupancy patterns necessitate increases. Consequently, justifiable increases are perceived as reactive rather than strategic and policy-based. Similarly, the financial systems that support parking are adversely impacted when normal costs of operation are not addressed.

Best practices parking management would suggest that parking rates are evaluated[5] annually to ensure the following:[6]

- Cover normal annual increases in operating costs of the system for which a fee is assessed (e.g., on-street meter system, off-street lot, and/or garage), excluding bond-funed garages.[7]
- Reflect space demand patterns, e.g., using an occupancy standard as a decision-making trigger for adjusting rates, upward or downward.
- Ensure efficient use of parking supply. Using rate structures to encourage efficient use of all existing supply, and therefore minimize surpluses in public off-street supply.
- Consider rates in the context of coordinating with incentives, encouragement, and support for alternative mode access.
- Provide for future need as part of a comprehensive funding strategy. This includes normal capital planning and projected growth in the system.

The City has already developed a framework for parking increases for the off-street parking system through City Code Section 10A-9. This section of the City Code establishes minimum and maximum limits for event day rates through 2026. This section should be supplemented with a process for reviewing and updating rates for hourly, daily, and other routine rates for the off-street parking system. A similar framework should be developed for on-street parking rates that coordinates with review processes and update schedules for the off-street system to ensure they remain cohesive in supporting the parking and mobility goals of the downtown area. Fines and fees should also be incorporated into the process for reviewing and updating parking rates regularly.

SF*park* (San Francisco) adjusts on-street parking prices every six weeks in response to occupancy conditions measured by in-pavement sensors. Seattle adjusts parking prices annually based on manual parking occupancy studies. Portland, OR and Redwood City and San Mateo, CA have adopted similar approaches.

*[5] Based on approved performance metrics rates would be adjusted upwards, downwards, or maintained for an additional year. Additional detail supporting a rate policy is provided in the section discussing **Evaluate and Standardize Parking Rates**, above.*

[6] Ibid.

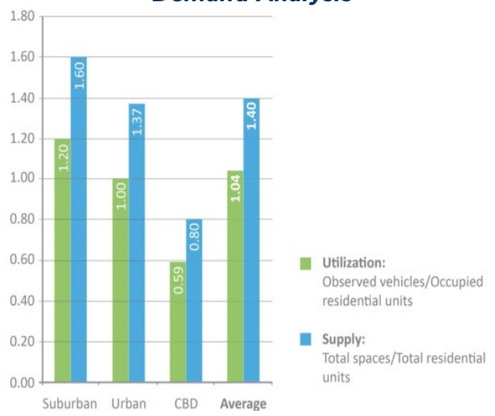
[7] Bond-funded garages restrict the City's authority to alter pricing and space availability commitment thresholds while bonds are active.

Ensure an Efficient Code – Supportive of Desired Land Use Outcomes

Parking development codes in most cities across the United States do not reflect the actual demand for parking within specific land use categories or within downtowns where parking serves a diverse mix of uses across 16- to 24-hour operating days, seven days a week.

In a recent study within King County, WA, data collected in over 20 municipalities showed that existing parking minimum code requirements resulted in an overbuild of parking of between 25% and 35% (see **Figure 20**).[8] This conclusion was consistent in codes related to central business districts, emerging urban areas, and suburban areas.

Figure 20. King County, WA Supply vs. Demand Analysis



Source: King County Metro (Right Size Parking)

More and more cities are evaluating and eliminating parking requirements in their downtowns. Organizations like Strong Towns,[9] Reinventing Transport,[10] the American Planning Association,[11] and experts in the academic world[12] are calling for cities to seriously consider eliminating parking requirements, particularly in downtowns. A recent survey of Pacific Northwest cities that have eliminated parking minimums in their downtown areas in recent years include:

- Bellingham, WA
- Billings, MT
- Bozeman, MT (Mid-Town Urban Renewal District)
- Ketchum, ID
- Madras, OR
- Olympia, WA
- Pasco, WA
- Portland, OR (multiple districts)
- Sandpoint, ID
- Seattle, WA
- Tigard, OR
- Twin Falls, ID
- Yakima, WA

[8] *rightsizeparking.org*

[9] *End Parking Minimums (strongtowns.org)*

[10] *www.reinventingtransport.org*

[11] *People Over Parking (planning.org)*

[12] *See for instance; Shoup, Donald, The High Cost of Free Parking (2005), American Planning Association. See also, Willson, Richard, Parking Management for Smart Growth (2015), Island Press.*

From the perspective of these cities, minimum parking requirements hinder the potential of downtowns by filling cities with unproductive, empty parking spaces that do not add value in the way of vitality or placemaking. They push complementary land uses farther apart, impede the walkability of neighborhoods, raise the cost of housing, and place an especially costly burden on small, local entrepreneurs.

In reviewing Section 1206 (Parking and Loading Standards) of the Phoenix Municipal Code, the City has admirably eliminated parking requirements for *non-residential uses* in the Business Core and Warehouse Character Areas. However, requirements are still in place for non-residential uses not located in the two exempt areas and minimums are still in place for *residential uses*. This code section is provided in the table below.

Section 1206 C. Parking and Loading Standards.

1. Vehicle parking shall be provided in accordance with the following standards:
   - a. Residential units.
     - (1) Minimum: 1 space per dwelling unit.
     - (2) Maximum: 2 spaces per dwelling unit.
   - b. Nonresidential uses.
     - (1) Minimum: 1 space per 1,000 square feet of building square footage.
     - (2) Maximum: 4 spaces per 1,000 square feet of building square footage.
     - (3) No parking required in Business Core and Warehouse Character Areas.

The City also maintains parking maximums, which limit the overall amount of parking that can be built for a residential or non-residential land use. For residential development, the maximum is two spaces per unit; for non-residential the maximum is four spaces per 1,000 square feet of building square footage.

We would recommend the following for code consideration:

- Eliminate parking minimums for residential units within the highest density character areas in the area defined as the "Downtown Area" within Section 1202 Regulating Maps B and D. This will allow developers to tailor parking built to market demand and marketability of residential projects. It will also be supportive of better integration with alternative mode systems and emerging car free living trends in urban downtowns.
- Maintain the parking maximum of two spaces per residential unit.
- Eliminate parking minimums for non-residential units within the highest density character areas within the area defined as the "Downtown Area" within Section 1202 Regulating Maps B and C. As with residential, this will allow developers to tailor parking built to market demand and marketability of non-residential projects. It will also be supportive of better integration with alternative mode systems and emerging trends toward remote work in urban downtowns.
- Discourage or prohibit surface parking development in the Downtown Area and/or reduce the maximum parking allowance for non-residential development (e.g., two spaces per 1,000 square feet of building square footage). The current maximum allowance encourages surface parking over structured parking and is not consistent with urban form/density goals or promoting alternative modes.[13]

[13] *Cities like Portland, OR, San Francisco, CA, and Seattle, WA do not require parking for residential and non-residential development but have parking maximums that are "calibrated" to alternative mode goals (mode split targets).*

Sunburst Event Management Plan Update

Priority Rating

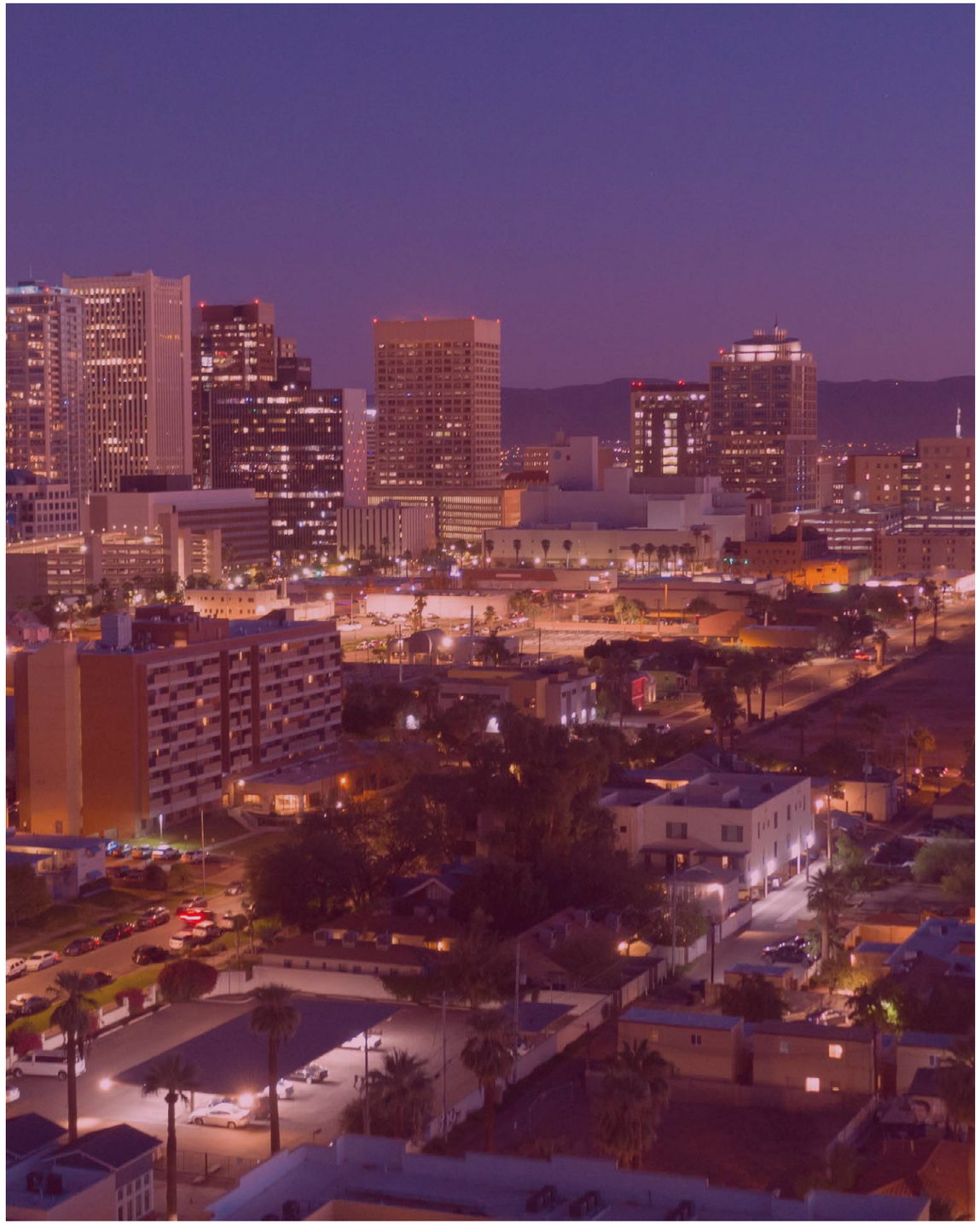
Overview

Special events are an incredibly important aspect of the Downtown Phoenix economy, from professional sports at Chase Field and the Footprint Center, to concerts at the ever-growing number of venues around both the Core and Transition areas, to large conventions at the Phoenix Convention Center. These events bring tourism dollars to downtown and may be the only interaction many Valley residents have with downtown. Making a good impression on both groups is critical to the overall perception of the City of Phoenix.

Travel into and out of the Core Area for events is a major factor in the perception and willingness of many Valley residents to experience downtown. Technology for dynamically managing event traffic has come a very long way since the original Sunburst Plan was developed in the 1990s. Dynamic messaging, adaptive signal control, and integration between parking facilities and TMCs are all recent possibilities that could help improve the efficiency and safety of event traffic management.

Key Recommendations:

- *Scope and budget for a robust Sunburst Plan update that will focus heavily on a number of factors, including:*
  - *Simulation modeling using the VISSIM model developed for the Downtown Transportation Study Update for both vehicles and pedestrians for various sizes of events to evaluate and improve traffic travel times from various points on the regional freeway system to major event parking locations.*
  - *Eliminating or improving the safety of conflict points between vehicular traffic and pedestrians accessing event venues.*
  - *Evaluating necessary investments to provide real-time parking occupancy data to the City's TMC.*
  - *Developing plans for event-based transit services to allow for efficient bus and light rail movements through downtown to provide a competitive travel time advantage to encourage transit use over personal vehicles.*
  - *Assessing the need and cost of infrastructure for dynamic messaging for routes into and out of downtown, directions to specific parking facilities to manage parking demands, and potentially more extensive traffic management such as contraflow traffic lanes.*
- *After conducting the Sunburst Plan update, budget for and procure necessary technology and infrastructure upgrades to implement recommendations from the plan.*
- *Identify and empower key City staff members to manage event traffic flows of various sizes and locations.*
- *Monitor and audit transit and vehicular travel times, safety statistics, parking facility occupancies, transit ridership, and visitor satisfaction with event management to determine tweaks to the management plans to continue to improve over time. The Federal Highway Administration (FHWA) has developed recommended procedures for monitoring event traffic management procedures and measurements of effectiveness (https://ops.fhwa.dot.gov/publications/fhwahop07108/pl_imp_op_eval.htm).*



Data-Driven Policies to Support Balanced System Utilization

Priority Rating ● ● ●

Overview

Accurate and up-to-date data is the foundational element of every data-driven parking management program. Setting goals, measuring progress, and reassessing management strategies all depend on robust data sets to allow for the monitoring of key performance measures. Linking management decisions to key performance measures has the added potential benefit of enabling more efficient and objective decision-making based on on-the-ground observations.

Implementing data-driven management practices will require regular data collection efforts. In some cases, manual data collection will be needed, or data can be compiled from a variety of existing sources. Regardless of the mechanisms deployed, producing a standardized data report each year (or more frequently) is a key first step in managing a data-driven program. Actionable recommendations based on specific policies and performance measures can then follow on a regular, established schedule, ensuring consistent progress in working to improve operations and achieve desired system outcomes.

Key Recommendations:

- *Establish key performance measures to track over time*
- *Implement a schedule of regular data collection, with annual data reporting*
- *Establish data-driven guidelines for operational changes*

Recommendation Details

Key Performance Measures

With over 60,000 parking stalls in downtown, establishing key performance measures will be an important tool in streamlining how data is tracked over time. Key areas to track will include: **Parking Supply, Parking Demand, Revenue and Expenses, and Enforcement.** Potential performances measures are listed below, to be refined and expanded over time:

- Parking Supply
  - On-Street Metered Stalls (by time limit and rate)
  - On-Street Time-Limited Stalls (by time limit)
  - On-Street Specialized Stalls (Loading, etc.)
  - On-Street Unregulated Stalls
  - Off-Street Private Stalls
  - Off-Street Publicly-Owned Stalls (by rate and restrictions)
- Parking Demand
  - On-Street Hourly Occupancy (by subarea and stall type)
  - On-Street Average Duration of Stay (by subarea and stall type)
  - Off-Street Peak Occupancy (by facility type)
  - Daily On- and Off-Street Paid Parking Transactions
- Revenue and Expenses
  - On-Street Meter Revenue
  - On-Street Administrative and Maintenance Costs
  - Off-Street Permit Revenue
  - Off-Street Hourly Revenue
  - Off-Street Administrative and Maintenance Costs
  - Citation Revenue
  - Enforcement Costs
- Enforcement
  - Citations Issued (by type)
  - Violation Rate[14] (by subarea and stall type)
  - Capture Rate[15]

- Green highlighted measures are already tracked by the City.
- Orange highlighted measures can be obtained, but require coordination.
- Unhighlighted measures are not tracked by the City.

Data Collection

This study will serve as the baseline to inform how to define data collection moving forward on a regular basis. Approximately 4,800 on-street stalls, 16,500 surface lot stalls, and 38,900 garage stalls were identified in the inventory, and updating this inventory will serve as a key performance measure over time.

Annual data collection efforts should aim to closely track the areas of highest demand, with periodic sampling of areas with growing (but not yet constrained) demand. To assist with this effort, it is recommended that subareas are established with a **minimum of 400 on-street stalls**. Tracking performance by subarea will allow for a more refined assessment of constraint without biasing samples with underutilized parking that is far from constrained area. Within each subarea, data could be compiled from a number of sources, potentially including:

- Hourly occupancy data (in-the-field manual counts, or aerial photography)
- Hourly turnover data (in-the-field license plate counts, or LPR data)
- Payment data (hourly snapshots[16] of number of paid stalls)
- Off-street occupancy data (hourly users and permit users, from operators if available)

In addition to tracking parking usage data by subarea, budget should be reserved each year for samples of emerging areas outside of each defined subarea. Areas with unrestricted on-street parking, for example, should be tracked periodically to assess when active parking management strategies will be needed.

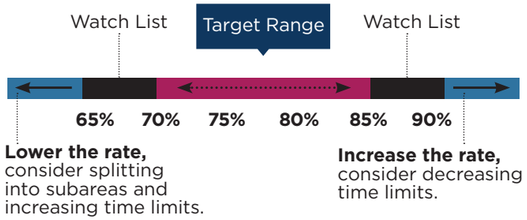
[14] Violation rate tracks the number of vehicles observed in violation over the number the vehicles observed by enforcement. Enforcement officers do not have the ability to observe the entire system, and the rate represents a sample. A target violation rate of 5-9% is common.

[15] The capture rate depends on non-enforcement data collection, typically using a small number of days for comparison against enforcement actions on those same days. For example, if a turnover study identifies a certain number of violators within an area on a specific day, this data can be compared to the actual number of enforcement actions taken in the same area on the same day to estimate the capture rate. An overall capture rate of 15% is a reasonable target as a blended average across all violation types (overtime, lack of permit, specialized zone violations, failure to pay, etc.); however, failure to pay for paid parking should aim for a higher capture rate, typically at least 30%.

[16] In some cases, minute-by-minute tracking of payment data from smart meters creates datasets that are too cumbersome to process and use. Extracting hourly snapshots (such as instantaneous snapshots 8 AM, 9 AM, 10 AM, etc.) can provide a more workable dataset that can be more easily compared to data collected manually on one or more specific days.

Data-Driven Management

The "85% Rule" is the most commonly adopted standard in the parking industry. This is the threshold above which parking can be considered constrained within a local area, making it difficult for users to find parking. While a useful metric, it is important to recognize this must be defined in terms of time (hours of constraint) and area (size of the constrained area). Constraints are localized both in time and location, and the data collection program must have the ability to isolate areas of constraint in order to effectively manage the system. As an example, a single blockface that was observed to be 95% occupancy likely does not warrant management changes if adjacent areas are unconstrained. Similarly, a single constrained hour may not warrant a change if there is no constraint in other hours of the day.



As a starting point for consideration, the following set of standards could serve as a baseline for determining when management strategies may need to be implemented or modified:

- Within an area that includes at least **80 contiguous stalls**, if measured occupancy levels exceed the following thresholds, new or modified parking management strategies may be warranted:
  - Average occupancy reaches or exceeds **85% during two or more hours** during the day, AND
  - Average occupancy reaches or exceeds **70% during four or more hours** during the day.

Management strategies may be considered or modified in areas that do not exceed these thresholds, but these serve as a tool for identifying areas that likely warrant additional parking management.

Exception: The residential parking permit program maintains a separate set of minimum thresholds, and the minimum size requirements are less critical in these areas. Additionally, the occupancy thresholds are slightly reduced (currently the minimum threshold is 75% occupied at measured peak demand).

On-Street Management Strategies

The on-street system in commercial areas should generally prioritize short-term users, specifically customers and visitors. These parking areas typically provide the most convenient option for short-term needs and serve as the most visible representation of the parking system. In dense commercial districts, long-term parking by residents and employees is best served by the off-street system, as these users can develop regular habits and know where to park on a daily basis.

As a general practice, the following order of implementation is recommended for the on-street commercial system as parking demand increases over time:

1. Unrestricted Parking
2. Time-Limited Parking
   - Base Standard: **Two hours**
   - Exception near businesses with high-turnover needs: **30 minutes** (up to two stalls per block)
   - Exception in areas with limited off-street hourly parking availability: **Four hours**
3. Paid Parking (same time-limit guidance)
   - Starting rate: **$1.00 per hour**[17]
4. Hourly Rate Adjustments (see **Parking Rate Recommendations**)

[17] *$1.00 is used here as it is a very common starting rate for paid on-street systems. Also, in many cases, $1.00 is a minimum rate needed to support revenue collection infrastructure necessary to pay-to-park systems (i.e., single space meters and/or multi-space pay stations). Once established, rates would then be monitored over time and calibrated upward or downward based on demand as per the 85% occupancy standard described above.*

Due to the cost of implementing both time-limits (signage, administration) and paid parking (signage, paystations/meters, administration), the strategies are generally only recommended when needed based on measured demand. The intended effect of time-limited parking is to discourage long-term parking (typically employees), which is common in free, unregulated parking within walking distance of commercial areas where parking is priced. In some areas, implementing time limits may be adequate to address measured constraints, and the system can serve short-term users effectively without the need to move to paid parking. However, when an area that is currently unregulated experiences high levels of demand from short-term users (average duration of two hours or less), advancing directly to paid parking may be warranted.

Once an area has implemented paid on-street parking, rates can be used to respond to measured demand. A more detailed discussion of this approach is provided in the next recommendation.

Off-Street Parking

The off-street system in most cases will need to serve both long-term users (employees, residents, and customers staying for more than four hours), as well as the needs of users staying for two to four hours. When implementing new on-street parking management strategies within an area, it is imperative to also review the availability of parking within the nearby off-street system, particularly if the intended effect of on-street strategies is to encourage long-term users to park elsewhere.

The public off-street system should strive to complement the on-street system, and, when possible, hourly parking in publicly owned/operated facilities (for up to four hours) should be priced lower than the adjacent on-street system to encourage customers who are willing to park off-street to do so, thus freeing up more availability on-street. Customers needing to stay for longer than four hours should also be able to readily find off-street parking, but pricing needs to carefully consider the predominant parking permit rate. Charging a higher hourly rate for stays longer than four hours may be warranted to balance the needs of customers and employees/residents who park in the system every day.

Other Considerations

The guidelines presented here are intended to serve as a general framework for a data-driven program. Parking management is much more nuanced than can be captured within a generalized approach. There are countless exceptions that will require more detailed considerations of the specific needs of users within an area. However, management of the system should always follow the general approach that public parking is a shared (and limited) resource and should not be allocated or dedicated to any individual, business, or small group of users for their exclusive use.

Parking System Organization

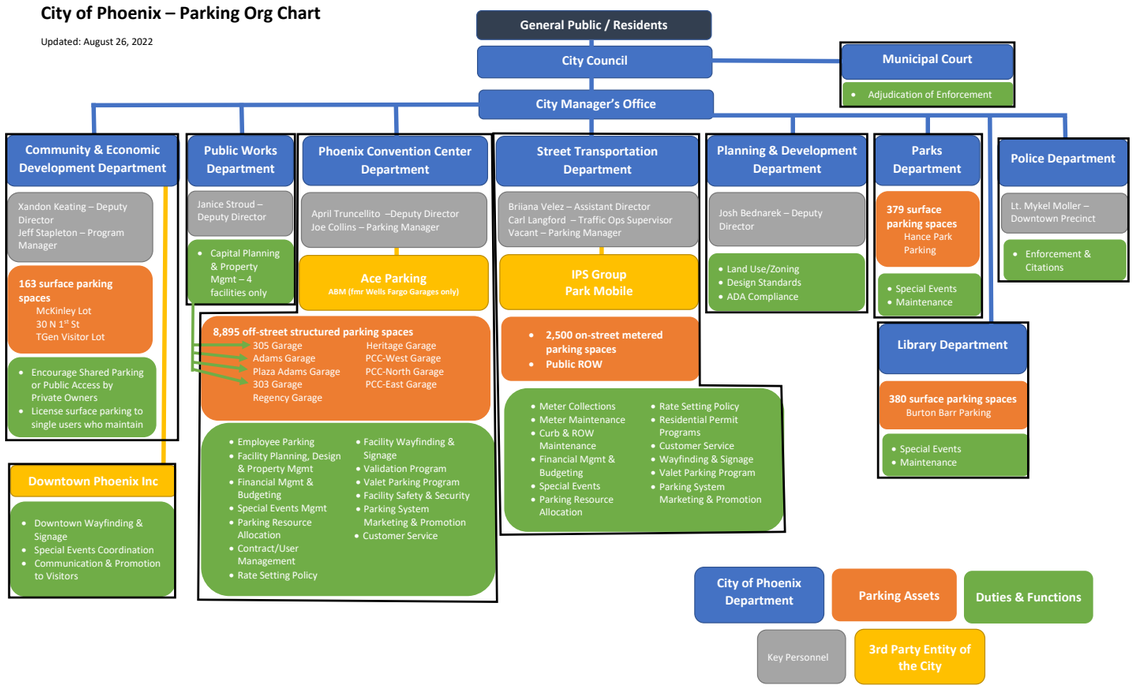
Priority Rating

Overview

Industry best practices for administration and management of a parking system recommends a centralized program of management (on- and off-street) under the purview of a professional Parking Manager. Centralized administration and management best support the concept of an integrated parking system as all elements of the parking system (off-street, on-street, enforcement, and oversight of any third-party provider) are consolidated within a single division and leadership structure.[18] As such, administration and decision-making are structured to consider parking assets both individually and as a system. Resources can be managed in a tailored fashion where necessary and leveraged as appropriate and most efficient.

Currently, the Phoenix Parking System Organization does not meet a best practices standard as shown in **Figure 21**. Public parking assets are currently distributed across eight different City departments (not including Municipal Courts). Many duties and functions at least partially overlap, which suggests potential areas for improved efficiency and integration of planning and management functions. Additionally, it may be useful to provide greater transparency in how community engagement and input is activated and maintained consistently over time to inform parking management and the goals and objectives of parking for the public system.

Figure 21. City of Phoenix Parking Organizational Chart



Consolidating parking operations within a single department or bureau under a Downtown Parking Manager creates administrative and operational efficiencies and seamlessly integrates on-street, off-street, enforcement, and long-range strategic planning. Consolidation offers the City internal coordination, quick response, and efficiency. It also provides a point of accountability and assurance that adopted policy is fully implemented.

[18] *Most cities consolidate parking services within a single department. Interestingly, industry trends show more and more cities starting to centralize Parking Services within departments/divisions of Economic Development, Finance and Administration, Community Development, or Planning and Development rather than in traditional Public Works or Transportation Departments, recognizing the clear relationship between how parking influences growth, development, and urban form. Best practice examples of centralized parking services include Tacoma and Vancouver, WA; Boise, ID; Redwood City, CA; and Bozeman, MT.*

Key Recommendations:

- *Consider streamlining and centralizing the management and administration of public parking within a single division for Parking Services.*
- *Establish a Downtown Parking Advisory Committee to assist in implementation and ongoing review of the parking plan.*
- *Consolidate all expenses and revenues derived from public parking into a single parking enterprise fund. The fund would be managed to then track three parking cost centers uniquely: off-street parking (revenue/expenses), on-street parking (revenue/expenses), and enforcement (expenses/citation revenue).*

Recommendation Details

Centralize Parking Management

Parking issues are too complex and widespread for status quo approaches to management. The City needs to provide more focused, coordinated, and strategic attention to daily management and delivery of near- and long-term parking solutions. The success of any multi-faceted parking system is dependent on administration, management, and communication of the City's parking program. This includes daily management of facilities, oversight of third-party vendors, financial accounting and reporting, marketing, communications, customer service, community liaison, and strategic and capital planning. *All strategies likely to emanate from the new Downtown Parking Master Plan will require a significant level of support, coordination, commitment, and resource identification across various departments, which will be difficult with the current structure.*

To this end, the City should consider:

- Streamlining all parking assets, duties and functions, and third-party entities of the City (parking) now under Community and Economic Development Department, Public Works, Phoenix Convention Center Department, Street Transportation, Planning and Development, and Police into a single Parking Division under a single operating department (e.g., Community and Economic Development or Public Works).[19]
- Establishing a new position of Parking Manager to be responsible for, and to oversee the consolidated services. This would create a single point of contact for all parking-related services in the downtown parking management area. Functions like policy coordination, rate setting, financial management/budgeting, reporting, marketing and promotion, and customer service and engagement would be integrated to maximize efficiency, reduce overlap or redundancy, and ensure a unified parking product (on- and off-street). Standard program responsibilities for a Downtown Parking Coordinator may include:
  - Oversight of all personnel (City and third-party) involved in the delivery of on-street, off-street, or enforcement services in downtown municipal parking resources.
  - Providing liaison functions between impacted businesses, users, and other agencies.
  - Coordinating with Finance in the creation of consolidated financial reporting systems for the parking system.
  - Annual budgeting for parking services.
  - Oversight of any third-party management agreements for parking operations or other operating services that may be in place in City facilities.
  - Ensuring contract compliance by third-party parking providers.
  - Developing new signage and communications systems.

[19] *Parking assets related to the Parks Department and Library Department may be unique (and small) enough and unrelated to the overall system of general public access for the downtown that they would continue as they are.*

- Developing and implementing marketing and communications programs and their ongoing delivery.
- Routinely assessing and recommending rate and fee adjustments (on-/off-street and permit programs) based on demand dynamics and an approved rate policy.
- Oversee data collection efforts (collecting, analyzing, and reporting data findings) as defined by policy.
- Coordinating the transition to new parking revenue collection technologies (as necessary).
- Development of requests for proposals for parking services, equipment, and technology.
- Coordination of review and selection of parking services, equipment, and technology providers.
- Assessment of other upgrades (signage, lighting, security, maintenance, enforcement) that may be necessary to program delivery and on-going success.
- Development and negotiation of contract agreements (as necessary).
- Developing usage tracking and reporting systems to measure and monitor program success/failure.
- Troubleshoot program "glitches".
- Hosting and facilitating the work of a Downtown Parking Advisory Committee.

- Establishing new positions, under the Parking Manager, of Parking Coordinator (on-street system) and Parking Coordinator (off-street system), creating a unified parking management team. Daily management of the on- and off-street systems would be under the Coordinators, but overall strategic leadership and decision-making (policies, rates, reporting, and planning) would be through the Parking Manager who coordinates with other affected agency leads.

Establish a Downtown Parking Advisory Committee (PAC)

Active participation by those affected by downtown parking management strategies is best accomplished through an established advisory committee or working group that periodically reviews the performance of the public parking system, serves as a sounding board for issues, and acts as a liaison to the broader stakeholder community as changes are implemented. An added charge for the PAC could be to assist the Parking Manager in establishing key parking and access management performance measures that would be routinely quantified and tracked and published in a dashboard format in an Annual Downtown Parking Management Report (see the Data-driven Policies to Support Balance System Utilization section). Tracking and communicating system performance, illustrating change between measured operating years, and adjusting strategies in areas where performance is not met can be a catalyzing element of any city's parking management program.

We recommend that the City develop a process through which a representative cross-section of downtown interests routinely assists in the review and implementation and delivery of public parking services. The PAC should consist of downtown stakeholders (businesses and residents), property owners, the downtown business association or Chamber, City staff, City leadership, and other access mode providers (e.g., Valley Metro, bicycle community) to assist in implementation of the recommendations of this study. City staff would advise Council on all recommendations put forward by the PAC.

The PAC should meet as necessary (at least twice a year) and be facilitated by the Parking Manager. Input and recommendations from the PAC can assist the Parking Manager in implementing the Parking Master Plan, review parking issues, and inform City Council and other decision-making bodies on strategy implementation (via City staff). In the immediate and near-term phases of recommendations implementation, meetings would likely be more frequent. The PAC would use the recommendations in this study as a basis for action, discussion, stakeholder communications, and tracking progress.

Establish Parking Services as an Enterprise Fund

Ideally, the parking system should be financially self-sustaining. All personnel costs (wages and salaries), maintenance and operations, capital improvements/equipment, and other system support services specific to parking should be covered by revenue generated within the parking system. Surplus revenue should be harbored to cover future capital, infrastructure, administrative, technology, and communications growth. Surplus revenue should be prioritized for expenditures on:

- Operations
- Debt service
- Equipment and technology replacement and upgrades
- Marketing and communications
- Transportation Demand Management programs
- Contributions to the City's General Fund

Revenues and expenses should be allocated to the parking fund with overall revenue to expense surpluses or deficits tracked by unique line item. Three operating centers within the parking fund should be separately tracked, with a goal for each operating center to be self-sustaining through its own fee system(s). The operating centers would include:

- Off-street parking:
  - Revenue
  - Expenses
  - Net cash flow (surplus/deficit)
- On-street parking (revenue/expenses):
  - Revenue
  - Expenses
  - Net cash flow (surplus/deficit)
- Enforcement (expenses/citation revenue):
  - Revenue
  - Expenses
  - Net cash flow (surplus/deficit)

Managing the fund toward financial viability ensures that rate and fee decisions related to the "business of parking" are made within that system. In this manner, for instance, on-street fees are not subsidizing enforcement personnel, nor should enforcement citation surpluses be used to fund new parking facilities. To this end, decision making is truly market based, on-street fees represent the true market demand for hourly parking, garage permit fees reflect necessary operating costs of off-street facilities, and citations cover enforcement and enforcement infrastructure at rates that sustain the system and ensure compliance. The purpose for the three operating centers is to prevent rates charged for parking being inconsistent with necessary operating costs for that cost center or for rates in one cost center being inflated beyond market demand to cover deficits in another cost center.

Best practice cities that maintain parking enterprise funds, primarily structured as discussed here, include Laguna Beach, Redwood City and San Mateo, CA; Portland, OR (with five separate parking districts); and Tacoma and Vancouver, WA.

The project team understands that current parking revenues are directed to the City's General Fund, making a transition to a best practices format challenging. In this regard, the City may want to consider a transition or phasing plan for establishment of a parking enterprise fund for the City's downtown parking assets.

Nonetheless, a parking enterprise fund structured in this manner recognizes public parking in Phoenix for what it is, a large business operation, managed to maintain a system that is of the highest quality, with fees and charges calibrated to unique parking markets (on-street, off-street, enforcement), and financially sustainable to meet growth needs over time. Given the complexity of the existing parking system and Phoenix's visions for growth, a more financially self-sustaining parking system should be explored.

Leverage and Enhance Parking Technology

Priority Rating

Overview

One of the best ways to improve the parking system's performance, increase customer satisfaction, and enhance management options is to leverage the capabilities of parking technologies available to the program. 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*
- *Promote 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 Phoenix has a mix of technologies and management systems for City-owned on-street and off-street parking with varying levels of sophistication. The following sections describe some of the improvements the City should strive to make with these systems.

On-Street Parking System

Currently, the City of Phoenix Street Transportation Department operates approximately 2,134 active smart meters and about 300 coin-only meters in the Downtown, Uptown, Capitol, and Phoenix College areas. All meters and pay stations are enforced 8 a.m. to 10 p.m. daily, including weekends and holidays. Most of the meters accept credit and debit cards at a rate of $1.50 per hour. Digital coin-only meters are installed in some areas but are being phased out. The coin-only meters cost $1 per hour. Parking meters throughout the city can be paid through the City's mobile payment cell phone app.

Most City smart meters are IPS-brand single-space meters. IPS has the capability to incorporate 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:

- Transition the remaining coin-only meters to either smart meters that accept credit and debit cards or multi-space pay stations. Since the existing smart meters are IPS brand, it would make sense to continue to replace old infrastructure with IPS-brand products so there is a single provider for integrating additional payment and management options.

- The IPS 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 IPS 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.
- The IPS Data Management System (DMS) 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 IPS system may also have the ability to coordinate data with off-street management systems 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 Convention Center Department currently is able to manually obtain up-to-date data from its parking management systems. However, it would be more ideal if the City would be able to have its transaction and occupancy data automatically pulled and added to a dashboard that allows staff to easily view current and historical data. Working with the City's parking management company, ACE Parking, the City should explore upgrades to off-street parking management systems to reduce operational needs in the off-street facilities, reduce inefficiencies in management, and provide a deeper set of data for analytics for the off-street system.

Options for Immediate Improvements:

- Upgraded parking management equipment could provide 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.
- Some management systems provide a 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.
- Many modern parking management systems provide a seamless dashboard for managing off-street 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 a platform such as this and ensure that data available from the system can be integrated with on-street data for overall program management.
- Many management systems include 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.
- Some systems provides multiple mobile application add-ons, primarily merchant-, owner-, and operator-focused. The merchant-focused application would allow for mobile validation of transactions through a smartphone. The owner/operator side would provide mobile management of the off-street system through mobile control, which supports facility management. The City should explore the use of these mobile add-ons and work on integrating them into a consolidated platform used by all City-owned facilities.

Companion Technology to Support Program Evolution

The City of Phoenix already uses a mobile payment platform, which allows for on-street meter payment and parking spot reservations at some off-street facilities. The following sections describe some of the improvements the City could strive to make with this system.

Mobile Payment Platform

The current mobile payment platform used by the City allows for basic functionality for payment for on-street parking and advanced reservations for some off-street facilities.

Considerations – The City should explore the feasibility of adding additional advanced functionality such as:

- Provide navigation and parking program information
- Manage payment for all off-street facilities in addition to the on-street facilities
- Communicate with patrons about transactions
- Extend parking transactions remotely
- Find available parking supply (ideally real-time through modernized off-street parking management systems, but static if necessary)
- Perform in a dynamic pricing environment
- Pre-reserve parking spaces at all off-street facilities
- Communicate with connected vehicles

Timeframe – Immediate

License Plate Recognition

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 will not gain much efficiency. Also, overstay violations or unpaid violations will not be picked up unless the LPR and meters are directly linked and license plates are tied 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.
- High traffic congestion would minimize the efficiency of the LPR collection if the vehicle is constantly stuck in traffic. Enforcement officers on foot may still likely be more effective (if they have the proper handheld tools for enforcement).
- The LPR would be a great improvement in residential neighborhoods. If the resident 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.
- 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 one to two years, in conjunction with recommended 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 may also need to consider improved equipment for enforcement staff. Field equipment should integrate especially with on-street meter technology, have strong connectivity in the field, and maximize the efficiency and effectiveness of enforcement practices.

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

- The enforcement equipment and back-end management system should be able to integrate seamlessly with the on-street meter equipment (IPS) and off-street equipment. Given the prevalence of enforcement practices in the on-street environment, priority should be given to integration with IPS.
- 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 and travelers, Downtown Phoenix could benefit from the ability to integrate multiple payment platforms into their service offerings. As an example, if someone visiting downtown 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 may not be available or cost-effective 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, shared ride services (Uber, Lyft), personal mobility devices, etc.
- Provide real-time data to legacy mapping platforms (Google Maps, Waze, etc.) to help improve navigation in the system

Timeframe – Three to five 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 to Support Balanced System Utilization 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 or parking management contractor 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. Wherever possible, the City should strive to achieve integration with its existing revenue control platforms (such as the IPS meters) as a foundation to maintaining a seamless set of data.

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 downtown and adjacent 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. There are several steps the City should take to remedy this issue.

Key Recommendations:

- *Conduct full program branding efforts*
- *Finalize the branded wayfinding strategy*
- *Conduct a wayfinding signage study*
- *Implement marketing and messaging campaigns*

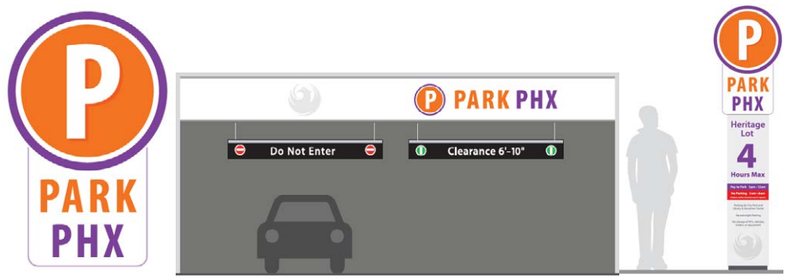
Recommendation Details

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 parking program evolves, the City should continue down the path of 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 has started down this path as part of this study and has developed a preliminary Brand Identity Guide for parking wayfinding designs, which is included as an Appendix to this report. The Brand Identity Guide provides design guidance for a variety of types of signs from area-wide wayfinding to parking facility entrance signage to signage within the parking facilities themselves.



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. The logo for the parking system, along with consistent marketing and communications using a variety of media formats, will improve the parking experience in Downtown Phoenix.

Timeframe - Immediate

Conduct a Wayfinding Signage Study

The City has started down the path of developing 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 City should conduct a study mapping out the specific signage needs for directional signage, facility entrance signage, and internal signage needs in the downtown area. Conducting this study will provide the City a roadmap for how many signs of each type are needed, the cost of signage required to implement the plan, and potential ongoing maintenance needs.

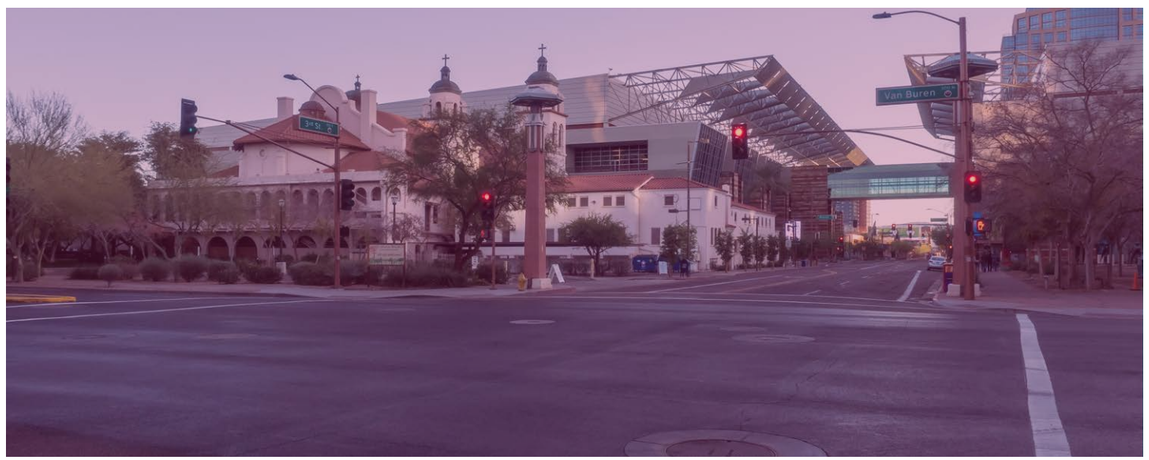
Expanded functionality of real-time parking applications (or coordination with legacy mapping platforms) would also serve as an ideal way to communicate availability. This approach is discussed further in the Leverage and Enhance Parking Technology section.

Timeframe - One to two years

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 should be used on marketing and advertising campaigns to create consistency throughout the system for users. As part of eventual program consolidation elements, the City should consider implementing a media specialist into the parking program to support messaging.

Timeframe - Two to five years



Dynamic Curb Lane Management Policies

Priority Rating ● ● ○

Overview

With the rise of new mobility and parking trends, curb space is arguably the most important and precious resource in cities today. Demand for curb space is increasing as cities work to balance transit demand, on-street parking, shared-ride passenger and 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. 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 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 downtown area (i.e., Single-Occupant Vehicle [SOV] reduction, parking occupancy goals, revenue, maximization of passenger curb access, etc.).
- The program includes a comprehensive inventory of curb uses across the downtown area.
- 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 begin implementing the recommendations from the Downtown Phoenix Inc. Curb Study, including any necessary changes to the City's standing and stopping ordinance to allow for curb lane flexibility.*
- *Comprehensive curb lane management should be coupled with the adoption of expanded 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 beyond what has been recommended in the Downtown Phoenix Inc. Curb Study.

Maintain the Curb Lane Inventory

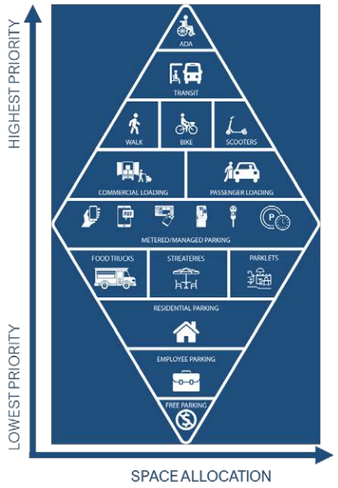
One of the first critical steps to efficient curb management is gaining the knowledge of what is actually occurring at the curb. The inventory data developed as part of this study is an excellent first step in cataloging the uses along the curb. It identifies block-by-block capacity of parking, loading,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

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 along Adams Street will differ greatly than priorities in the Roosevelt neighborhood. On Adams Street, priority will likely skew towards passenger loading, commercial loading, and parking, while the Roosevelt neighborhood will be heavily favored towards residents and their parking and loading needs.

The City of Tucson is currently conducting a curb lane management study which is developing a hierarchy of curb use priorities as shown in **Figure 22**. Those priorities are used to clearly communicate how decisions are made relative to curb space use. The ideal percentage allocation of curb spaces by type is influenced by area typology (e.g. Downtown Mixed-Use, Entertainment Center, Residential, etc.)

Figure 22. City of Tucson Curb Space Prioritization Framework



GENERAL PRINCIPLES

1. Prioritize creating a safe environment that can be navigated by persons with varying mobility (i.e., ADA, curb ramps).
2. Ensure curb space is available for transit stops along transit corridors and areas that use micro-transit.
3. Provide safe access to the curb for vulnerable user groups and prioritize access for people and goods rather than the movement of motorized or non-motorized vehicles.
4. Ensure commercial and passenger vehicles have clearly identified pick-up and drop-off locations that enhance curb lane operations.
5. Provide metered/managed parking as the back-bone of an efficient curb lane system.
6. Allocate space for street activation in areas that do not have sufficient sidewalk widths.
7. Limit residential, employee, and free parking to curb lanes that have a low demand for other curb uses.

Source: City of Tucson Curb Lane Management Study

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 to Support Balanced System Utilization section. Using realistic data about the context of the curb space being modified, the City will likely complete the following process when identifying changes:

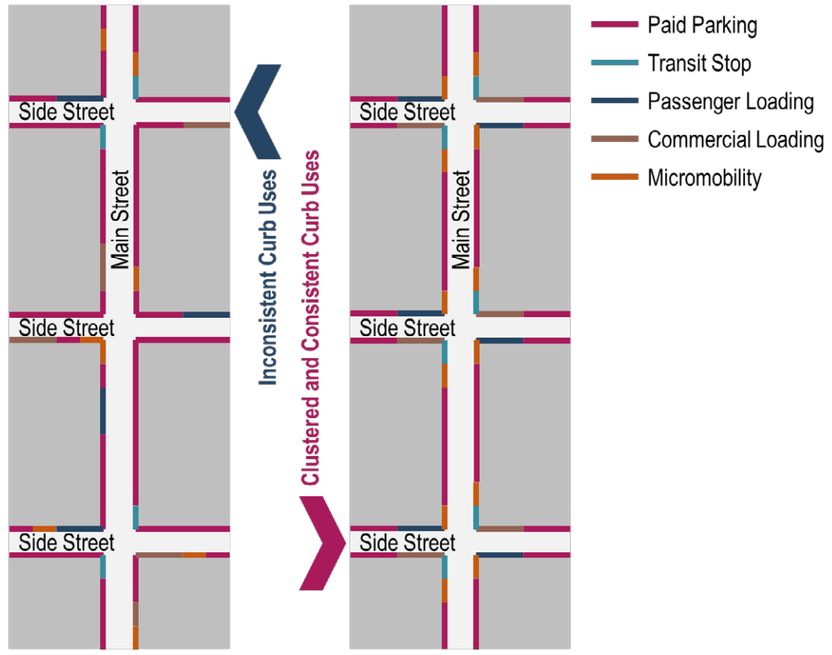
- Refer to the curb lane inventory to determine what is in place today
- Identify how the adjacent land uses need to use the curb and how they might react to changes
- Identify alternative curb lane configurations or proposed changes, using prioritization, stakeholder input, and data analytics to define 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. Clustering uses aims to structure them more predictably as shown in **Figure 23**. The City's Downtown Code already clusters loading zones specifically so that they are located on minor side streets. 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.

Figure 23. Curb Use Clustering



- **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 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, these approaches should be applied to spaces, blocks, and areas to support more efficient use of the curb space during varied demand periods.

Monitor Curb Space Use

As curb changes are implemented in Downtown Phoenix, 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 to Support Balanced System Utilization section. The City should define the goal of the analysis and use the necessary performance metrics to support the evaluation.

The Downtown Phoenix Inc. Curb Study provides details on setting performance metrics and guidance for the City to follow as the initial set of metrics are established. 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. As recommended in the Downtown Phoenix Inc. Curb Study, the City should also require curbside data from rideshare and other shared mobility companies to supplement data gathered by the City.

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 IPS and other current 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 Downtown Phoenix area and surrounding communities. The Institute of Transportation Engineers (ITE) has produced a technical resource, the Curbside Management Practitioners Guide. These considerations are defined based on a literature review of that document.

Living Previews

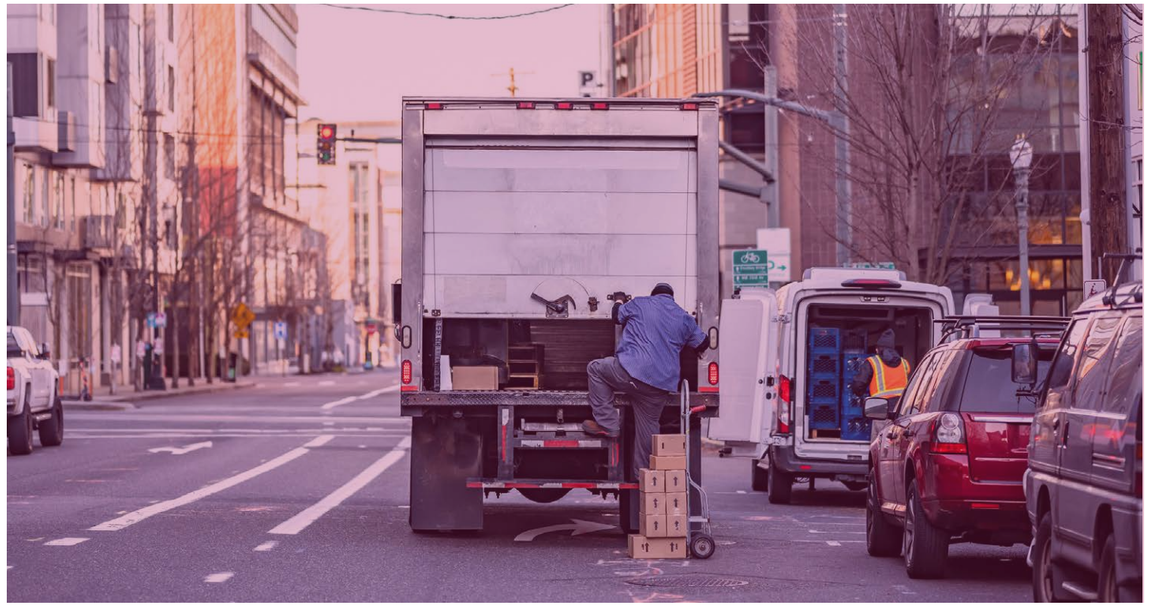
The concept of a living preview (essentially a pilot test) is to temporarily install some or all of a curb treatment, even if it is only done with movable barriers or temporary signage. The living preview allows the surrounding businesses, residents, and patrons to interact with a change before it is 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 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 in Downtown Phoenix, 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 into and around downtown.
- **Urban consolidation centers for last mile delivery.** These centers create 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 constrained roadway capacity.

These recommendations are in-line with those in the Downtown Phoenix Inc. Curb Study surrounding establishing a revocable permit process and fee structure as well as recommended changes to the Downtown Code.



Enhanced 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 by non-permit holders (contractor vehicles and those displaying a visitor permit provided by a resident are exempted). The City currently has 29 permit parking areas, outlined in Sec. 36-157.3. The permit program is important for many residents who have limited or no off-street parking where there is significant demand from nearby businesses, institutions, or attractions.

Many of the existing residential parking permit areas have been in place for 25+ years, dating back to 1987. Establishing new areas is driven by residents, with a specific process that requires support from 70% of households in an area, and a City-funded and administered parking study to assess the degree of parking constraint. If more than 75% of the on-street stalls are occupied, and 25% or more of the vehicles are "intruders" (i.e. not registered to any home in the neighborhood), all on-street parking in the area can be signed "Resident Permit Parking Only," with the specific time determined based on the parking study (in many cases, existing areas are signed to suggest 24/7 permit-only parking).

In general, the current process is effective at prioritizing parking for residents when implemented. However, allocating all parking exclusively to residents and their guests can lead to underutilization of a limited amount of on-street parking. Enhancing the program in a way that continues to prioritize parking for residents and their guests, while still supporting nearby land uses when excess capacity is available, will help to allow the program to more efficiently manage parking demand as new on-street parking constraints arise.

Key Recommendations:

- *Update the policies for the residential parking permit program to better clarify the program goals, priority users by land use characteristics, and what types of areas are eligible.*
- *Update policies to better clarify the best and highest use priorities of specific streets (e.g., residential streets prioritized to ensure reasonable and convenient access for adjacent residents and their guests).*
- *Expand the program to allow signage that specifies "Two-Hour Parking / Or By Permit" to prioritize residential parking but still allow short-term visitor parking.*
- *Establish a standardized set of signs that can be used depending on the specific needs of the neighborhood.*
- *Better correlate the residential permit limit to times of day/days of week during which actual access constraints occur.[19] The City's range of use restrictions need to be flexible enough to actually address an identified access constraint or conflict between priority residential users and non-residents.*
- *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. Permit prices should, at minimum, cover the cost of program administration by the City and, ideally, reflect actual demand, using cost to mitigate curb space constraints.*

[19] Many cities standardize "or by permit" limits to time periods that do not reflect the actual constraint being addressed. For instance, many residential programs are in effect Monday – Friday 8AM – 5PM, when the actual access constraint for residents are evenings and/or weekends.

Recommendation Details

Establish Program Goals, Priority Users, and Eligible Areas

The on-street parking system is a resource that needs to be shared among a number of different user groups. To effectively share this limited resource; however, it is helpful to define priority user groups based on the land uses in the area. In residential areas, users groups could be prioritized as follows:

1. Residents
2. Residential guests
3. Short-term visitors/customers of nearby land uses
4. Long-term parking (employees, etc.) based on low/moderate on-street occupancy

By defining an order of priority for serving various user groups, decisions can more easily follow based on actual usage. In unconstrained systems, the on-street system can serve all users, and there is no need for specific parking management strategies. When the system becomes constrained and residents and their guests have difficulty parking in residential areas, the order of priority would indicate the system should be managed to reduce the influence on on-street parking access from non-residential uses: long-term parking of employees and other non-residential long-term needs first (employees parking and walking to work, employees walking to transit, or other long-term parking users), and short-term parking by visitors of adjacent commercial areas.

In addition to defining priority user groups, the Residential Parking Program should also specify which types of zones would be eligible for the program, if desired by residents. This can be as simple as indicating that only blockfaces that are primarily zoned residential would be eligible for the program (commercial and mixed-use blocks would not be eligible, even if residential is an allowed use in these zones).

Time Limited/Or-By-Permit Parking

The current program only allows residents and registered guests to park on-street in permit areas during the time period specified; in some areas, the time period is assumed to be 24 hours per day. In many cases, the reason for implementing the program in the first place may have been to address all-day parking, making the elimination of short-term visitor parking unnecessary. Combination zones (Two-Hour / Or-By-Permit) provide an approach for continuing to share the on-street system effectively, while still prioritizing residential needs.

As the default option, it is recommended that a combination zone would be the first tool available to residents to discourage all-day parking by non-residents for all new permit areas. Modifying the hours of enforcement, including expanding later into the evening if warranted, could serve as an additional tool to serve more specific needs identified through occupancy studies. Dedicating on-street parking exclusively to residents and their guests should be reserved for rare cases where large parking generators create excessive short-term demand in neighborhoods (typically sports arenas). Even in these cases, restrictions can be targeted (dates of home games, etc.).

Combination zones help to ensure a more efficient use of the on-street system, and communicate that while residential parking should be prioritized in residential areas, the parking remains a shared, public resource.

Establish Standardized Signage

In many cases, combination zones that allow for short-term visitor parking (such as two-hour parking) along with residential parking (by permit to allow for longer-term stays), can adequately address the constraint:

- Two-Hour Parking / Or-By-Permit (8 AM – 5 PM), M-F
  - Expected impact: Reduced demand from weekday employee parking demand

However, if a constraint remains, there may be a need to make further restrictions on short-term users. This could include any of the following strategies depending on the specific issue:

- Two-Hour Parking / Or-By-Permit (8 AM – 10 PM), M-F
  - Expected impact: Additional reduced demand from longer-term parking by customers and employees in the evening
- Two-Hour Parking / Or-By-Permit (8 AM – 10 PM), M-S
  - Expected impact: Additional reduced demand from longer-term parking by customers and employees on weekends
- One-Hour Parking / Or-By-Permit (Event Days, See Sign for Details)
  - Expected impact: Targeted to specific event days when spillover demand creates neighborhood impacts (often used when there is adequate capacity on non-event days, but the program needs to specifically address event demand)
- Paid Parking (Various hours and days of enforcement)
  - In some cases, free, time-limited on-street parking will continue to serve a large number of nearby customers and visitors, particularly when the nearby off-street system is paid. Implementing paid parking in a residential area where residents are exempt from payment with a permit can serve as a useful tool for managing demand while still continuing to allow both short-term and residential parking.
- Parking By Permit Only
  - Typically used only when frequent, ongoing, and excessive visitor/customer parking demand from nearby land uses leads to lack of access for residents and their guests that cannot be managed with another approach. When used, this type of signage should be limited to the period during which the effects are highest.

To support this recommendation, the "Parking Survey" requirements should be updated to allow residents to request the timeframe during which they would like the study conducted to determine period of highest demand. As a baseline, the study would be conducted during business hours on a weekday. If the anticipated period of impact is outside of this timeframe, residents could request a modified study, selecting from several time periods:

	Weekday	*Saturday*	*Sunday*	*Event*
Daytime (8 AM – 5 PM)	✔			
Evening (5 PM – 10 PM)				
Overnight (10 PM – 8 AM)				

Evaluate Permit Pricing

The current permit rate ($10/year) does not cover the cost of program administration, requiring a subsidy from other revenue sources to cover data collection, sign installation and maintenance, printing/mailing, and program administration. As a baseline recommendation, the minimum permit price should be set to cover the cost to administer the program [**Note:** this may exclude the cost of enforcement, however, which can be operated in a way to cover costs with citation revenue].

In some areas with higher levels of demand, however, higher permit prices may be warranted to encourage the use of off-street facilities. Permit prices should vary by permit zone based on the demand for permits and availability of off-street parking. Other strategies to manage parking demand, such as further limits on the number of permits per household, total permits issued within each areas, and restrictions based on the availability of off-street parking, may be needed over time.

Enforcement

The current program is largely enforced on-demand (complaint-driven). When transitioning to combination zones (with time-limited parking allowed), active enforcement during all hours of enforcement may not be needed. Instead, limited, targeted enforcement with occasional and random enforcement patrols will likely be adequate to achieve relatively high levels of compliance.

In areas with consistently high demand, higher levels of regular enforcement may be needed to achieve desired compliance levels. LPR-based enforcement with virtual permitting would allow for more efficient enforcement in these areas, enabling each enforcement officer to cover a larger area.

Parking Investment Strategy

Priority Rating ● ● ○

Overview

Given how much available public supply already exists in Downtown Phoenix, this study does not recommend prioritizing investing in new parking infrastructure in the majority of the study area in the near term. 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 downtown's roadways.

Key Recommendations:

- *Do not prioritize new parking in the Core Area since the prevalence of public parking in Downtown Phoenix is adequate. Instead, skew investments more towards mobility, transportation, and management enhancements in the near term.*
- *Update policies to add mobility as part of the parking programs for the Streets and Convention Center departments. 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 in the Core Area until results are seen in increasing the occupancy 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 on- and off-street systems, 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 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

As discussed in the Parking System Organization section, it is recommended that the City of Phoenix eventually develop a Parking Enterprise Fund, similar to enterprises the City already manages such as the City's water service or Sky Harbor International Airport. This enterprise fund would consolidate the management of both the on- and off-street system to streamline management and decision making to enhance customer experience and identify worthwhile investments in the parking system.

Enhancements to the customer experience should include mobile payment options for all on- and off-street parking, a trip planning app with integrated parking and transportation options and pricing, reserved event parking, and navigation.

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 and institutions such as ASU and the University of Arizona (UA).

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

Core Area, 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 downtown area 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 2021, the national average to construct a parking garage was over $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 in 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.

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Park+ Model

As part of this study, a customized Park+ Parking Scenario Planning Model was developed to aid the City of Phoenix in the decision-making process for investing in new parking capacity. Park+ is an ArcGIS integrated module that allows the user to:

- Evaluate existing parking occupancy and deficiencies
- Test the attractiveness of potential future parking facilities
- Evaluate additional parking demands from new development
- See the impact of changes such as changes in mode of travel choice and parking management decisions

While Park+ is an excellent tool for providing justification for or against investing in new parking facilities, it should not be the sole determinant in parking investments. Balancing existing and anticipated parking demands with the overall mobility goals of Downtown Phoenix is critical in making effective parking management decisions.

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 other 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. **Table 2** 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 Downtown Phoenix.

Table 2. Example Parking Investment Scorecard

Factor	*Low Score (0 points)*	*Medium Score (1 point)*	*High Score (2 points)*	*Total Score*
Location	More than ¼ mile from destination areas	Between ⅛ and ¼ mile from destination areas	Less than ⅛ mile from destination areas	
Forecasted Occupancy	The forecasted occupancy modeled in Park+ is less than 65%	The forecasted occupancy modeled in Park+ is between 65% and 80%	The forecasted occupancy modeled in Park+ is over 80%	
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 $30,000 per space	Between $25,000 and $30,000 per space	Less than $25,000 per space	
Public-Private Partnership	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*

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 study area 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.

Improved Bicycle/Pedestrian Environment

Priority Rating

Overview

Walkability and bikeability are the positive outcomes of good urban form, land use policy, and design. To take advantage of established design practices in the downtown area, biking and walking can be helpful tools to guide parking goals and objectives. As a parking management strategy, bicycling can reduce traffic congestion as well as influence the demand for parking by shifting drivers to a new mode. Downtown Phoenix, with its gridded streets and attractive urban form, is very walkable and exploring the downtown area on foot is imperative to appreciating the dramatic economic and cultural investments made by the City of Phoenix in recent decades.

Despite the inherent advantages, specific efforts should continue to be taken to further invite and encourage walking and bicycling downtown. 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 buffered from motor vehicle traffic.

The City of Phoenix is actively making strides towards more bicycle and pedestrian friendly infrastructure and solutions, like the adoption of the 'Vision Zero' Road Safety Action Plan, the creation of the Active Transportation Program, and the incorporation of 300 shared lane markings that were installed in 2019, thanks to the voter-approved Transportation 2050 (T2050) plan. Although biking remains a challenge in the downtown area due to limited space and infrastructure, the expansion of safe and connected bicycling network should continue to be encouraged in Downtown Phoenix.

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.*
- *Update the Phoenix Comprehensive Bicycle Master to improve safety, mobility, and curb space management, especially in the downtown area.*
- *Where possible, investigate opportunities for cycle tracks, 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 in the downtown area to enhance the visibility and profile of bicyclists.*
- *Integrate dockless, on-demand mobility devices where possible and designate appropriate curb space for parking these devices.*
- *Explore the possibility of converting streets to car-free "Living Street" style areas where pedestrians, bicycles, and dockless devices are prioritized. Central Avenue between Washington and Jefferson streets is an example of this type of amenity.*

Improved Transit Access to and Within Downtown Phoenix

Priority Rating ● ○ ○

Overview

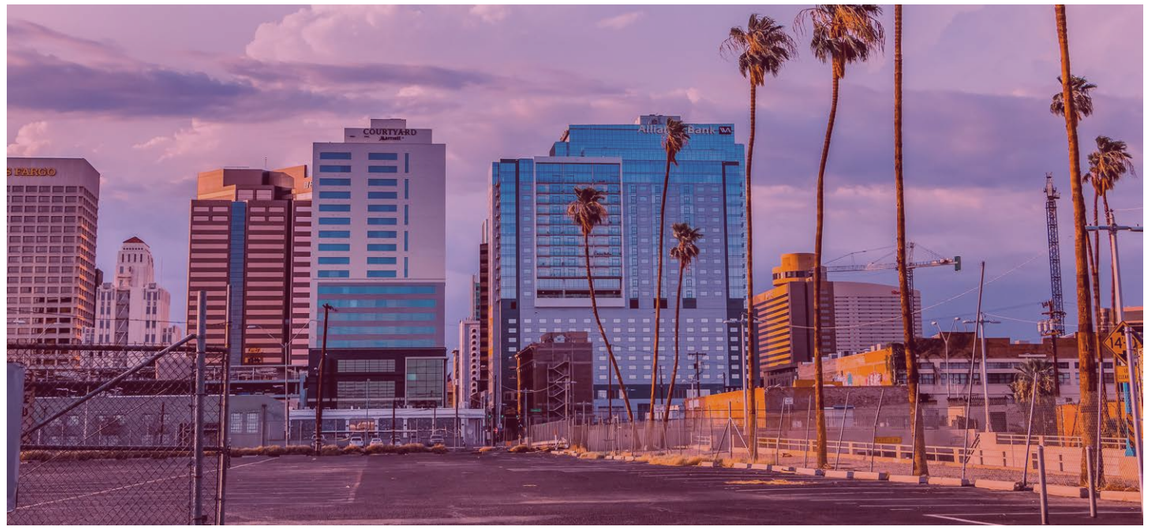
The cornerstone of any good multimodal transportation system is a connected, efficient, and convenient transit system. No other mode has as much potential to move large volumes of people around efficiently, a fact that is especially important in an area with limited physical street, parking, and curb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

The City of Phoenix and Valley Metro are already making large investments in new transit infrastructure to provide regional access to Downtown Phoenix. The South Central and Capitol light rail extension projects will provide new high-capacity transit access from the south and west of downtown. The I-10 West extension will further increase access between downtown and the West Valley. The City is also planning for the region's first Bus Rapid Transit (BRT) which will run along Van Buren Street and 35th Avenue to MetroCenter mall north of downtown.

In addition to providing access to Downtown Phoenix, transit must be a central way that people continue to move around downtown. 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) service improves rider convenience and eliminates the need for riders to be overly concerned about the transit service times.
- Good transit service is both frequent and fast. The most optimal way to promote fast transit service is to create dedicated service lanes to allow transit to operate around congestion.
- A connected route network with visible and comfortable stop locations to improve access to important destinations.
- A wide span of multimodal service to offer service throughout the day and week while providing a variety of modes to meet the needs of riders.

These are the foundational tenets of good fixed-route transit service. The City of Phoenix, like many cities around the United States, faces the financial realities and resource constraints of operating a robust, frequent 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 Phoenix should work towards implementing strategies that promote the flexibility of transit service and the capability of integrating with emerging and flexible mobility options that facilitate 'First Mile/Last Mile" solutions.



Key Recommendations:

- *Evaluate park-and-ride demand and place additional park-and-ride locations outside of Downtown Phoenix.*
- *Work with the MAG and Valley Metro to identify ideal locations and amenities for transit landings in Downtown Phoenix, including first- and last-mile amenities to connect riders to final destinations.*
- *Evaluate and supplement Express and RAPID service from peripheral areas into Downtown Phoenix.*
- *Work with employers to institute TDM policies that incentivize transit use, such as parking cash-out programs and pre-tax transit benefits.*
- *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 MAG and Valley Metro 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.*
- *Continue investing in flexible micro-transit opportunities with the private sector to supplement existing Valley Metro service by providing flexible, demand-responsive transit service that can deviate off fixed routes. Washington, D.C. has tested 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 Valley Metro mobile application into a central mobility platform that aggregates transit with walking, biking, parking, and shared mobility information. The City of Portland integrates rideshare (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 rideshare and dockless, on-demand personal mobility devices, to supplement core public transportation services by connecting transit stations. The City is continuing with its E-Scooter Pilot Program based on success in previous years. Making this program permanent and focusing on expansion areas is a good first step in MaaS integration with the multimodal transportation system. This will address first-mile/last-mile connectivity gaps and establishing connections between transit stations and downtown 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.*
- *Work to leverage T2050 funding to implement these recommendations while evaluation how to leverage local funding to obtain state or federal grants for larger improvements.*

Evaluate and Standardize Parking Rates

Priority Rating

Overview

In Downtown Phoenix, there are more than 1,500 paid on-street parking stalls, making up approximately 30% of the on-street stalls within the study area. These stalls are generally served by single-space smart meters at a rate of $1.50 per hour. City of Phoenix-owned off-street parking is controlled by the Convention Center Department, offering $15 daily and $60 to $75 monthly parking options depending on the facility.

This approach, while easy for users to understand, does not currently reflect the variability in demand within downtown. In some areas, on-street demand is very heavy, making it difficult for customers and visitors to find parking efficiently. In other areas, demand is low through the day, with ample spare capacity.

Introducing a tiered rate structure based on measured demand can help to address parking constraints in high-demand areas while remaining understandable for the general user. This approach is not intended to serve as a revenue generator; instead, it is a management tool to help address parking constraints in high demand areas while providing users with more options; to consider parking off-street or in lower demand on-street areas for a reduced rate. Demand should drive rates, creating a system that encourages optimizing supply and providing users with more options to park.

Key Recommendations:

- *Define on-street subareas that are easy to communicate to the public*
- *Establish minimum and maximum on-street rates, and increments for changes*
- *Standardize on-street rates within each subarea, as well as all paid parking that falls outside of each established subarea*
- *Adjust on-street rates based on measured demand*
- *Calibrate off-street permit rates to site-specific demand*
- *Offer hourly off-street parking where capacity is available, particularly for short-term parking*
- *Track performance over time to confirm the intended outcomes*

Recommendation Details

Define Subareas

For on-street rate adjustments to have the intended effect of addressing areas of high demand, it is important to implement rate adjustments within areas that are large enough in size so that they are understandable and easily communicated to the public. A system that is too confusing (or granular) to effectively influence behavior will not have as much success as one that is easy for the public to understand.

The first step in any rate adjustment process should be to define subareas. As noted previously, it is recommended that subareas contain **at least 400 contiguous on-street stalls**. This minimum size standard will ensure that rates are adjusted only in a manner that can be communicated easily to the public (e.g., Zone A, Zone B, Retail District, Old Town, etc.) through apps, maps, and other forms of public information tools. Care should be taken to define these areas both based on measured demand, as well as districts that are already understandable.

Note that not all on-street paid parking stalls needs to fall within a subarea. Blocks with fairly limited demand can be captured without being assigned to a study area. These areas are best managed collectively; however, and most likely will remain at the lowest rate tier.

Rate Schedule

The current on-street system has two rates: $1.50 per hour and $1.00 per hour. This $0.50 increment is easy to understand and communicate, and can serve as a useful baseline for rate adjustments. Similarly, $1.00 per hour may be a reasonable system minimum rate, given the costs of equipping and maintaining a paid parking system.

To ensure rates are both easy to understand and easy to communicate, a general rate schedule could be established with a minimum on-street rate of $1.00 per hour, a maximum rate of $4.00 per hour, with adjustments allowed only in $0.50 increments. More refined rates may be considered (such as $0.25 per hour increments), but this level of refinement may not be needed initially.

- Minimum Hourly Rate: **$1.00 / Hour**
- Maximum Hourly Rate: **$4.00 / Hour**
- Rate Adjustment Increment: **$0.50 / Hour**

Rate Setting Process

Once subareas are defined, the previously collected data can be revaluated to determine if the average occupancy across the entire subarea exceeded 85% for one or more hours. If so, a higher rate is warranted. If not, the existing rate is likely adequate under current conditions. For this initial set of rates, three tiers are recommended:

- Subareas with Average Occupancy >85% in two or more hours: $2.00 / hour
- All other subareas: $1.50 / hour
- All metered stalls within Downtown not within defined subareas: $1.00 / hour

In transitioning to a data-driven rate setting process, allowing some areas to go down in price from existing (specifically, blocks with limited demand that fall outside of subareas) may help to build support for a data-driven approach.

Rate Adjustment Process

Adjusting rates will require regular (at least annual) data collection. While some cities adjust rates more frequently than every year, annual rate adjustments are generally easiest to understand, implement, and communicate. This allows time for data collection, determining a need (or not) to adjust rates based on refreshed data, implementation, and, most importantly, users to adapt to any change made.

Within each subarea, it is recommended that an annual data collection process be used to determine if rates should be adjusted according to the following process. The "occupancy" value used can be the second highest average occupancy observed (to avoid adjusting rates based solely on one hour of data):

- Average Subarea Peak Occupancy ≥ 85%: Increase Rate by $0.50
- Average Subarea Peak Occupancy ≥ 70% but < 85%: No Change
- Average Subarea Peak Occupancy < 70%: Decrease Rate by $0.50

Calibrate Off-Street Permit Rates to Local Demand

Monthly parking permits in City-owned garages are generally between $60 and $75 per month. An employee parking approximately 15 to 20 times per month pays between $3 and $5 per day to park at these permit rates. For non-permit holders, the daily rate is set at $15 per day.

Demand for off-street parking can vary greatly by facility and increasing monthly permit rates in constrained garages that often exceed 85% capacity during peak times can help to redistribute demand between constrained facilities and those with excess capacity. This is not currently the case for any City-owned facilities, but should be monitored over time. Measuring permit sales, peak demands, permit usage, as well as rates charged by nearby private facilities will provide the data needed to adjust rates over time.

Offer Hourly Off-Street Parking Options in City-Owned Facilities in Downtown

Currently, daily parking options in the City-owned garages are much more expensive than the on-street system for customers and visitors, particularly if they are staying for four hours or less. At $15 per day, the daily parking option can work well for someone staying all day, but not for a short-term visitor.

The parking supply and demand study shows that most off-street facilities have available parking throughout the day and can accommodate additional short-term demand. Offering an hourly parking option for customers and visitors staying less than four hours may help relieve pressure on the on-street system, allowing those either willing to park off-street or wanting to stay more than two hours an additional option. At $15 per day, someone parking for three hours, as an example, would be paying $5 per hour, compared to the on-street route of $1.50 per hour. This creates frustration for downtown visitors and encourages customers and visitors to continue circulating and searching on-street, even when parking is readily available off-street.

Where capacity is available, providing an hourly rate for those staying four hours or less in off-street facilities should be considered. In general, this rate should be set either equivalent to or less than the surrounding on-street system and will therefore need to be updated regularly. Those staying for more than four hours would be required to pay the daily rate. To preserve access for monthly permit holders and to accommodate Convention Center events, each garage would need to be actively managed and restrict access for hourly customers when necessary to ensure space is available for preferred users.

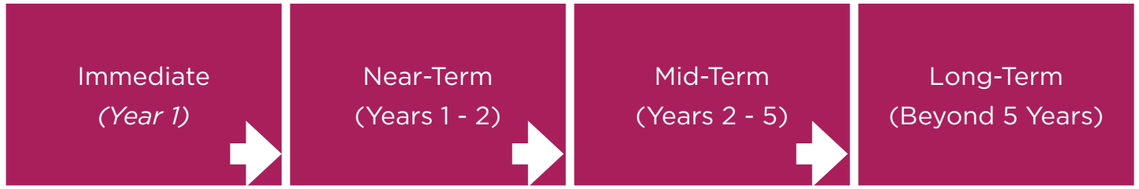
Track Performance

While average peak occupancy by on-street subarea and off-street facility will serve as the single most important driver of rate changes, this is not the only performance measure that will need to be tracked. One key element to track will be the total number of daily paid parking transactions (both on- and off-street). A data-driven rate process is intended to serve as an objective management tool, with the intent of redistributing rather than reducing demand. In fact, the goal is to make it easier for users to access their destination, as underpriced parking can lead to congestion, excessive circulation, and general frustration. Allowing users to decide early in their trip if they prefer to park close to their destination in a high-demand area, or slightly further or off-street for a reduced rate, is a key goal of the approach.

Given this, if it is determined that overall paid parking transactions across the entire Downtown decrease following rate adjustments, the City should attempt to determine if this was associated with a decrease in the number of customers and visitors coming Downtown. In some cases, effective communication may simply have led to greater usage of the time-limited system, but no overall decrease in visitors. Regardless, paid parking transactions should be monitored annually, and potentially correlated with tax revenue to confirm that the data-driven approach to parking management is having the intended effect of making it easier for users to find parking and access downtown businesses.

Implementation Timeline

This section outlines the timeline for implementing the recommendations. Recommendations are grouped into combined categories based on their content. 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:



Parking Management

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Identify and empower key City staff to oversee Sunburst Plan implementation	Long-Term	Long-Term	Data Analytics
Establish a Parking Enterprise Fund and/or parking benefit districts to manage parking revenues to meet downtown's mobility goals	Mid-Term	Long-Term	Data Analytics
Develop a 10-year budget plan for on- and off-street systems	Mid-Term	Long-Term	Data Analytics
Assess parking pricing strategies, such as demand- or performance-based pricing	Mid-Term	Long-Term	Data Analytics
Maintain the downtown Park+ model as conditions change to accurately test alternatives	Ongoing	Ongoing	None
Establish a formal process for evaluating parking investments such as the scorecard method outlined in this report	Near-Term	Mid-Term	Data Analytics
Ensure parking costs incentivize transit use over SOV use	Near-Term	Mid-Term	Data Analytics
Establish key performance measures to track over time	Immediate	Near-Term	Data Analytics
Implement a schedule of regular data collection with annual data reporting	Near-Term	Mid-Term	Data Analytics
Establish data-driven guidelines for operational changes	Near-Term	Mid-Term	Data Analytics
Define subareas for on-street parking that are easy to communicate to the public	Immediate	Near-Term	Data Analytics
Establish minimum and maximum on-street rates and increments for changes	Immediate	Near-Term	Data Analytics
Standardize on-street parking rates within each subarea	Near-Term	Mid-Term	Data Analytics
Adjust rates based on measured demand and track performance over time to confirm intended outcomes	Near-Term	Mid-Term	Data Analytics
Consider streamlining and centralizing the management and administration of public parking within a single division	Mid-Term	Long-Term	Data Analytics
Establish a Downtown Parking Advisory Committee to assist in implementation and ongoing review of the parking plan	Mid-Term	Long-Term	Data Analytics

Codes and Policies

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Establish Guiding Principles as policies for the management of public parking in Downtown Phoenix	Immediate	Near-Term	Perception
Establish a rate policy for adjusting rates in public supply (on- and off-street)	Near-Term	Mid-Term	Data Analytics
Ensure code provisions for the development of near parking are not excessive, leading to (a) overbuilding parking, or (b) impeding or creating a barrier to desired land use growth in downtown	Near-Term	Mid-Term	Data Analytics

Mobility and Transit

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Develop policies for funding active transportation programs with parking revenues or to leverage grant funding	Mid-Term	Long-Term	Perception
Update the Phoenix Comprehensive Bicycle Master Plan with a focus on downtown protected bicycle routes	Near-Term	Mid-Term	Perception
Implement parklets or bicycle/scooter parking in some existing on-street parking facilities to accommodate demands and calm traffic	Near-Term	Mid-Term	Perception
Explore implementing "Living Street" areas where pedestrians and bicycles are prioritized over vehicles	Mid-Term	Long-Term	Perception
Evaluate the need for new park-and-ride facilities outside of downtown	Near-Term	Near-Term	Data Analytics
Identify first/last mile connection improvements to connect transit riders to destinations	Near-Term	Near-Term	Data Analytics
Evaluate supplementing Express and RAPID service to downtown	Mid-Term	Long-Term	Data Analytics
Work with employers to institute TDM policies that incentivize transit use	Near-Term	Mid-Term	Data Analytics
Continue investing in flexible micro-transit and MaaS options	Immediate	Near-Term	Data Analytics
Evaluate working with private companies to expand the reach of transit through subsidized rideshare for paratransit or late-night services	Near-Term	Mid-Term	Data Analytics

Branding and Wayfinding

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Conduct full program branding efforts	Immediate	None	None
Finalize the branded wayfinding strategy and conduct a signage study	Near-Term	Mid-Term	Perception
Invest in recommended branding and wayfinding signage	Mid-Term	Long-Term	Perception
Implement marketing and messaging campaigns	Mid-Term	Long-Term	Perception

Technology and Data Analytics

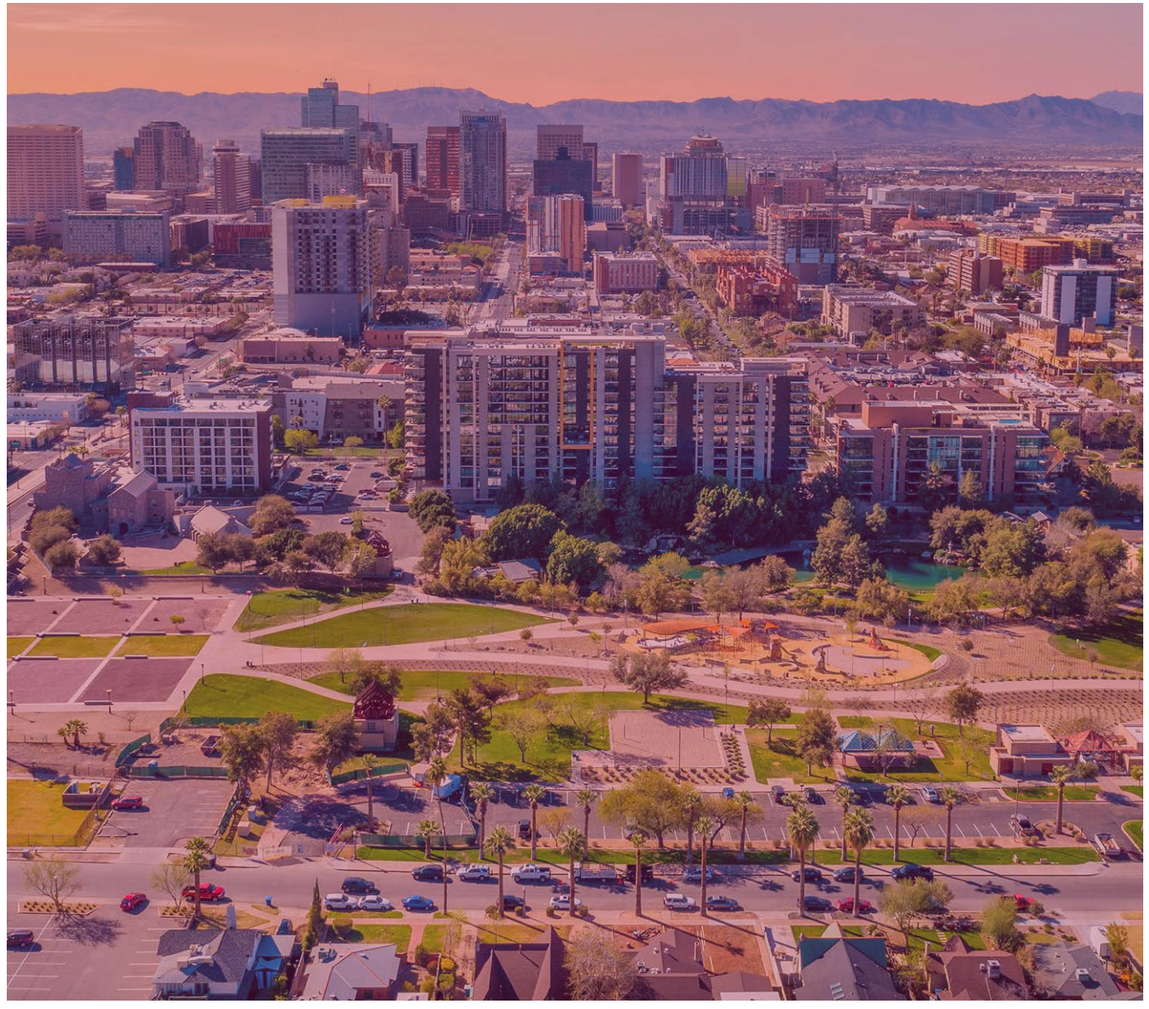
Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Scope and budget for a Sunburst Plan update	Mid-Term	Long-Term	Data Analytics
Budget for and procure technology upgrades to implement Sunburst Plan recommendations	Long-Term	None	None
Monitor Sunburst Plan recommendation performance and adjust as necessary	Long-Term	Long-Term	Data Analytics
Replace the remaining coin only parking meters	Immediate	None	None
Obtain on-street parking occupancy from transaction data or sensors attached to parking meters	Immediate	Near-Term	Data Analytics
Work with IPS to add enhanced DMS features to support on-street management	Immediate	Near-Term	Data Analytics
Upgrade parking management equipment on City-owned facilities to obtain real-time occupancy and support enhanced payment and validation functionality	Immediate	Near-Term	Data Analytics
Work with the City's existing mobile pay platform to integrate the on- and off-street facilities and enhance functionality	Immediate	Near-Term	Data Analytics
Upgrade on-street enforcement equipment with enhanced functionality	Immediate	Near-Term	Data Analytics
Integrate additional payment options into on- and off-street facility platforms	Mid-Term	Long-Term	Data Analytics
Develop methodologies for consolidating parking data streams from multiple sources int a single program or dashboard	Ongoing	Ongoing	Data Analytics
Work with MAG, Valley Metro, and private companies to develop a multimodal mobile trip planning application	Near-Term	Mid-Term	Data Analytics

Curb Management

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Maintain the curb lane inventory	Ongoing	Ongoing	Data Analytics
Develop curb lane priorities and optimal uses	Near-Term	Mid-Term	Perception
Test curb use management practices and new treatments with living previews	Mid-Term	Mid-Term	Perception
Implement permanent curb lane treatments and practices, including urban loading zone practices	Mid-Term	Long-Term	Perception
Monitor curb space uses through curb management technology	Mid-Term	Long-Term	Data Analytics

Residential Parking

Recommendation	Implementation Time Frame	Evaluation Time Frame	Evaluation Type
Invest in LPR technology to enforce residential parking restrictions	Near-Term	Mid-Term	Data Analytics
Update Residential Parking Program policies to better clarify the program goals, priority users by land use characteristics, and what areas are eligible	Near-Term	Mid-Term	Perception
Establish a standardized set of signs that can be used depending on specific needs of each neighborhood and allow for flexibility to allow some non-residential parking	Near-Term	Mid-Term	Perception
Better correlate the residential permit to observed peak times	Mid-Term	Long-Term	Data Analytics
Evaluate increasing the price for permits to cover the cost of the program and incentivize off-street parking	Long-Term	Long-Term	Data Analytics



Appendix

Parking Brand Identity Guide

Brand Identity Guide

Contents

Introduction

The ***PARK PHX*** Brand Identity Guide provides a foundation for clear and consistent communication of the organization's visual identity. Adhering to common standards ensures that the organization's name appears on all official communications.

The layout, color, and typography of all mediums and publications, from website to facility signage, are orchestrated to impart a unified "signature."

The official policies and standards for the design of the ***PARK PHX*** graphic identity, signage, and other applications are now or will be made available within this Brand Identity Guide. This guide notes specific uses to be followed by all members of the ***PARK PHX*** community.

Note: Final colors TBD. The selected Orange and Purple must be chosen after assessing available Sign Vinyl materials, Paint Colors that match and Pantone Matching System (PMS) inks for off-set printing of literature.

This Document, dated November 24, 2020 will serve to set the overall look or "style" when further developing the specific graphics and signage requirements for the Parking Services team of the City of Phoenix.

Stacked Logo and Wordmark

Logo

Wordmark

Logo & Wordmark

PARK PHX has two primary identifiers - the ***PARK PHX*** logo and the ***PARK PHX*** wordmark. Either can be used to represent the organization, however whenever possible, the combination of the logo and wordmark is preferable.

Logo

Inspired by the international symbol for "parking," the logo is representative of a stylized version. The placement and proportions of the typography and field have been predetermined. The logo should only be reproduced from the approved art file.

The logo is the primary identifier of all ***PARK PHX*** parking facilities. The wordmark is the secondary identifier.

Wordmark

The wordmark consists of the words *"PARK"* and *"PHX"* as a single mark as the spacing between the two words has been predetermined. The wordmark may be displayed in serveral ways as shown on this page. The wordmark should only be reporoduced from one of these approved art files.

The wordmark is the secondary identifier of all ***PARK PHX*** facilities and as primary identifier on the organization's digital and print communications.

Configurations

When combining the logo and wordmark there are two acceptable configurations; the "side-by-side" and "stacked."

The configurations of the logo and wordmark, as shown throughout the guide, should only be reproduced from one of these approved art files.

Logo & Wordmark:
Alternative color schemes

www.phoenix.gov

PHX AT YOUR SERVICE is a program of the City of Phoenix that utilizes a color palette of rust, orange and gold.

Illustrated on this page you will find one alternative of the ***PARK PHX*** Logo & Wordmark in this color palette.

In Greek, the word Phoenix means *Dark Red*

Illustrated on this page you will find another alternative of the ***PARK PHX*** Logo & Wordmark that incorporates a Dark Red combined with a Sky Blue.

Design attributes of a successful Parking Brand Identity

When driving about the City, one faces a multiplicity of signage in their view. After implenting over twenty municipal parking brand identity programs spanning twenty years, we have found that the use of bold and bright colors lead to swift brand recognition. Utilizing colors that people can easily describe or "say aloud" [follow the "orange sign" *versus* "follow the rusty-color sign"] makes all the difference for gaining memorability.

Typography

The primary typeface for the ***PARK PHX*** logo & wordmark is **Myriad Pro**, a contemporary san serif font that is easy to read and has *friendly* characteristics in style.

While this Guide offers information on all aspects of the Brand Identity, every attempt shall be made to use pre-approved digital art files whenever available.

Myriad Pro (Bold Condensed. *Bold Condensed italic* can be used as required by application)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

0 1 2 3 4 5 6 7 8 9

Myriad Pro (Semibold. *Semibold italic* can be used as required by application)

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

0123456789

Myriad Pro (Regular. *Regular italic* can be used as required by application)

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

0123456789

Pictograms for Parking

Symbols or *pictograms* are frequently used within the ***PARK PHX*** Brand Identity Guide applications.

Pictograms communicate complex messages quickly and effectively. Pictograms help bridge language barriers and to simplify concepts.

The library of pictograms for use within the ***PARK PHX*** Brand Identity Guide are referenced as follows: *The International Pictograms Standard,* ISBN 0-944094-22-8

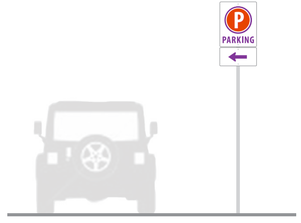
Wayfinding: *Trailblazer Signs*

Trailblazing to Parking

Trailblazer guide signage lays the "bread crumbs" to finding Public Parking.

Sign Design - a visual introduction to the *PARK PHX* brand identity

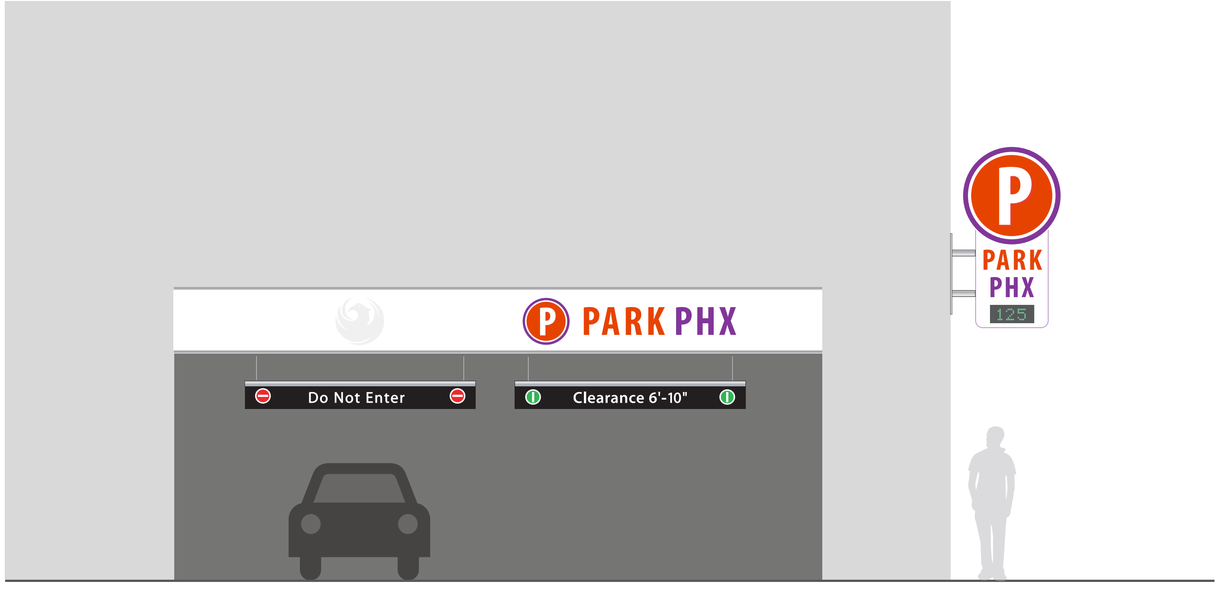
The design of the Trailblazer sign incorporates components of the Manual of Uniform Traffic Control Devices standards. As a wayfinding measure, the ***PARK PHX*** logo and sign colors serve to introduce the new parking brand identity. Position Trailblazer signs in a consistent manner; same height off the ground, same distance from a street corner, and locate within 2 to 3 city blocks away from each facility to give the driver ample time to recognize the sign and then make safe lane changes when required.



Notes:

1. *The arrow design follows MUTCD standards.*
2. *The use of retro-reflective print material is recommended, laminated to aluminum sheet material and mounted to a UniStrut stanchion.*

Garage Facility Identification



Conceptual signage treatment for Garage Identification. Each Facility will vary.

NOT TO SCALE

Garage Facility Wayfinding

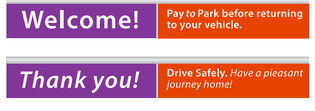
Entry & Exit Lane Signage

ParkLine Entry/Exit Lane signage will be located at all Parking Facility points of egress. These sign types will be made utilizing recycled car tires! Hides scratches and easy to maintain; simply apply tire cleaner on a regular basis to keep Entry & Exit Lane signs looking like new.

Entry & Exit Area Signage

ParkLine modular signs will be located upon entering each *PARK PHX* Garage Facility to **Welcome!** guests and begin to convey the story of the *Pay to Park* system.

And upon Exiting, we will always provide a **Thank You!** message.



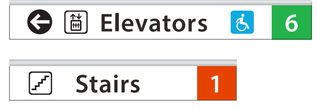
Vehicular Wayfinding Signage

Expert wayfinding planning will lead to **Sign Location Plans** for each *PARK PHX* Garage Facility. The ParkLine modular sign system, by www.parklinesolutions.com has been installed throughout the US and Canada in over 200 parking garages. Vehicular wayfinding signs are designed for high contrast (black backgrounds with white messages) to enhance the ease by which a driver finds their way in and out of a facility.

Code Signage examples

Pedestrian Wayfinding Signage

Pedestrian wayfinding signs must differentiate between vehicular directional signage. The reverse scheme (white backgrounds with black messages) will help achieve this. Once parked, the driver and passengers become pedestrians in search for an Elevator (or other egress). Upon completing their visit downtown, the visitor begins the journey of returning to the Parking Facility, paying for parking, finding their vehicle and Exiting the facility. Wayfinding signage is like a series of bread crumbs, anticipating the needs of the pedestrian at each point of decision.



Pay to Park Signage examples

Parking Rate Display

Paying for Parking

Upon entering a Parking Garage Facility, Rate Signage will be located in plain site. Size and scale will be determined for each facility.

Sign Design - ***make it easy to understand how to pay!***

The design of the Rate Display sign is intended to speak to the visitor by offering information in a hierarchial format:

1. Be clear that this is a Pay to Park facility

2. Make it easy to quickly identify the the day by which parking rates are applicable; Is is "Monday to Friday" or is it the "Weekend?" If signage can make this step clear, the visitor only has to read the portion of the sign that is specific to their time of entry!

3. Offer a telephone number for help.

4. What forms of payment do you accept.

5. State the Brand Identity as this helps the visitor to remember where they parked hours later.

Surface Lot Signage