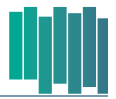




GREENSBORO DOWNTOWN PARKING PLAN





Greensboro Downtown **PARKING PLAN**



The Greensboro Downtown Parking Plan assists the Greensboro Department of Transportation (GDOT) in meeting the City’s parking needs as it continues to grow. This document summarizes the goals of the plan and the existing state of parking in Downtown. Building on lessons learned from benchmarked cities and community engagement feedback, the Downtown Parking Plan provides guidance to help align Downtown Greensboro’s parking system with industry best practices.

Feedback from the public is included, indicating overall level of satisfaction and key areas of improvement for the City. Information from community engagement informed the development of the strategic plan for both curb lane management and off-street parking recommendations.

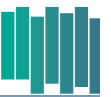
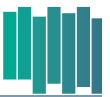


Table of CONTENTS

04.	EXECUTIVE SUMMARY
14.	PARKING PLAN OVERVIEW
18.	QUICK WINS
28.	EXISTING CONDITIONS
50.	BENCHMARK STUDY
60.	COMMUNITY ENGAGEMENT: SURVEY RESULTS
67.	SETTING A NEW STANDARD FOR PARKING



Executive SUMMARY

PURPOSE OF THE PLAN

In the Fall of 2022, the Greensboro Department of Transportation (GDOT) launched a comprehensive assessment of parking in Downtown Greensboro. The Greensboro Downtown Parking Plan was sparked by changing conditions in Downtown Greensboro and the need to develop comprehensive, long-term strategies for parking management in a post-pandemic world. The purpose of the Plan is to:

- Meet goals outlined in the GSO 2040 Comprehensive Plan,
- Address changes in parking demand that result from increased work-from-home rates,
- Resolve competing interests, and
- Provide a framework for decision-making.

GOALS OF THE PLAN

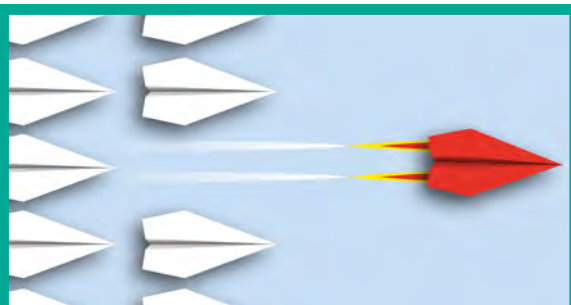
GDOT's mission is to provide Greensboro safe, seamless, and equitable transportation choices. This mission statement is woven into GDOT's approach to providing parking and transportation services. As such, GDOT has identified four goals for its parking system:



Improve Legibility



Increase Equity



Enhance Effectiveness



Ensure Sustainability



EXISTING CONDITIONS KEY FINDINGS

A comprehensive evaluation of Downtown Greensboro's on-street and off-street public parking system was conducted to develop a baseline understanding of the current parking system and opportunities for improvement. Based on the existing conditions evaluation the following key findings were identified:

KEY FINDINGS

01

AMPLE PARKING SUPPLY

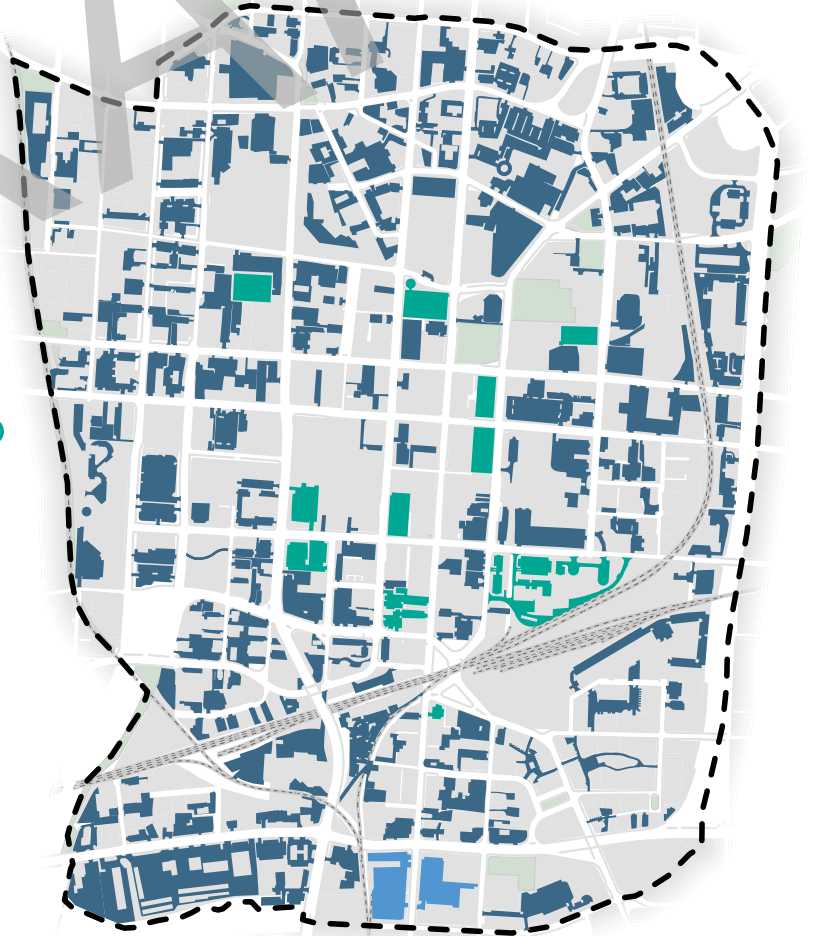
Within the 424 acre study area of Downtown Greensboro, 153 acres (36%) of the land is taken up by both public and private parking. This is 14% more land allocated to parking than the national average, per the Parking Reform Network. This results in a downtown environment that encourages people to drive to each location rather than parking once and using other modes to navigate downtown.

Public parking comprises ~5% of the land used for parking and is clustered in the northern portion of downtown. This results in a public parking shortage in South End.

36%

Of the land in
Downtown Greensboro
is taken up by parking.

- Private Parking
- Public Parking
- Temporary Public Lot





KEY FINDINGS

02

PARKING IS PAID IN LOW DEMAND AREAS

Public parking decks in Downtown Greensboro are currently underutilized. These assets can be used to absorb parking demand from future developments.

03

PARKING IS FREE IN HIGH-DEMAND AREAS

Free public surface lots and Elm Street generate high parking demand but low turnover. Higher turnover rates in high-demand areas are needed to support the success of the mobility system as a whole.

04

OUTDATED POLICIES

Legacy policies and procedures limit the efficiency of the parking system. This results in an inconsistent parking experience and diminishes the City's ability to foster compliance-focused parking system.

05

INEQUITABLE DISTRIBUTION

Parking supply is not equitably distributed downtown, leading to a parking shortage in the South End.

06

INEFFICIENT UTILIZATION

Parking turnover has not been prioritized, resulting in fewer available parking spaces. Areas with the highest demand are not managed to create an efficient parking ecosystem. This makes it harder to for people to have access to businesses and destinations.

07

LAGGING INVESTMENTS

Investment in the existing public parking decks has been deferred, resulting in outstanding maintenance needs.

08

SAFETY CONCERNS

Safety and the perception of safety impact the customer's parking experience. Improving safety can facilitate higher utilization of public parking decks.

09

ABUNDANCE OF PARKING

The high number of parking options hinders the public parking system from being financially stable.



BENCHMARK STUDY SUMMARY

A benchmark study of five cities was conducted to compare Greensboro's parking management practices with regional and national peers. Benchmarked cities included: Boise, ID, Columbus, OH, Greenville, SC, Raleigh, NC, and Savannah, GA. Based on the benchmark study the following trends and key comparisons were identified.

ON-STREET PARKING

80%

80% of the benchmarked cities charge for on-street parking.

100%

Of the cities that charge for parking, 100% have higher hourly rates for on-street parking.

100%

Of the cities that charge for parking, 100% use parking demand to determine locations with higher or lower pricing rates.

80%

Enforce parking regulations such as paid parking or time-limited parking on Saturdays.

OFF-STREET PARKING

80%

80% of the benchmarked cities operate their parking decks 24 hours a day, 7 days a week. Greensboro is the only city to have interrupted hours of operation.

100%

100% of the benchmarked cities have higher hourly rates for off-street parking.

80%

80% of the benchmarked cities have a higher maximum daily rate.

60%

60% of the benchmarked cities offer a discounted permit for service/hospitality employees that work during evening/night shifts.

Recommendations to enhance the on-street and off-street parking systems in Downtown Greensboro were developed based on the observed existing conditions, industry best practices, and lessons learned from benchmarked cities.



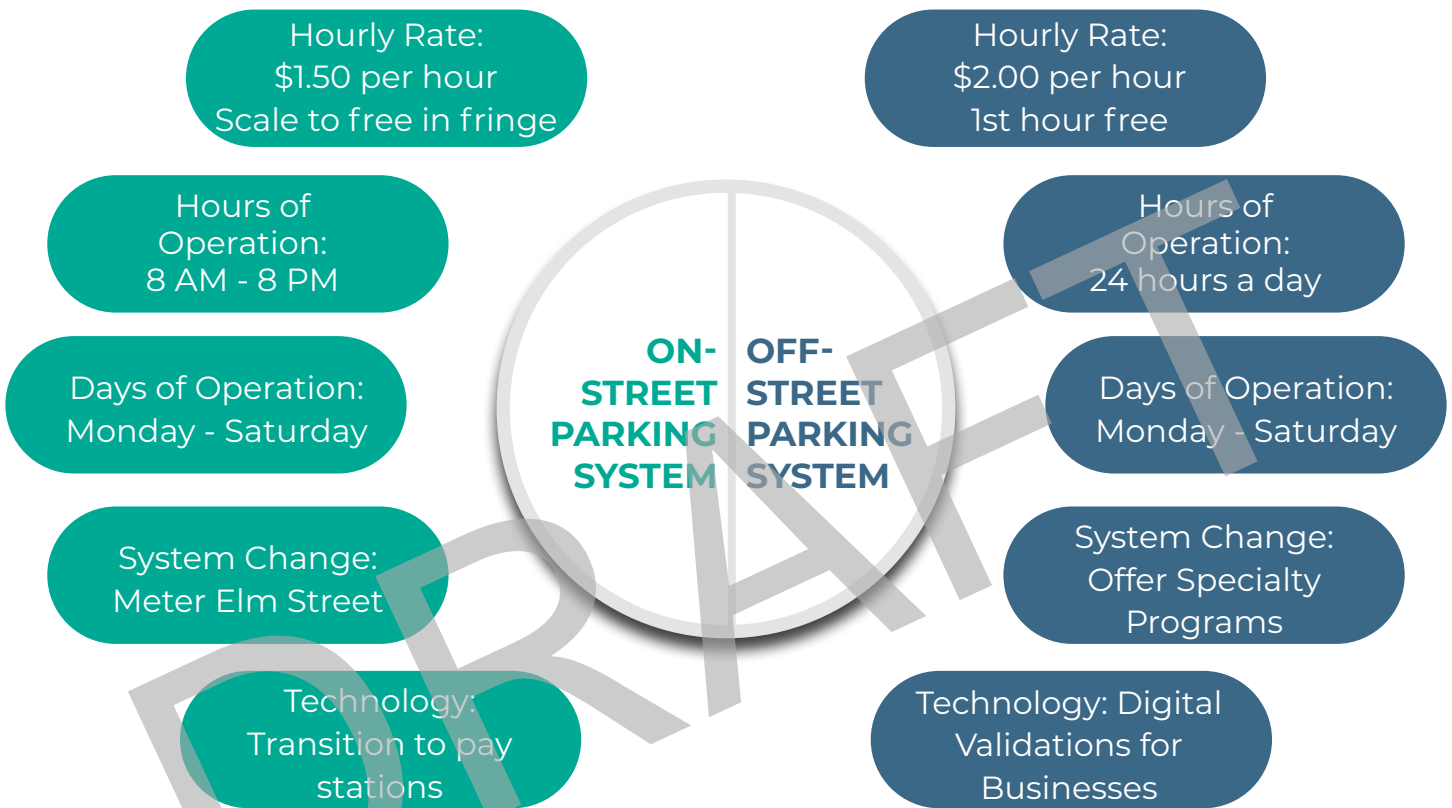
RECOMMENDATIONS



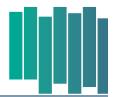


OPERATIONAL RECOMMENDATIONS

To align with benchmarked cities, respond to public input, and foster a consistent parking experience, Greensboro should adjust its on-street and off-street operations. Proposed operational changes include an increase in the hourly rate, an extension of the days and hours of operation, and the introduction of discounted permits at public parking decks for service/hospitality employees, and the incorporation of new technology such as pay stations and digital validations.

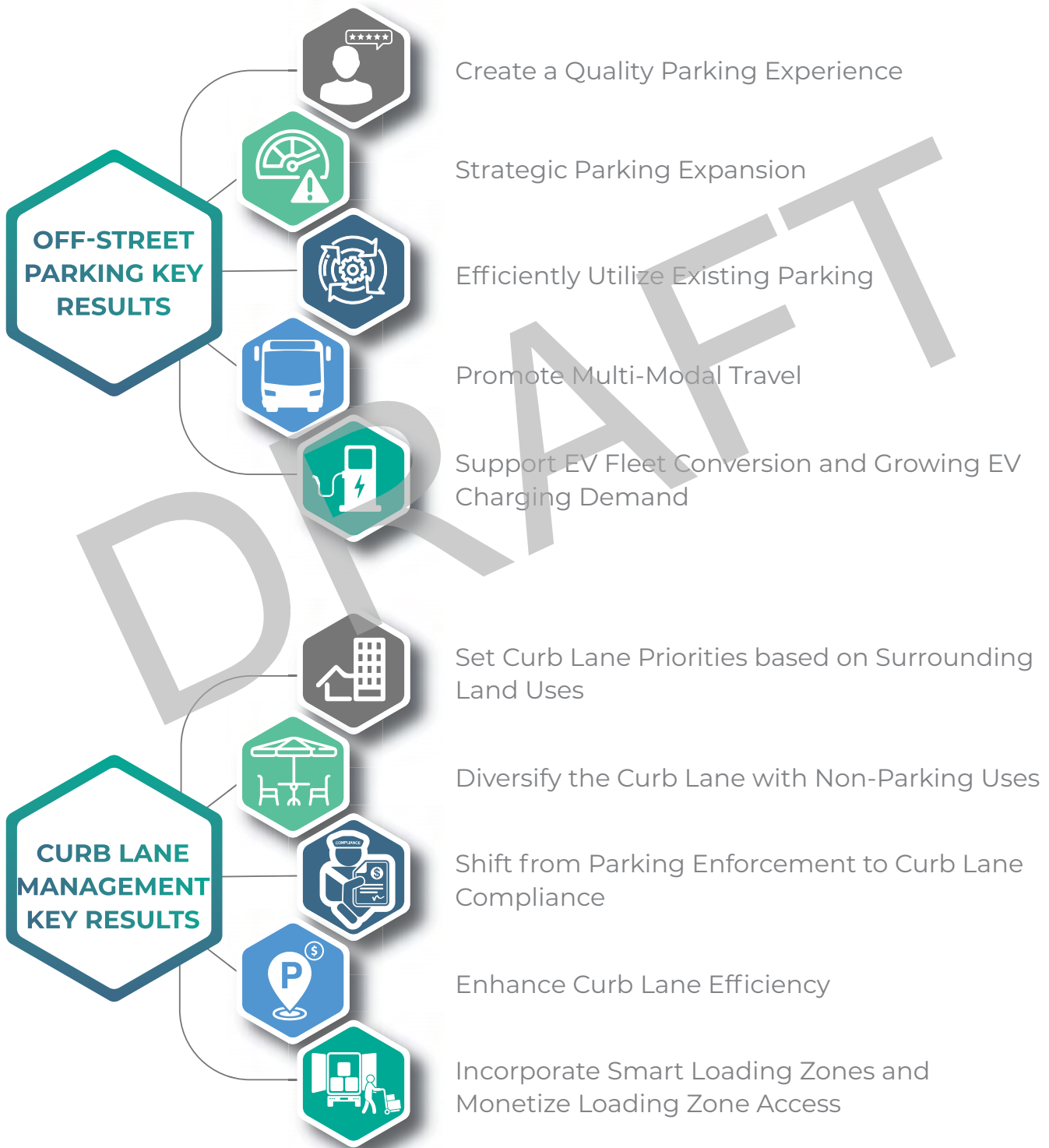


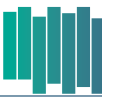
By updating the on-street and off-street parking operations, Greensboro can better manage parking during high-demand periods, encourage the use of off-street parking for long-term parking sessions, and increase availability at the curb for short-term parking sessions. Additionally, Greensboro can ensure equity by offering service/hospitality employees discounted parking at nearby parking decks and coordinate with business owners to validate parking for customers. Lastly, incorporating enhanced technology can facilitate more convenient payment methods and allow customers to fully control their parking experience.



SETTING A NEW STANDARD FOR PARKING

As an industry, there are best practices on how cities approach off-street and on-street parking management. Although there is no one-size-fits-all approach to parking and curb lane management, there are widely accepted industry trends that should be incorporated into GDOT'S approach to managing parking in Downtown Greensboro. These overarching trends will be explored in more detail and will guide recommendations specific to Greensboro to help set a new standard for parking Downtown.





KEY ACTION TO MEET OUR GOALS

To accomplish the four goals of the Downtown Greensboro Parking Plan, address the key findings of the existing conditions assessment, and align with industry best practices, the City of Greensboro should perform the following action items.

01

IMPROVE LEGIBILITY

Install clear, simple rules and signs.
Provide consistent compliance monitoring and enforcement.

02

INCREASE EQUITY

Implement clear, simple rules across downtown.
Provide consistent enforcement throughout downtown.
Develop targeted employee permit programs.

03

ENHANCE EFFECTIVENESS

Promote higher turnover in high-demand areas.
Right-size fees to generate turnover.
Right-size enforcement to promote compliance.

04

ENSURE SUSTAINABILITY

Invest in maintenance.
Right-size fees and revenue.
Invest in South End public parking.

A comprehensive list of challenges and strategies to improve on-street and off-street parking in Downtown Greensboro is provided on the next page. Additional details for the implementation of recommended strategies can be found in the companion documents to this plan: the Curb Playbook and Parking and Operations Playbook.



Key Results	Challenge	Strategy	Priority Level		
			High	Mid	Low
Off-Street Recommendations					
Create a Quality Parking Experience	People have difficulty finding information about Greensboro's parking facilities before they begin their journey to downtown.	Enhance GDOT's online presence and create a website that is easy to navigate, informative, and provides accurate information.	High		
	People do not know where Greensboro parking facilities are located.	Install wayfinding signage along key routes that help drivers navigate to available public parking.		Mid	
	People are unsure if space is available and/or the guidelines for parking in a Greensboro facility.	Inform customers of a parking facility's availability before they enter the facility and ensure parking rates, rules, and regulations are clear.	High		
	It is inconvenient and time-consuming to pay for parking.	Enhance payment options for customers to create a frictionless parking experience.		Mid	
	People have difficulty recalling where they parked.	Clearly designate public parking facility levels with easily identifiable signage and standard parking options.		Mid	
	Due to dim lighting and enclosed stairwells, customers can sometimes feel unsafe in facilities.	Ensure parking facilities are safe, secure, and actively monitored.	High		
Strategic Parking Expansion	Developers are used to providing parking for every land use, which can create an abundance of parking and reduce walkability.	Require shared parking studies and parking management plans for new developments and the creation of parking facilities.			Low
	An abundance of surface parking lots limits walkability and activation in downtown.	Set parking maximums for single-use parking facilities.		Mid	
Efficiently Utilize Existing Parking	Current operations could be improved to manage parking demand without increasing supply.	Implement operational changes to existing parking facilities to increase efficiency.	High		
	High-demand surface lots are being used for monthly parkers, reducing turnover.	Reallocate monthly and transient demand for increased turnover in surface lots and shift long-term parking sessions into decks.		Mid	
	It can be difficult for parkers to find public parking facilities.	Improve communication so drivers can easily find and park at Greensboro decks.	High		
	Local partners can feel unheard throughout changes in parking policy.	Partner with local committees, businesses, and organizations to leverage Greensboro facilities for their needs.		Mid	
	As Greensboro continues to grow, parking trends are likely to change year by year.	Conduct regular assessments of Greensboro's parking facilities.		Mid	



Key Results	Challenge	Strategy	Priority Level		
			High	Mid	Low
Off-Street Recommendations Continued					
Promote Multi-Modal Travel	People are less likely to use alternative transportation if infrastructure is not in place.	Increase bike and micromobility facilities and parking options near Greensboro facilities.			High
		Connect Greensboro decks with micromobility travel options.			High
	Some people's walking tolerances are smaller than the parking offered.	Encourage Greensboro decks as "park and ride" locations, specifically prioritizing implementation at the Depot Complex Lot.		Mid	
Support EV Fleet Conversion and Growing EV Charging Demand	As demand for EVs continues to grow, Greensboro will need to assess its level of investment in EV infrastructure.	Develop an EV Implementation Plan.		Mid	
On-Street Recommendations					
Set Curb Lane Priorities based on Surrounding Land Uses	There are high-demand areas in Greensboro that could benefit from increased management to ensure turnover and equitable access.	Identify areas that need additional curb management and incorporate them into the system.	High		
	Business owners can typically feel excluded from curb lane usage decisions although their businesses could be impacted.	Engage business owners in evaluating curb amenities.	High		
Diversify the Curb Lane with Non-Parking Uses	Non-compliance at the curb could be an indication that the existing curb use is not meeting users' needs.	Evaluate block faces for non-compliant curb uses.		Mid	
	Expanding multi-modal infrastructure along roadways in downtown will encourage people to use alternative modes of transportation and help manage parking demand.	Determine potential corridors that would be candidates for alternative modes of transportation.		Mid	
Shift from Parking Enforcement to Curb Lane Compliance	Non-compliance at the curb can be caused by lack of awareness and education.	Ensure the community is made aware of the changes to the parking system.	High		
	Non-compliance at the curb can be caused by differing enforcement practices within the city, leading to confusion.	Develop a more standardized enforcement routine and procedure.	High		
	Citation prices are artificially low in Greensboro, leading some users to be more willing to violate the rules.	Adapt enforcement violations to prices similar to Greensboro's peer cities.		Mid	
Enhances Curb Lane Efficiency	Certain areas in Greensboro have high demand and low turnover, making it difficult to find on-street parking.	Expand metered on-street parking system to manage demand.	High		
	Certain areas in Greensboro have high demand outside the current hours of operation for on-street parking.	Update hours of operation for the on-street system to increase turnover.	High		
	As Greensboro continues to grow, curb lane needs are likely to change.	Conduct occupancy and duration studies every year to track changes in demand.			High
Incorporate Smart Loading Zones and Monetize Loading Zone Access	As curb space continues to grow in demand, cities can better leverage and monitor their loading zones.	Implement smart loading zones.			



Parking Plan

OVERVIEW

PURPOSE OF THE PLAN

In the Fall of 2022, the Greensboro Department of Transportation (GDOT) launched a comprehensive assessment of parking in Downtown Greensboro. The Greensboro Downtown Parking Plan was sparked by changing conditions in Downtown Greensboro and the need to develop comprehensive, long-term strategies for parking management in a post-pandemic world. The purpose of the Plan is to:

- Meet goals outlined in the GSO 2040 Comprehensive Plan,
- Address changes in parking demand that result from increased work-from-home rates,
- Resolve competing interests, and
- Provide a framework for decision-making.

GOALS OF THE PLAN

GDOT’s mission is to provide Greensboro safe, seamless, and equitable transportation choices. This mission statement is woven into GDOT’s approach to providing parking and transportation services. As such, GDOT has identified four goals for its parking system:

Improve Legibility

Increase Equity

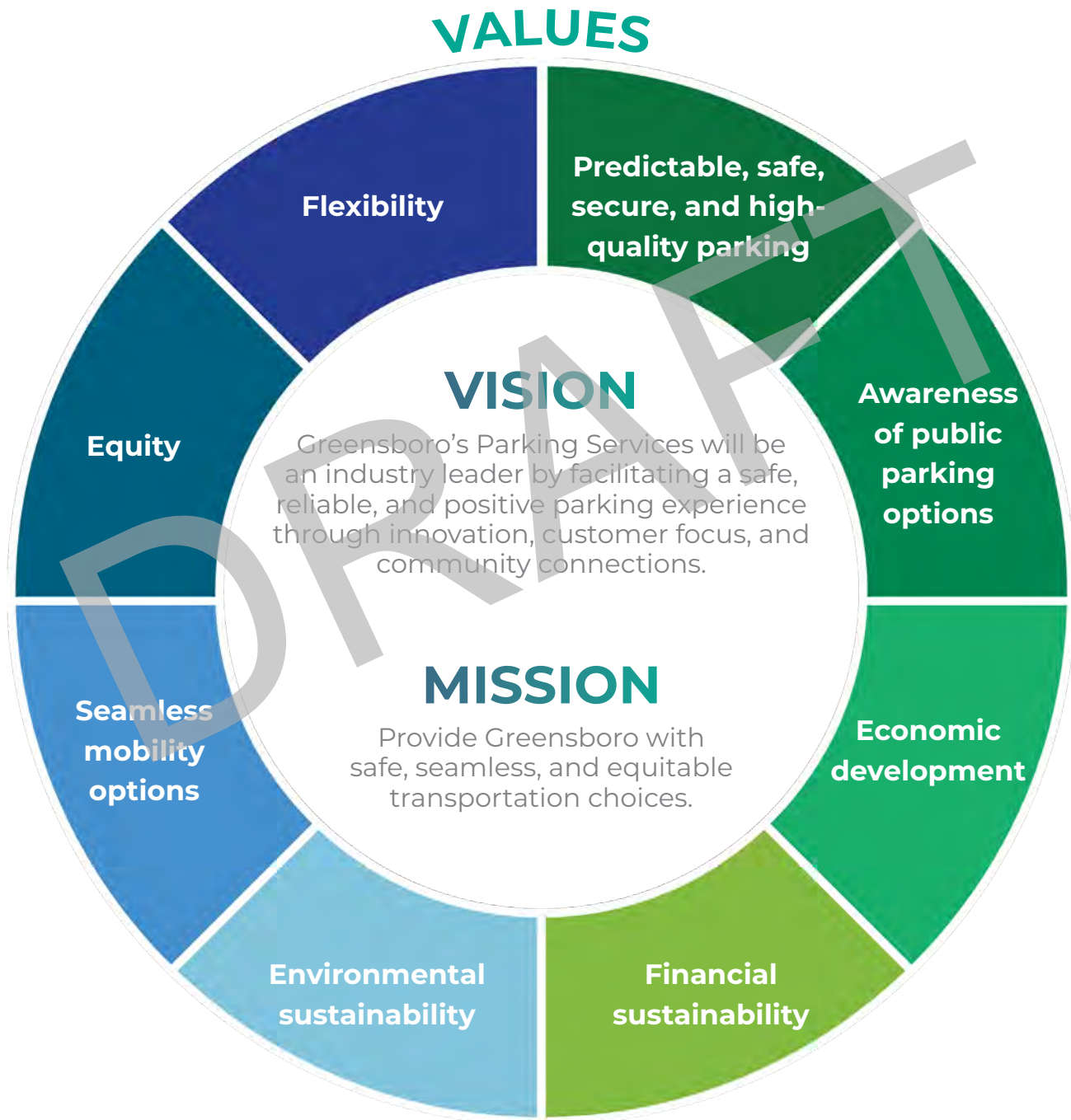
Enhance Effectiveness

Ensure Sustainability



VALUES, VISION, AND MISSION

A key component of the Greensboro Downtown Parking Plan is to refine a vision and core values for Greensboro’s Business and Parking Division (Parking Services) that responds to the Department’s mission. The goals of Greensboro’s Parking Services were tailored to work in tandem with the City’s envisioned future. Based on the results of a workshop with City staff, the following Values, Vision, and Mission were determined.





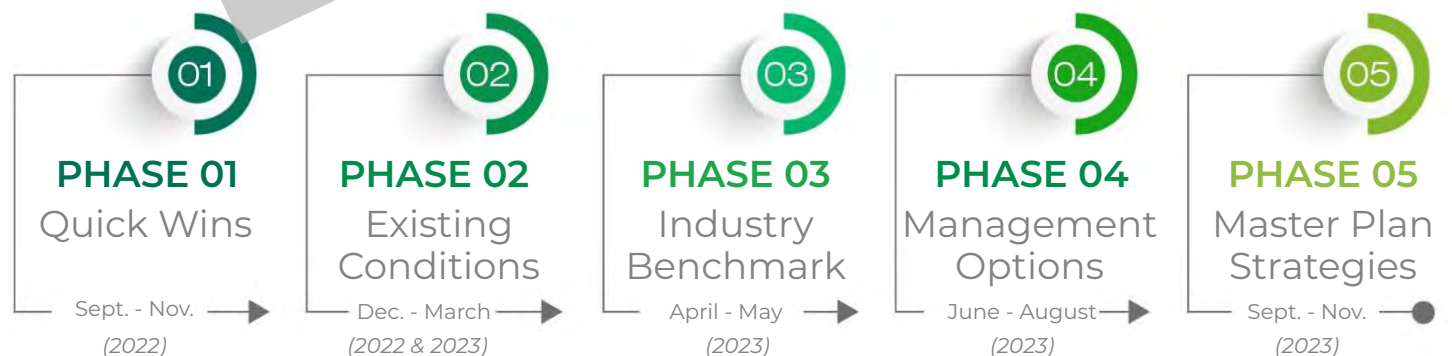
KEY OBJECTIVES

This plan focuses on seven key objectives for the Downtown Greensboro parking system:



PLANNING PROCESS AND TIMELINE

The Greensboro Downtown Parking Plan will be completed through a five-phase process.



The Existing Conditions of Downtown Greensboro’s parking system lays the foundation for the Greensboro Downtown Parking Plan. Public input provides guidance on areas of focus and priority outcomes.



Quick WINS

At the onset of the Greensboro Downtown Parking Plan, GDOT coordinated with stakeholders and community members to identify quick wins that could be initiated during the planning process. The purpose of the Quick Wins assessment was to ensure that the planning process was not a hurdle to making immediate progress. Based on the initial stakeholder engagement eight areas of investigation were identified.

8 AREAS OF INVESTIGATION

01

**Adding Parking Supply
in Targeted Locations**

02

**Enforcing Permit
Regulations**

03

**Creating Parking
Turnover**

04

**Relaunching the
Mobile App**

05

**Extending Maximum
Time Limits**

06

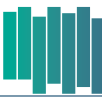
**Addressing Safety
Concerns**

07

**Improving Signage
and Wayfinding**

08

**Improving Transit
Access**



ADDING PARKING SUPPLY IN TARGETED LOCATIONS

Based on stakeholder feedback, the most pressing concerns related to adding parking supply were in South End. This area experiences high levels of parking demand during nights and weekends. Additionally, public parking supply is limited in this area and parking turnover is typically low. Lastly, planned developments in the area will likely reduce the publicly available parking supply, further limiting the area's ability to meet parking demand.

To evaluate opportunities regarding adding parking supply, GDOT held a South End stakeholder meeting. This meeting was a listening session to identify areas that have parking challenges and identify potential solutions to address parking concerns. During this stakeholder session, seven public parking facility options were identified and discussed. GDOT and the City of Greensboro are continuing to explore potential parking facility options.





The cost of constructing additional parking spaces in South End is a key consideration for adding parking supply. Based on site selection and architectural factors, above-ground structured parking can range from \$25,000 to \$35,000 per space. Based on the recent construction of the Eugene Street Deck, constructing a parking space in Downtown Greensboro costs approximately \$32,000 per space. Evaluating opportunities for public-private partnerships and ensuring Greensboro takes a financially sustainable approach to future parking investments is essential in the decision-making process.

Determining the true demand for parking in South End is a challenge. Because public parking in South End is free, the existing demand reflects the demand for free parking. Paid parking can serve as a transportation demand management strategy, encouraging people to use alternative modes of travel, thereby creating a lower parking demand. Potential solutions to concerns associated with adding parking supply include:

01

Replacing up to 250 public parking spaces after they are displaced by redevelopment



02

Ensuring financial sustainability by pricing parking at the market rate



03

Establishing written agreements requiring developers to provide market rate public parking as part of their redevelopment agreement





ENFORCING PERMIT REGULATIONS

Enforcing permit regulations, specifically in areas with Residential Permit Parking (RPP) was identified as an topic for additional investigation. Based on stakeholder feedback, customers, particularly in South End, park in areas designated for residents. After engagement with stakeholders and evaluating existing legislation, potential solutions to this concern include:

04

Extending RPP restrictions until 8:00 PM, Monday - Saturday



05

Conducting hourly compliance monitoring routes on RPP streets and increasing the fine amount for RPP violations



06

Updating the City Service Request page to include Parking Services and the ability to send parking issues to GDOT directly



07

Performing an inventory of abandoned vehicles and establish a process for towing vehicles from the public right-of-way





CREATING PARKING TURNOVER

Stakeholders identified an inequity in the City’s historic approach to on-street parking management. Currently, GDOT charges for on-street parking along most streets in Downtown Greensboro. However, Elm Street, Downtown’s premiere destination corridor, allows for free parking. This results in decreased turnover in an area that needs it most. Based on stakeholder feedback, potential solutions to address this concern include:

- 08

Charging for parking on high-demand streets that do not have permit restrictions

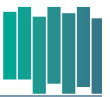

- 09

Evaluating a pricing strategy that promotes parking turnover without needing to issue a citation


- 10

Adjust day and hours of operation to Monday - Saturday, 8:00 AM to 8:00 PM





RELAUNCHING THE MOBILE APP

Currently, the on-street parking system in Downtown Greensboro can be accessed by using the ParkMobile app. However, usage and awareness of the app are low. To better leverage this parking technology solution, enhance the customer experience, and empower customers to fully control their parking experience, GDOT should work with its mobile app provider to perform the following:

11

Upgrade and install new mobile app signage

**12**

Validate customer's on-street and off-street parking via QR codes through the mobile app

**13**

Engage business owners to determine which parking sessions they are willing to validate

**14**

Offer customers a promotional code to download the app and discounts for subsequent parking sessions





EXTENDING MAXIMUM TIME LIMITS

Stakeholders identified the maximum time limit in Downtown Greensboro as a deterrent for customer parking on the street. Additionally, long-term parking options were identified as limited or too far from a destination. This was particularly true for businesses along Lewis Street. Based on this feedback, GDOT is evaluating the following potential solution:

15

Extend the maximum time limit to 4-hours in some areas and charge for parking





ADDRESSING SAFETY CONCERNS

Stakeholders reported concerns related to parking in public parking facilities, particularly at night. Based on stakeholder feedback, the lighting and visibility were the primary safety concerns. Additionally, stakeholders voiced concern about public parking facilities being used by non-parkers. To address safety concerns, GDOT evaluated the following potential solutions:

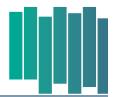
16 Power wash and paint all city-owned parking decks

17 Develop internal wayfinding for city-owned parking decks

18 Increase the brightness of city-owned parking decks with updated lighting

19 Install security doors at parking decks to limit access by non-parkers

DRAFT



IMPROVING WAYFINDING AND SIGNAGE

Identifying public parking options and navigating to these facilities was determined as a challenge for stakeholders. Based on conversations with stakeholders, there was general uncertainty regarding the location of public parking facilities and who was eligible to park at each facility. To improve wayfinding and signage, GDOT evaluated the following potential solutions:

20

Implement the City of Greensboro wayfinding signage plan and prioritize signage directing drivers to city-owned parking decks



21

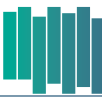
Equip city-owned parking decks with interactive digital signage that allows users to browse destinations in Downtown Greensboro



22

Install on-street signage to guide drivers to city-owned parking facilities





IMPROVING TRANSIT ACCESS

Accessing transit and improving connectivity throughout downtown was identified as a critical need for stakeholders. Additionally, stakeholders reported a desire to have a better connection to the universities in Greensboro. Based on this initial stakeholder feedback, GDOT evaluated the following potential solutions:

23

Evaluate long-term funding strategies for the trolley service and system enhancements



24

Partner with nearby universities to add shuttle stops in downtown



25

Create space on the street for improved transit access



26

Improve coordination for micromobility parking at decks to provide last mile options



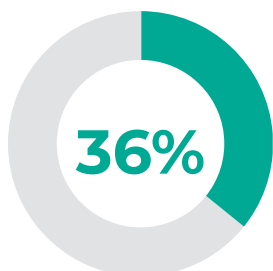
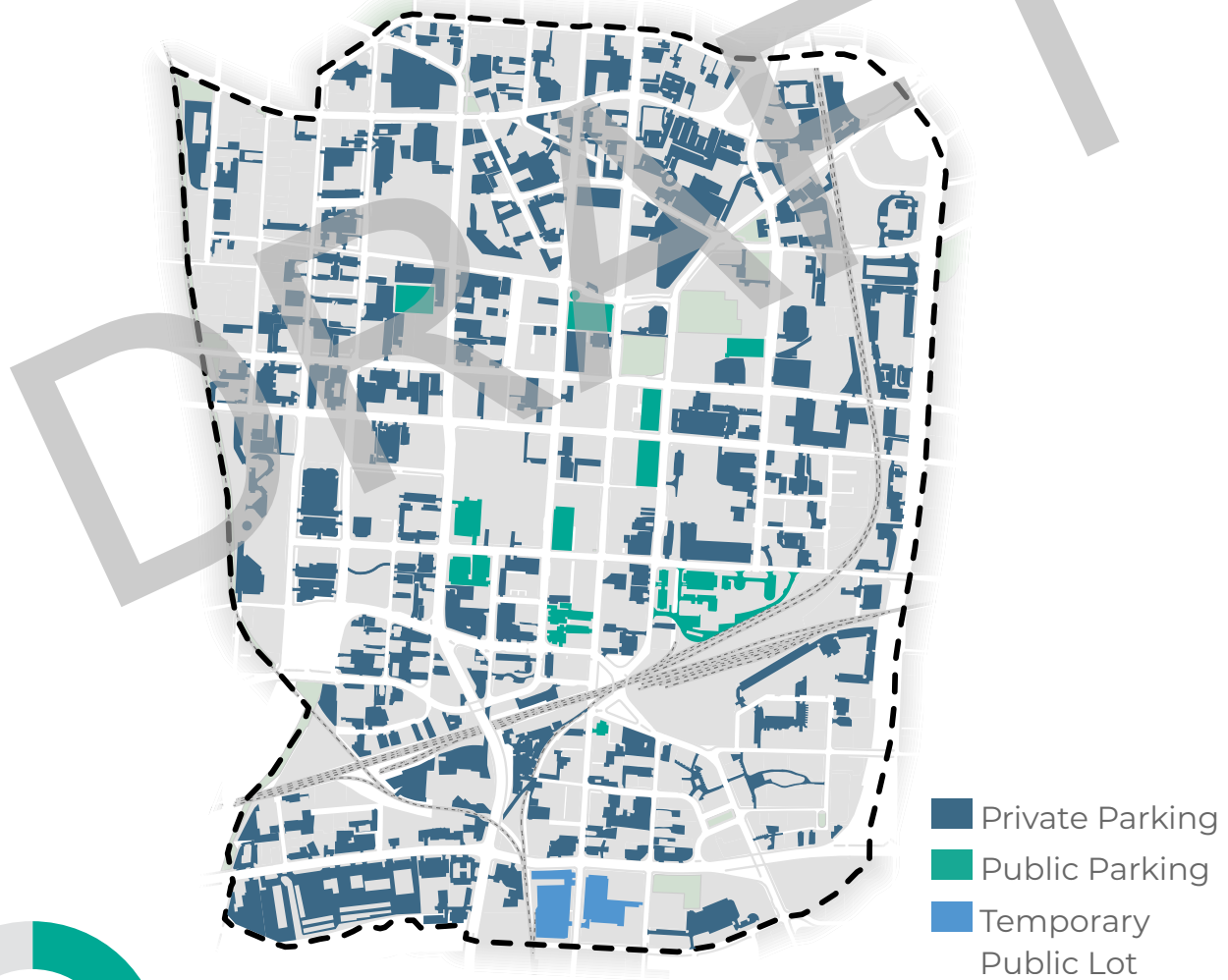


Existing CONDITIONS

DOWNTOWN OFF-STREET PARKING SYSTEM

In Downtown Greensboro, parking plays a major role in the mobility experience of visitors, customers, employees, and residents. Off-street parking is typically provided on site for each land use, resulting in a large amount of land dedicated to parking. Within the 424 acre study area of Downtown Greensboro, 153 acres (36%) of the land is taken up by both public and private parking. This is 14% more land allocated to parking than the national average, per the Parking Reform Network. Public parking comprises ~5% of the land used for parking. This results in a downtown environment that encourages people to drive to each location rather than parking once and using other modes to navigate downtown.

OFF-STREET PARKING SYSTEM



Of the land in Downtown Greensboro is taken up by parking.

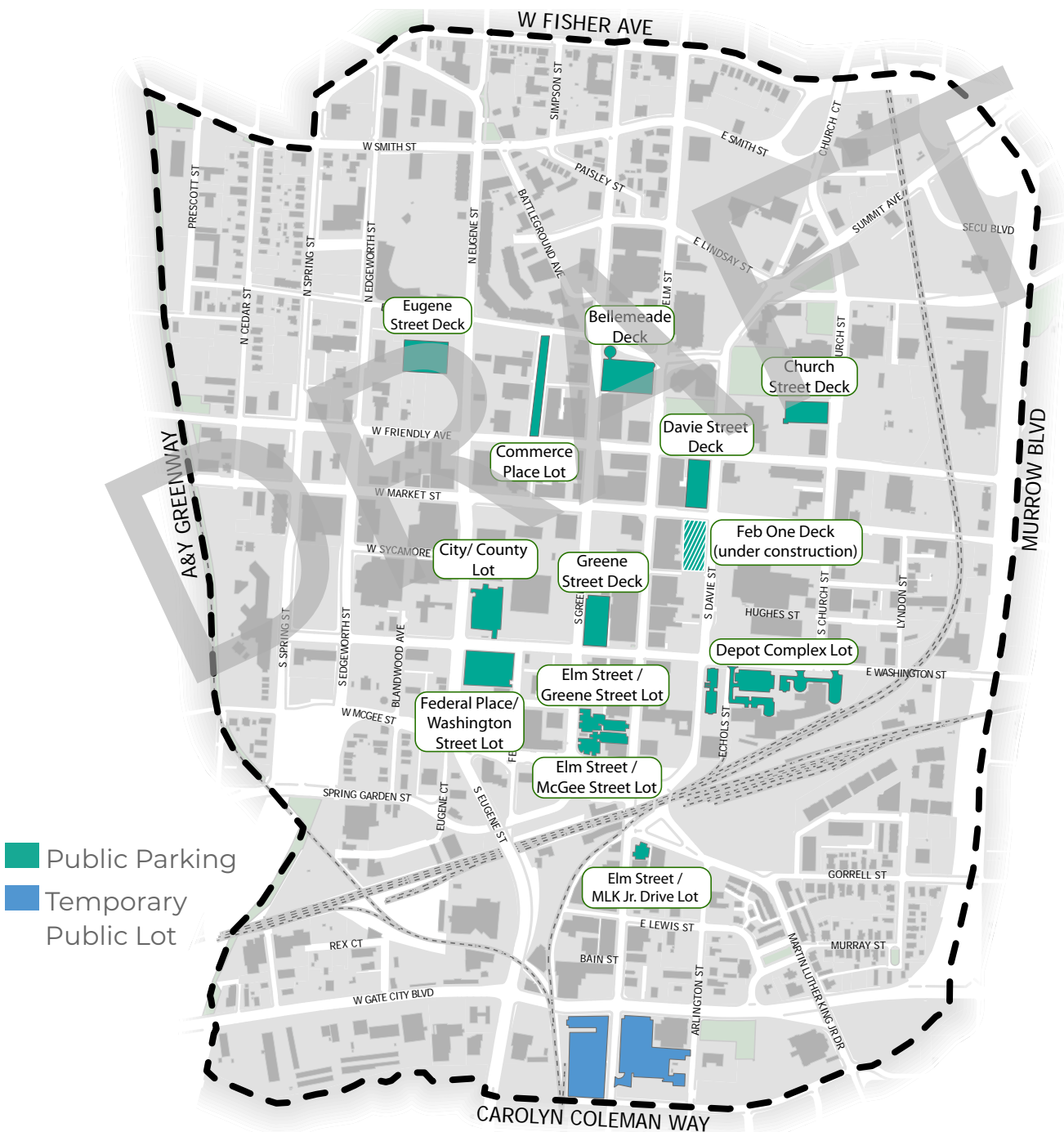


DOWNTOWN PUBLIC PARKING FACILITIES

The Downtown Greensboro’s off-street public parking system consists of 4,683 parking spaces with an additional 720 parking spaces under construction (February One Deck).

The off-street parking facilities are intended to provide long-term parking for employees, residents, and visitors, whereas the on-street parking system aims to meet short-term parking needs of customers. Each of Greensboro’s parking assets plays a crucial role in supporting economic development.

PUBLIC PARKING FACILITIES





PARKING DECKS



BELLEMEADE STREET DECK

The Bellemeade Street Deck is located northwest of Center City Park at 220 N. Greene Street and provides 1,276 parking spaces. Located on the northwest portion of the study area, the Bellemeade Street Deck provides parking access to office buildings and event venues.



CHURCH STREET DECK

The Church Street Deck is located southeast of LaBauer Park at 215 N. Church Street and provides 424 parking spaces. The Church Street Deck is within walking distance from the Tanger Center, Greensboro Cultural Center, History Museum, Greensboro Public Library, and Miriam P. Brenner Children's Museum.



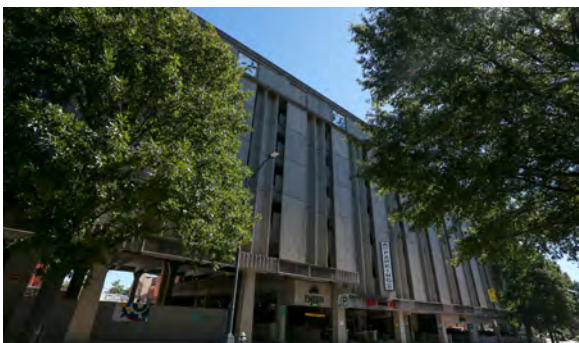
DAVIE STREET DECK

The Davie Street Deck is located south of City Center Park at 109 E. Market Street and provides 415 parking spaces. The Davie Street Deck is within walking distance to The Southeastern Building Apartments, Center City Park, and the News & Record potential development site.



EUGENE STREET DECK

The Eugene Street Deck is located south of the First National Bank Field, at 215 N. Eugene Street, and provides 945 parking spaces. The Eugene Street Deck provides parking access to the First National Bank Field, future residential developments, and businesses along Commerce Place.



GREENE STREET DECK

The Greene Street Deck is located at 211 S. Greene Street and provides 706 parking spaces for government employees, customers, and visitors. The Greene Street Deck is proximate to government buildings, retail along Elm Street, and potential future developments.



SURFACE LOTS



COMMERCE PLACE

Commerce Place Monthly Parking is located at 200 Commerce Place and provides 40 parking spaces.



DEPOT COMPLEX LOT

The Depot Complex Lot is located near at 236-C E. Washington Street and provides 195 spaces.



**ELM STREET/
GREENE STREET LOT**

The Elm Street/Greene Street Lot is located at 323 S. Greene Street and offers free parking at 63 spaces. Time limit: 3 hours



**ELM STREET/
MLK JR. DRIVE LOT**

The Elm Street/Martin Luther King Jr. Drive lot is located at 501 S. Elm Street and provides 23 free parking spaces. Time limit: 3 hours.



**ELM STREET/
MCGEE STREET LOT**

The Elm Street/McGee Street Lot is located at the intersection of Elm Street and McGee Street and provides 72 free parking spaces. Time limit: 3 hours.



**EUGENE &
WASHINGTON LOT**

Located at 201 S. Eugene Street, the Eugene & Washington (City/County Lot) provides 88 spaces at \$1 per hour. Time limit: 4 hours.



**FEDERAL PLACE /
WASHINGTON STREET LOT**

The Federal Place/Washington Street Lot is located at 109 E. Market Street and supplies 168 metered parking spaces. Time limit: 4 hours.



FEBRUARY ONE DECK

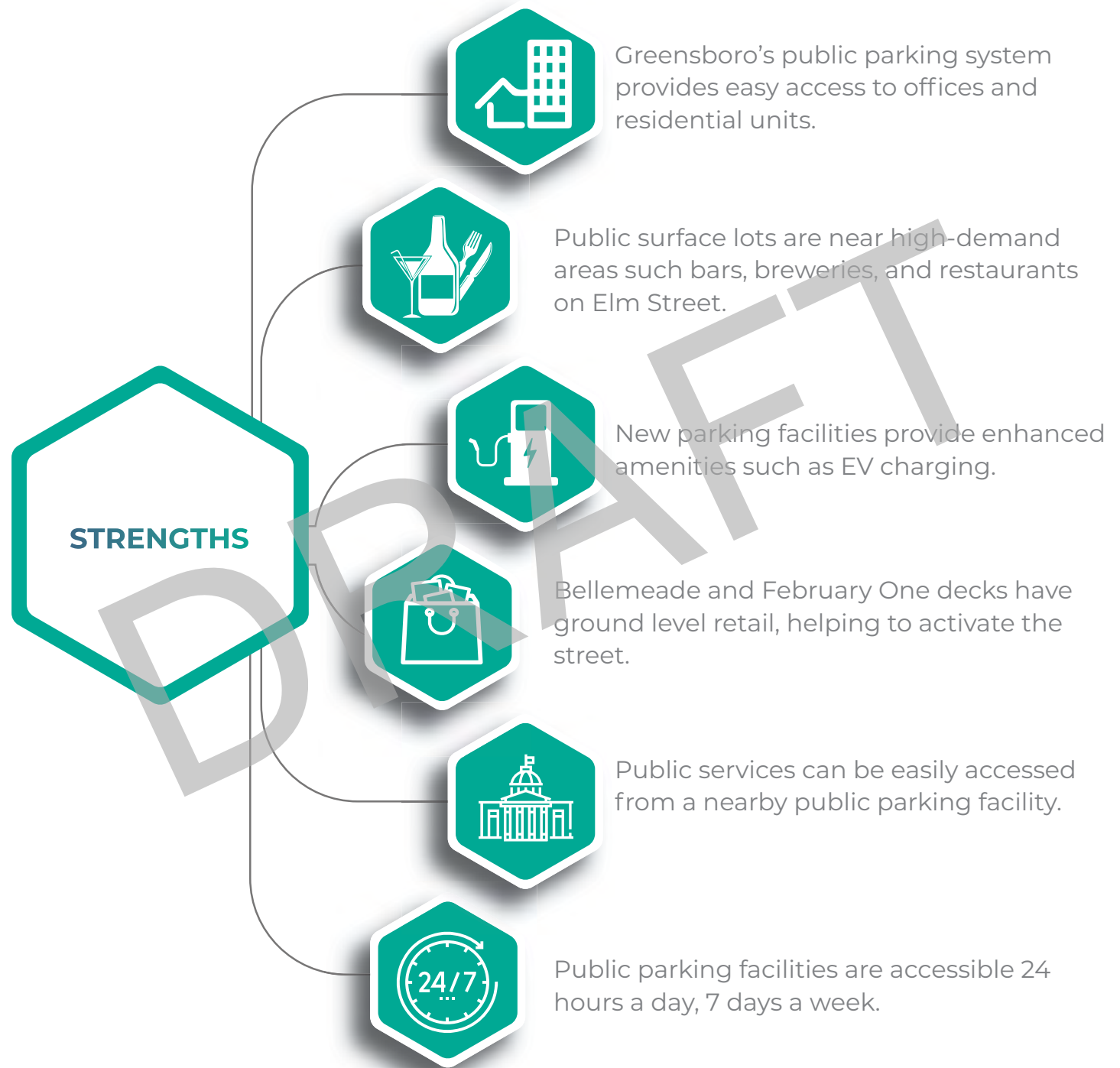
Currently under construction, the February One Deck will provide an additional 720 parking spaces along Davie Street. This facility will provide parking for the planned hotel, ground level retail, and businesses in the surrounding area.

**COMING
SOON!**



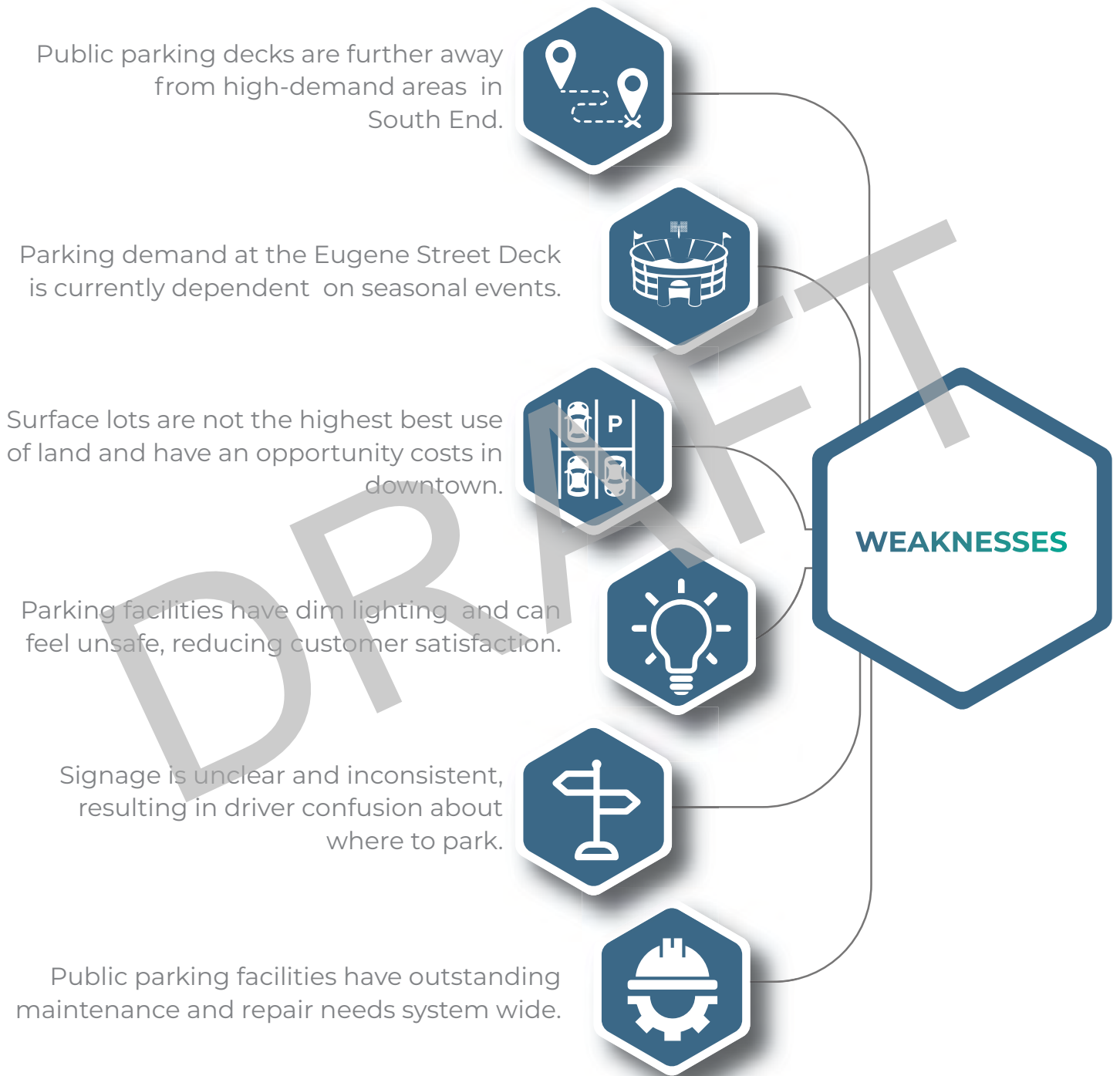
PARKING FACILITY SWOT ANALYSIS

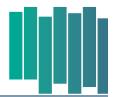
To better understand the parking system in Downtown Greensboro, a SWOT analysis was performed. Key findings from this analysis are provided in this section.



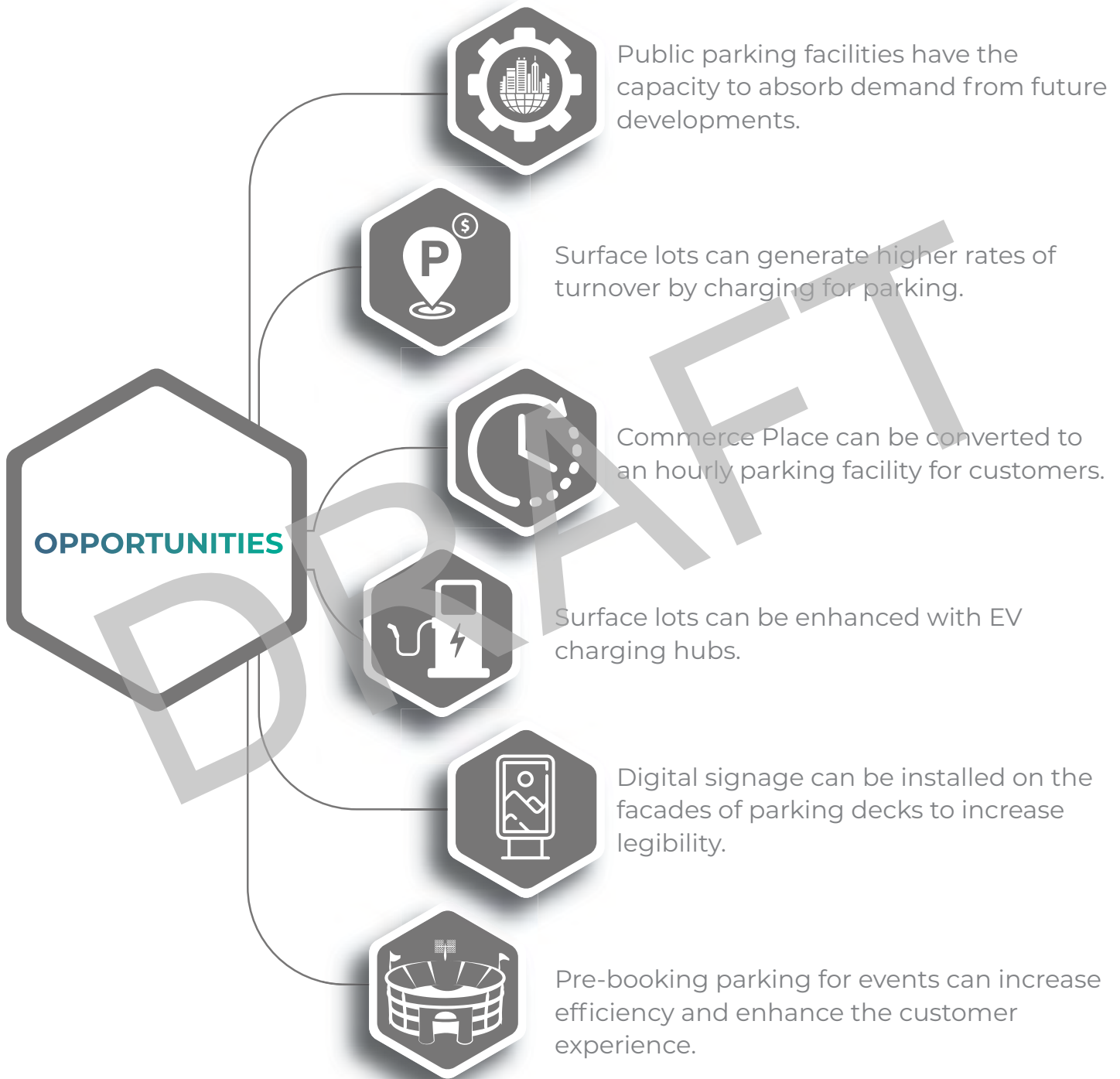


Modernizing Greensboro’s parking system is essential to overcoming the system’s current challenges. Providing consistent maintenance and repairs and addressing safety concerns associated with non-parkers using off-street parking facilities are critical to addressing the system’s weaknesses.





The success of Downtown Greensboro’s public parking system is connected to the revitalization and ongoing development of downtown. As Downtown Greensboro experiences additional growth and in-fill development, the public parking system can be managed to support future developments and encourage development without building additional parking.





Although the Downtown Greensboro public parking system provides parking for visitors, customers, residents, and employees, off-street public parking demand has declined over the past few years. This decline results from a combination of changes to the work environment in Downtown Greensboro and the numerous options for free parking.

Continued work-from-home trends will result in fewer monthly parkers at parking decks.



February One and Eugene Street decks rely on the success of future developments.



There is a lack of suicide prevention fencing at multiple facilities in the system.



High costs for repairs at public parking facilities are outpacing parking revenue.



Enclosed stairwells used by non-parkers impacts the customer experience.



Gaps in the hours of operation make it difficult to ensure compliance at parking decks.



DRAFT



DOWNTOWN GREENSBORO'S CURB LANE SYSTEM

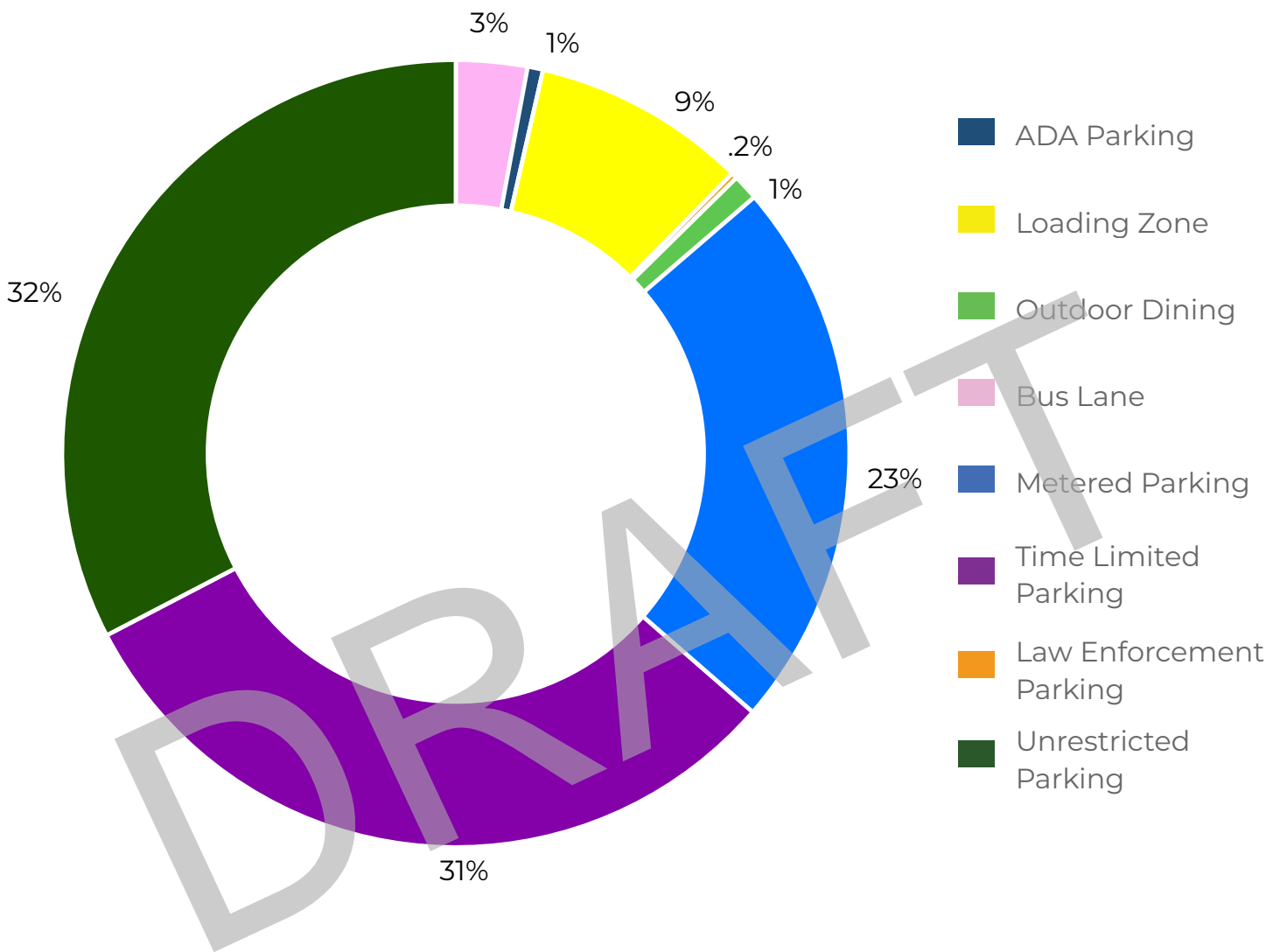
Greensboro's on-street parking system provides parking and curb lane access for residents, customers, visitors, and employees. Within the center city, Greensboro provides on-street parking spaces, loading zones, curbside delivery zones, outdoor dining patios, and bus lanes.

DOWNTOWN GREENSBORO CURB LANE INVENTORY





The majority of curb lane use is for on-street parking. Metered parking, time-limited parking, and unrestricted total approximately 87% of the curb space.



1,902

on-street parking spaces identified within the study area

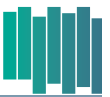
1,397

(73%) are free parking spaces

504

(27%) are paid parking spaces

Two-thirds of the on-street parking spaces do not collect revenue and generates limited parking turnover.

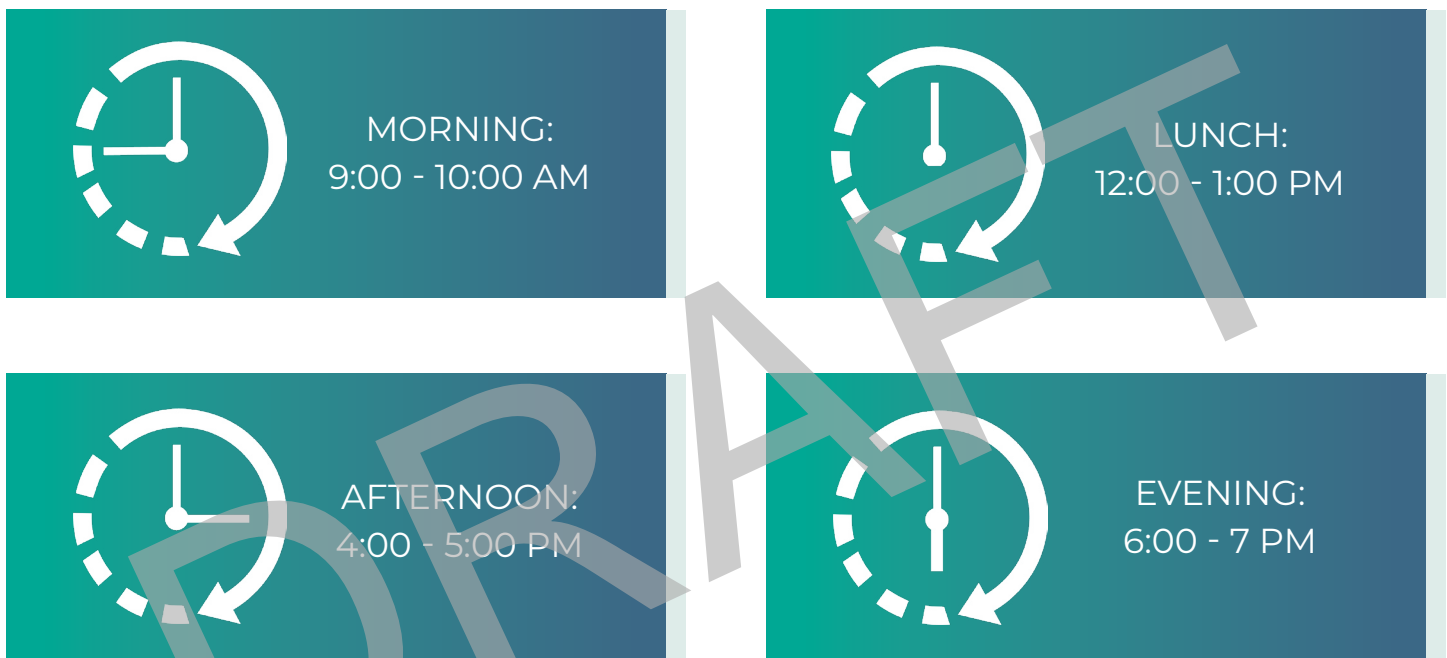


ON-STREET PARKING OCCUPANCY ANALYSIS

To measure typical on-street parking demand in Downtown Greensboro, GDOT collected three days of parking observations. Data collection was performed on:

- Thursday, March 9, 2023
- Saturday, March 11, 2023, and
- Tuesday, March 14, 2023

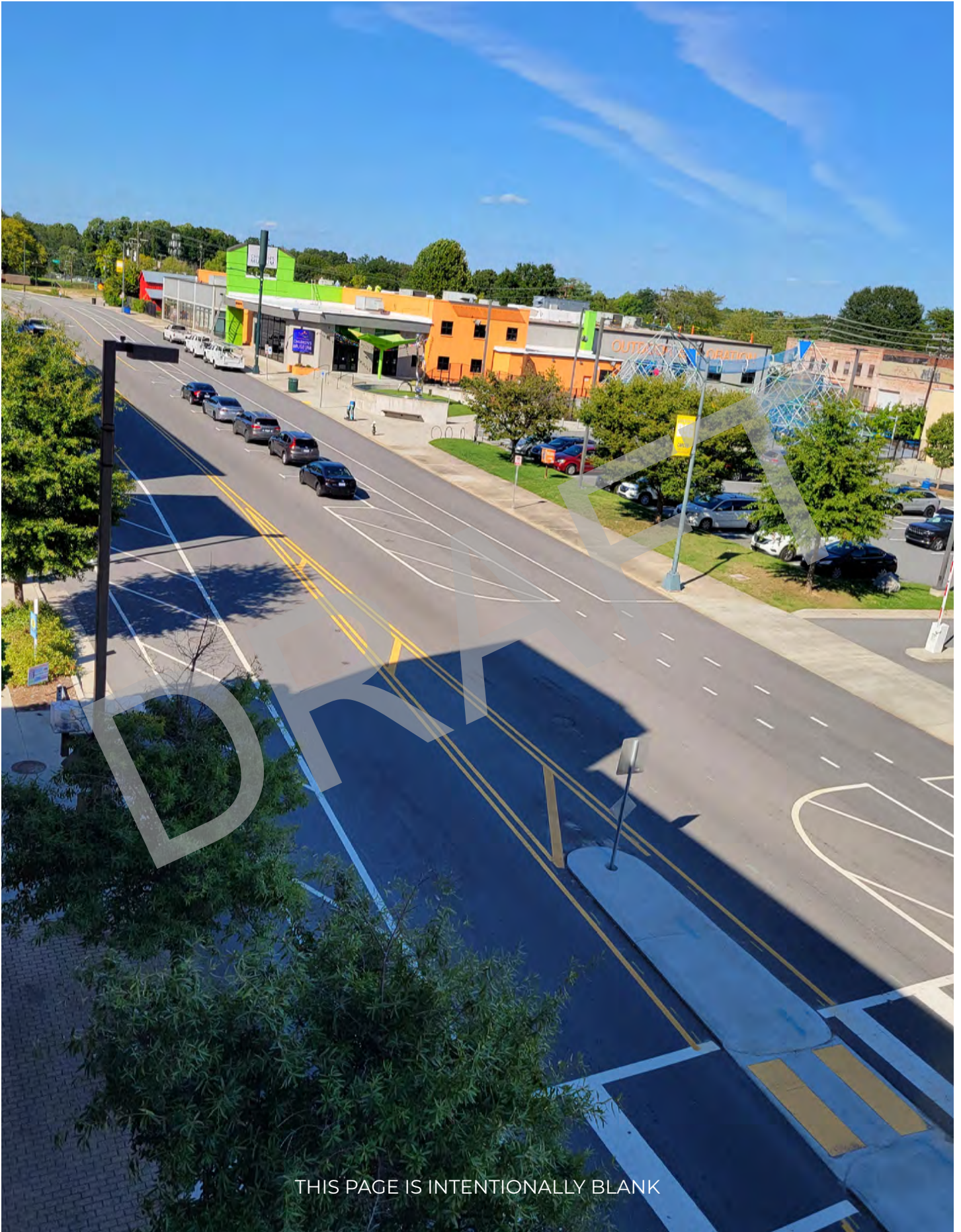
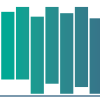
Parking occupancy was collected four times a day, for each day during the observation period.



Over the three-day observation period, peak parking times were identified on:

- Thursday, during the 12:00 - 1:00 PM Lunch period,
- Saturday during the 4:00 - 5:00 PM Afternoon period, and
- Tuesday during the 12:00 - 1:00 PM Lunch period.

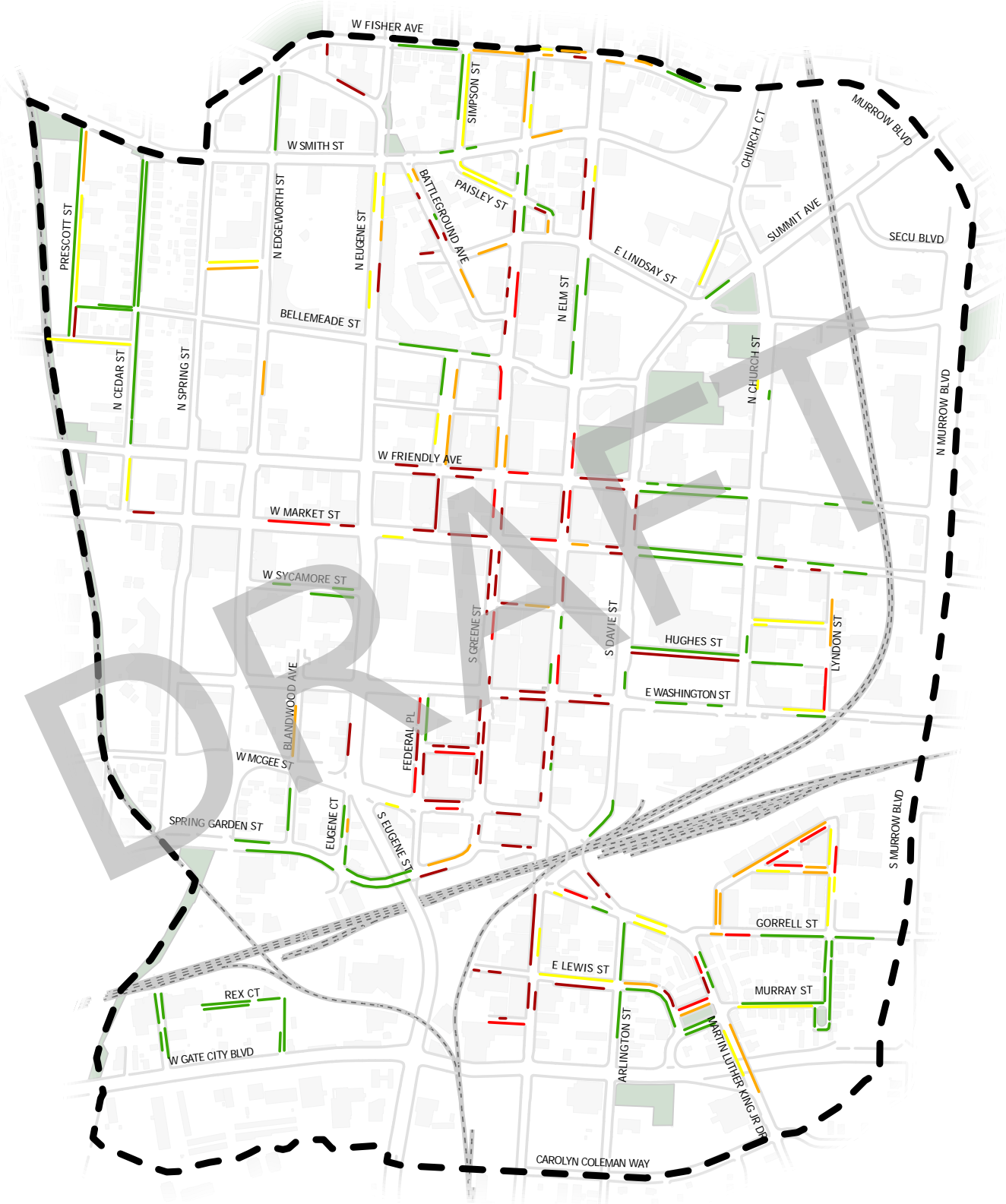
Although these peak hours were identified, many corridors through Downtown Greensboro had consistently high occupancy during the Afternoon and Evening periods. Corridors such as Elm Street and Greene Street had the highest parking occupancy throughout the day. High occupancy in Downtown Greensboro is an occupancy rate of 75% or higher utilization.



THIS PAGE IS INTENTIONALLY BLANK



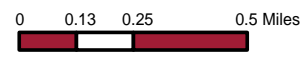
THURSDAY, MARCH 9, 2023
LUNCH 12:00 - 1:00 PM



Parking Occupancy Rates

- > 90%
- 75% - 90%
- 50% - 75%
- 25% - 50%
- < 25%

Study Area





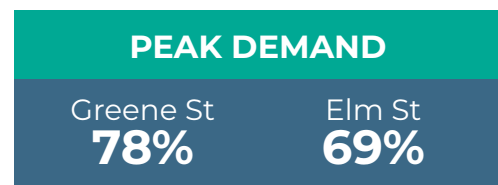
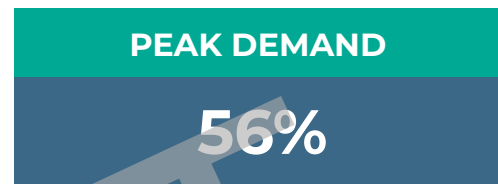
KEY FINDINGS

Based on the observed parking behavior, demand for on-street parking on Thursday was highest during the Lunch period, 12:00 – 1:00 PM, and remained fairly constant throughout the day. The average parking demand during the Lunch period was 56%, which decreased to 38% in the evening period.

Greene Street and Elm Street experienced consistently higher parking demand with a peak demand of 78% and 69%, respectively. This corresponds with the lunch rush of the surrounding restaurants and the offices nearby. Because parking along Elm Street is free, downtown employees going out to lunch along these corridors may decide to drive and park on street instead of walking.

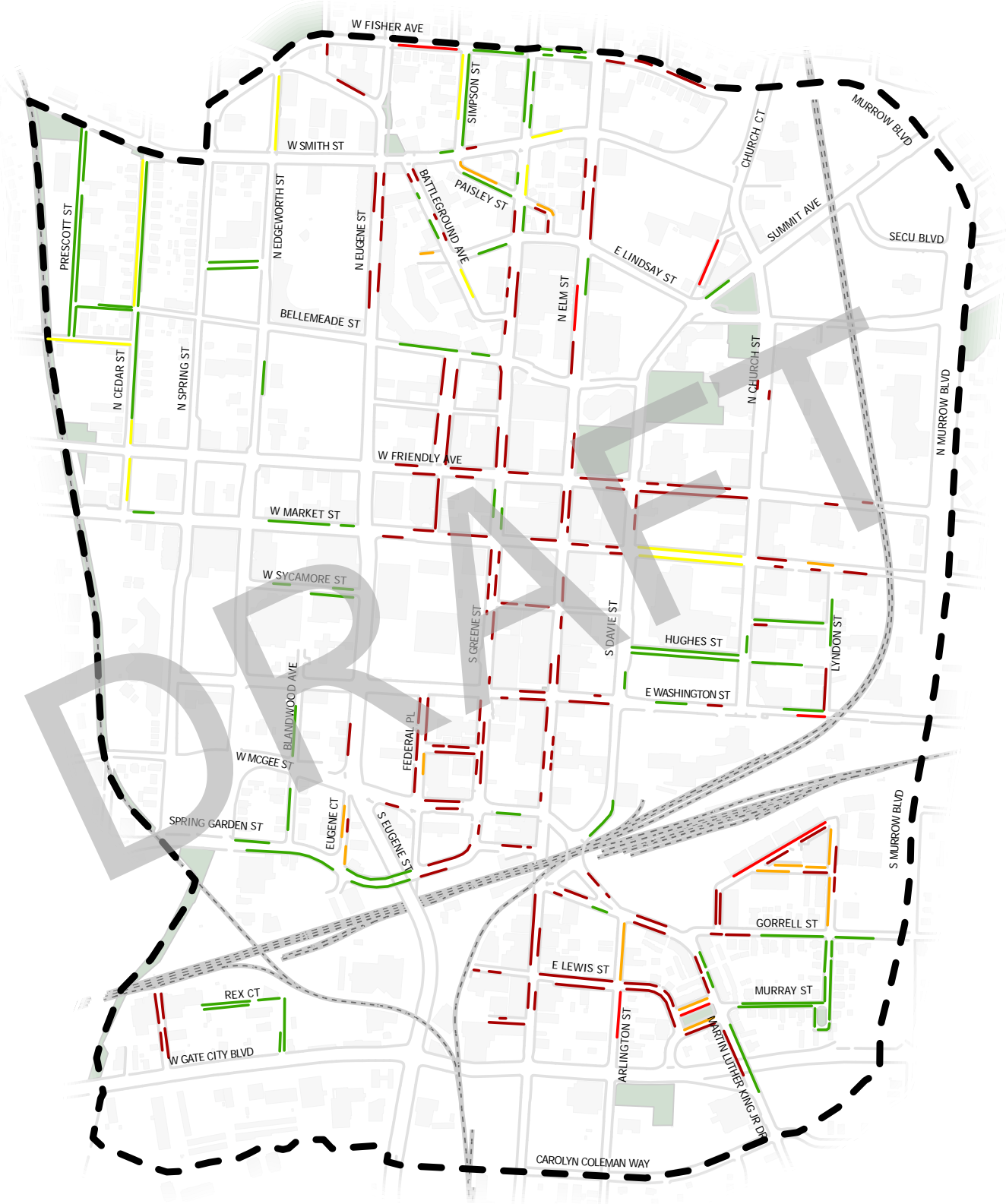
Of note, a couple of blocks away, parking along Friendly Avenue, Market Street, and Hughes Street between Davie Street and Church Street have consistently low demand. The surrounding land uses contain large amounts of surface parking which does not generate short-term parking demand. Additionally, the ample amounts of surface parking competes with metered on-street parking that could capture demand.

In South End, below the railroad tracks, there is moderately high demand for on-street parking particularly along Lewis Street and Martin Luther King Jr Drive. Lewis Street experiences peak demand during the Lunch period with 78% of on-street parking occupied. Martin Luther King Jr Drive peaks in the morning at 58% occupied.





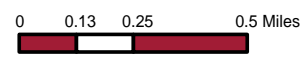
SATURDAY, MARCH 11, 2023
AFTERNOON 4:00 - 5:00 PM



Parking Occupancy Rates

- > 90%
- 75% - 90%
- 50% - 75%
- 25% - 50%
- < 25%

Study Area





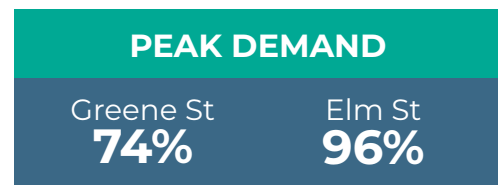
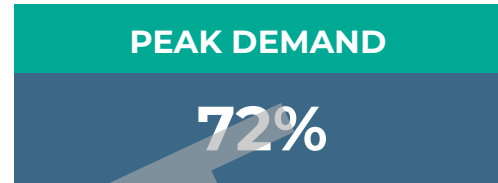
KEY FINDINGS

Based on the observed parking behavior, demand for on-street parking on Saturday was highest during the Afternoon period, 4:00 – 5:00 PM, but remained fairly constant throughout the day. The average parking demand during the Afternoon period was 72%, which decreased to 67% in the Evening period. During the Lunch period, parking demand averaged 65%.

Greene Street and Elm Street experienced consistently high parking demand with a peak demand of 74% and 96%, respectively. Elm Street had above 90% average parking occupancy from Lunch until the Evening. This corresponds with the weekend demand from surrounding restaurants and retail nearby.

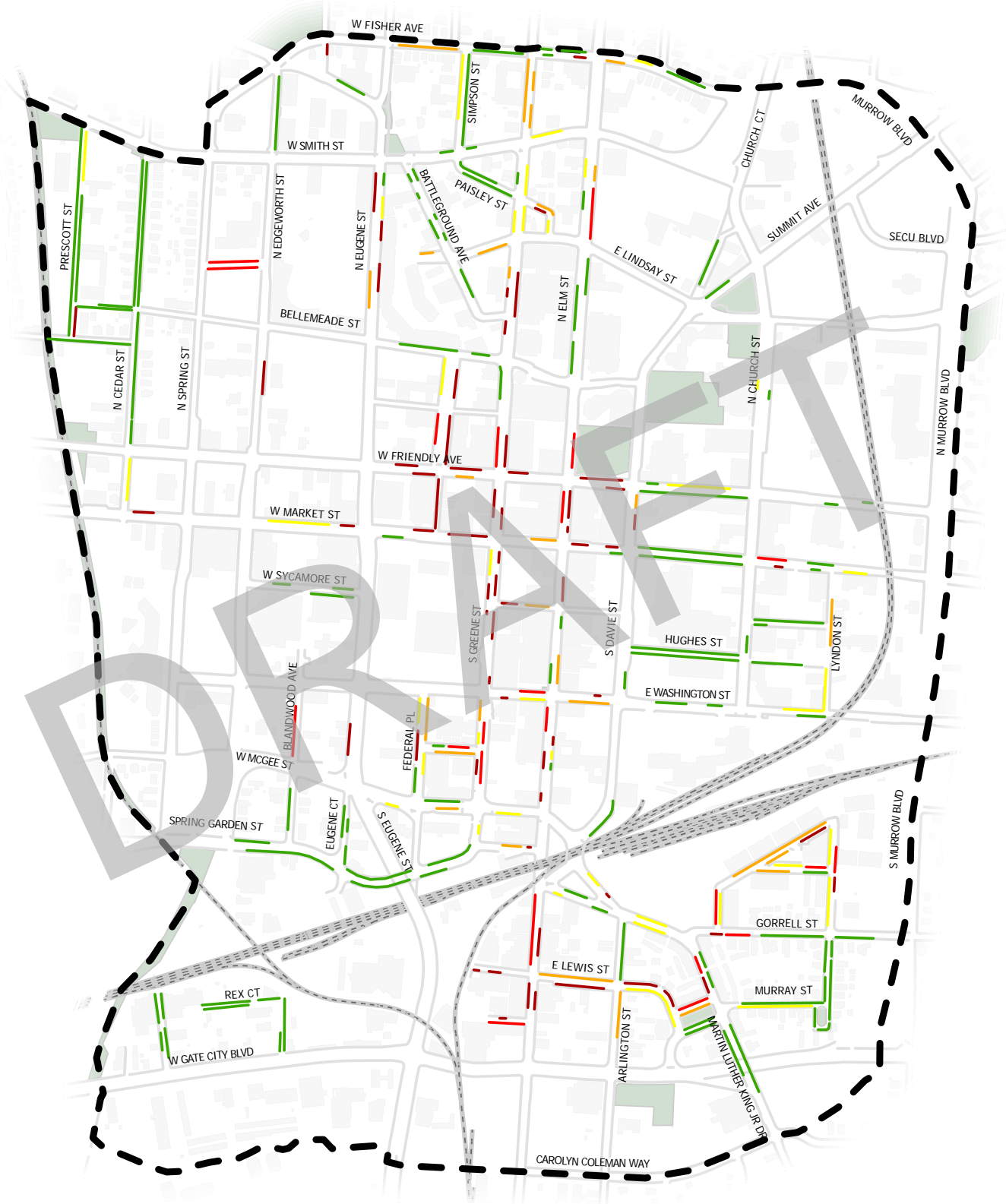
Additionally, on-street occupancy was very high along Friendly Avenue and high along Market Street. Both Lunch and Afternoon periods had 100% on-street occupancy along Friendly Avenue. Market Street experienced a peak demand of 75% occupied during the Afternoon period. Such high demand indicates that parkers are willing to pay for on-street spaces.

In South End, there is high demand for on-street parking particularly on Lewis Street. During the Lunch and Afternoon periods, Lewis Street experienced 100% of its spaces occupied, and during the Evening peak, demand was 99%. Martin Luther King Jr Drive had less demand, peaking in the Afternoon at 70%.





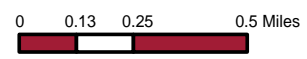
TUESDAY, MARCH 14, 2023
LUNCH 12:00 - 1:00 PM



Parking Occupancy Rates

- > 90%
- 75% - 90%
- 50% - 75%
- 25% - 50%
- < 25%

Study Area





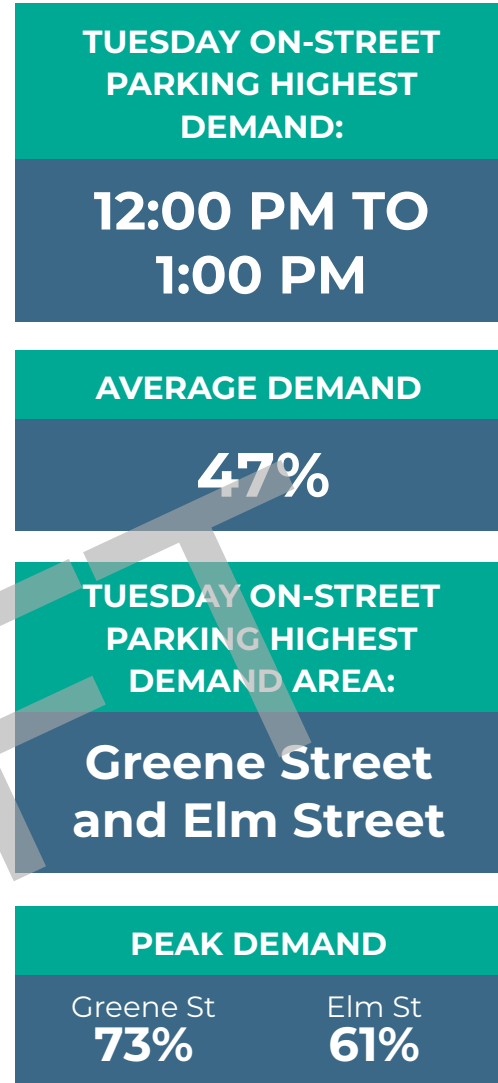
KEY FINDINGS

Based on the observed parking behavior, demand for on-street parking on Tuesday was highest during the Lunch period, 12:00 – 1:00 PM, and the Afternoon and Evening periods each averaged 41%. The Lunch period peak demand was 47%.

Similar to Thursday’s data collection, Greene Street and Elm Street experienced moderate parking demand with a peak demand during the Lunch period of 73% and 61%, respectively. This is consistent with lunch hour rushes from restaurants and offices nearby.

Additionally, on-street occupancy was moderate along Friendly Avenue for the entire observation period, peaking during the Afternoon at 63% with the lowest demand during the Evening at 56%. Market Street experienced a slightly less demand, peaking during the Lunch period at 55%.

In South End, there is high demand for on-street parking particularly along Lewis Street. Lewis Street peaked during the Lunch period at 86%. However, outside of Lunch, peak demand was approximately 60%.



DRAFT

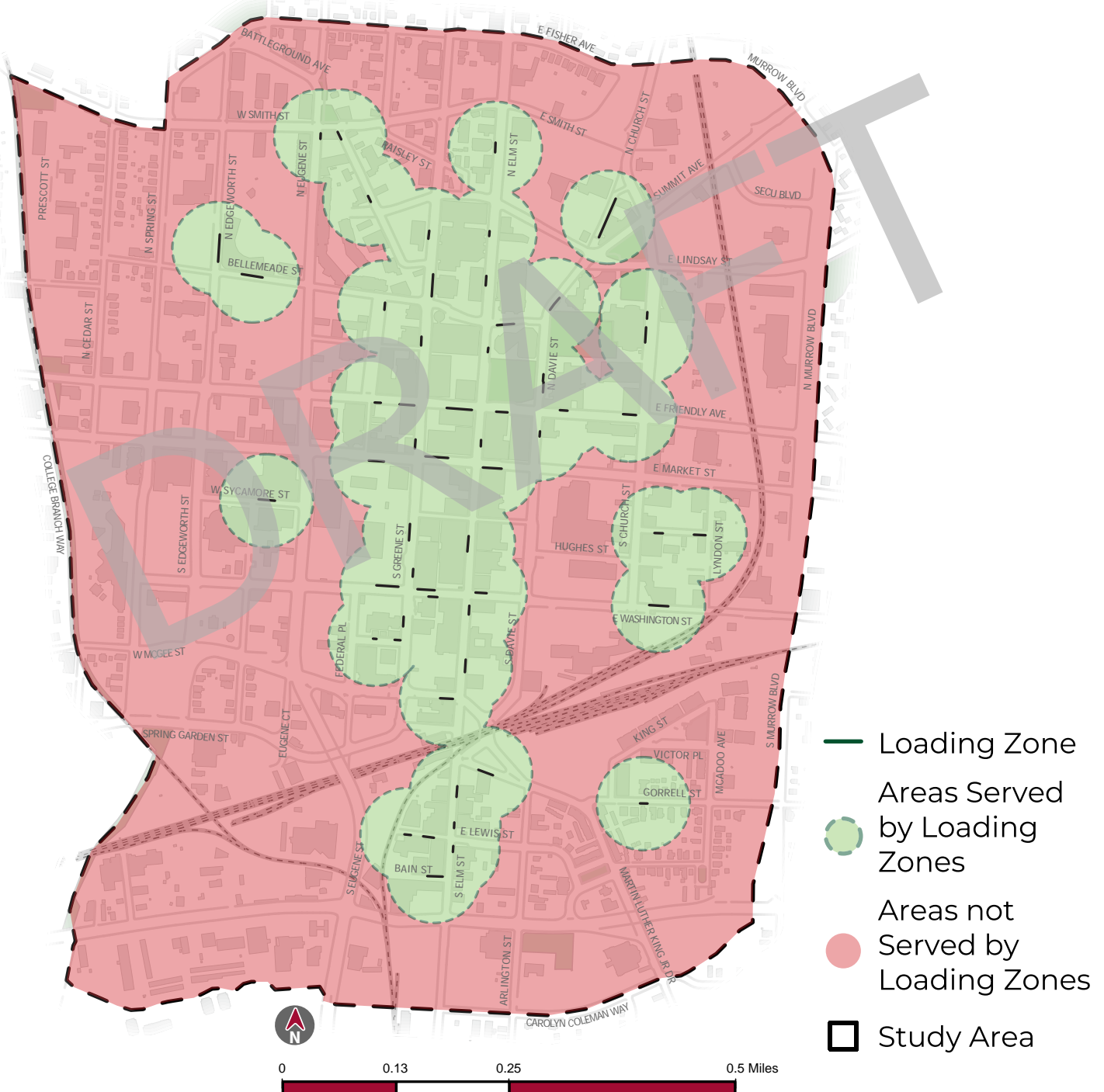


Additional curb uses include bus lanes, curbside deliveries, outdoor dining patios, and loading zones.

LOADING ZONES

The City of Greensboro has approximately 56 loading zones dedicated to providing access for goods. The majority of loading zones in the study area are along Elm Street and Greene Street (north and south), as well as Friendly Avenue, Market Street, and Washington Street (east and west).

DOWNTOWN GREENSBORO LOADING ZONES





ALTERNATIVE TRANSPORTATION

BUS ROUTES

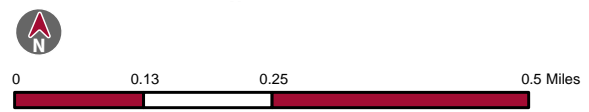
Greensboro has 21 bus transit routes running through its downtown, with 52 different stops. Many of the off-street public parking facilities are close to bus stops, allowing for increased mobility around Downtown Greensboro. Users can park once at one of the public off-street facilities and access transit, walk, or use available forms of micro-mobility to travel throughout the downtown.

DOWNTOWN GREENSBORO BUS ROUTES

GTA ROUTES

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 17
- 71
- 72
- 73
- 75
- 312

- Bus Stop
- Study Area
- Off Street Public Parking





TROLLEY ROUTE

Additionally, a trolley route is running along Elm Street from Fisher Avenue to Lewis Street with 14 stops. The trolley provides a direct north-south connection and increase connectivity between South End and the rest of downtown. The City of Greensboro should be cognizant about any potential changes in the curb lane along the trolley route and determine ways to mitigate any negative impacts from the changes.

DOWNTOWN GREENSBORO TROLLEY ROUTE



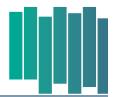


BICYCLE LANES

The map shows the existing and proposed bike lanes in Downtown Greensboro. This consists of approximately 4.5 miles of existing bike lanes and sharrows and approximately 1.0 miles of proposed bike lanes. Although the existing bike lane network provides north-south connections within the study area, the overall network is fragmented with little connectivity between routes. Specifically, there is only one east-west corridor along W Market Street, connecting to a north-south bike lane, but this does not connect to any bicycle facilities east of Eugene Street.

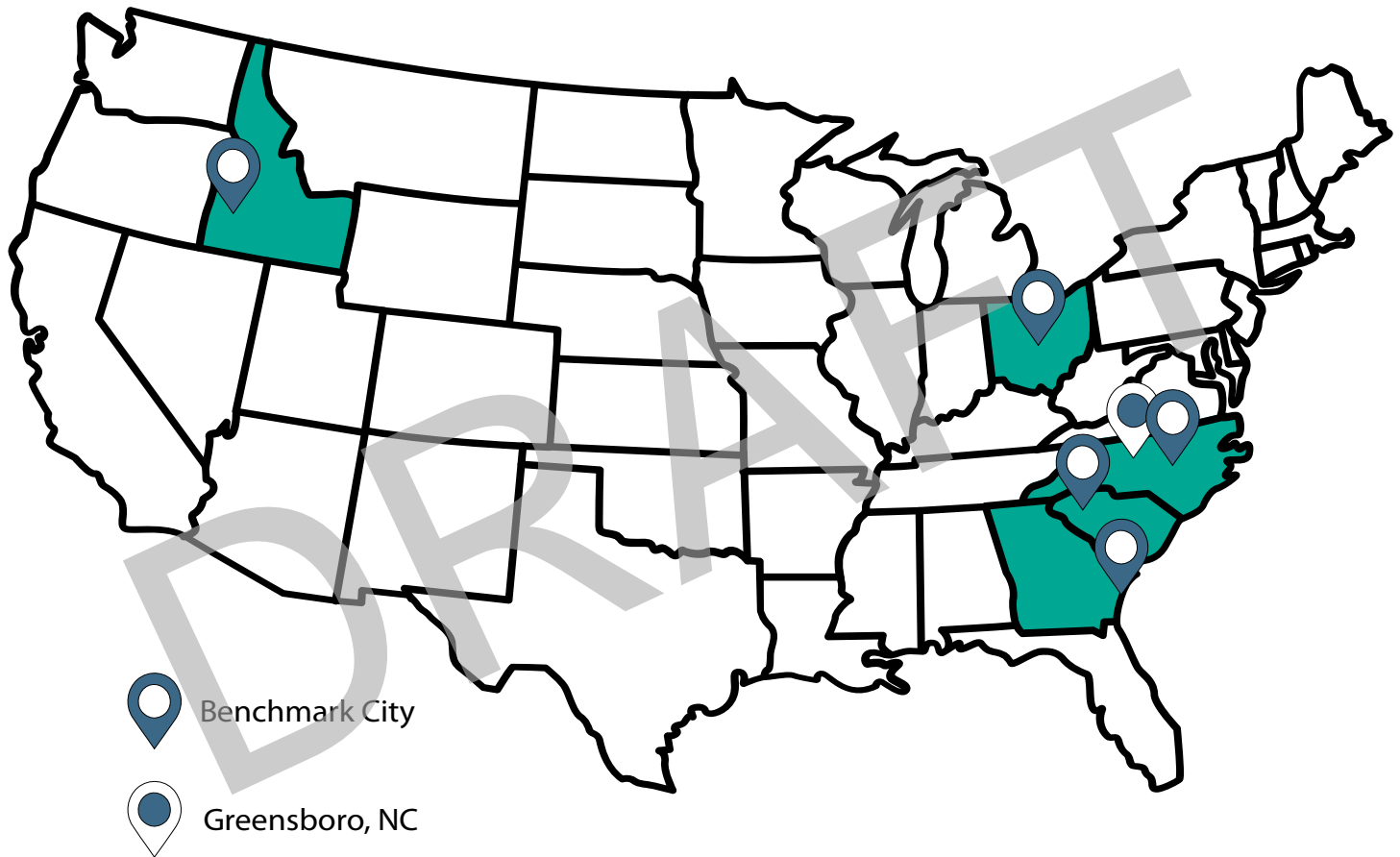
DOWNTOWN GREENSBORO BICYCLE LANES

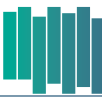




Benchmark STUDY

The City of Greensboro manages five parking decks, seven surface parking lots, and 1,902 on-street parking spaces. This totals 6,318 parking spaces downtown. The following peer cities were selected to evaluate their practices.





BENCHMARK CITY PROFILES



BOISE, ID

The City of Boise's Parking Division manages parking decks, parking lots, on-street parking, permits, enforcement, and parking-related technology. This includes over 1,000 on-street parking meters and six off-street parking facilities for a total of approximately 3,180 spaces. All six facilities offer hourly, daily, and monthly parking options. All decks are open and charge for parking 24 hours, seven days a week. On-street parking in downtown Boise is divided into three zones surrounding its urban core.

POLICES OF NOTE

Waves permit fees if parkers opt to participate in a park-and-ride shuttle to downtown.

Offers the option to pre-pay for on-street parking on Friday nights and Saturday mornings.

Offers a secure and convenient bike parking program, BikeBOI, in one of its off-street decks.



COLUMBUS, OH

Parking Services, a division of the Department of Public Service, is responsible for the administration, enforcement, operations, and management of on-street and off-street public parking in the City of Columbus. There are approximately 10,000 spaces in the Columbus' public parking system, 6,000 on-street spaces and 4,000 off-street spaces across five parking decks. All facilities are open and charge 24 hours, seven days a week. The City of Columbus uses demand-based pricing to set the hourly parking rate. This includes evaluating rates and adjusting every six months based on occupancy data.

POLICES OF NOTE

Develops parking management plans for neighborhoods that are more susceptible to parking issues.

Uses demand-based pricing to manage on-street parking demand.

Offers a car-sharing membership that gives 24/7 access to a fleet of vehicles, providing enhanced mobility options.



GREENVILLE, SC

The City of Greenville operates and manages over 8,000 parking spaces, including approximately 900 on-street spaces. The Parking Division, as part of the Public Works Department, oversees these facilities along with parking fines and enforcement. Greenville operates 11 parking decks and three surface lots with 10 out of its 14 facilities containing EV charging infrastructure. These decks are open and charge 24 hours, seven days a week. Greenville provides free, time-limited on-street parking. The hourly maximum is two hours.

POLICES OF NOTE

Offers “night owl” parking permits at a reduced cost for downtown hospitality workers.

Offers free, time-limited on-street parking with strict enforcement for repeat violators. Fines increase per repeat violation.



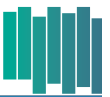
RALEIGH, NC

The City of Raleigh's Parking Division is responsible for the management of approximately 9,600 parking spaces, comprised of 1,600 on-street parking spaces and 8,000 off-street spaces across eight city-owned parking decks and five surface lots. The Parking Division is responsible for fine collection, pay station maintenance, and residential permit parking. Raleigh subcontracts parking operations to The Car Park. Facilities are typically open and charge Monday through Friday, 7:00 AM – 7:00 PM. The City of Raleigh manages on-street parking spaces using a zone-based methodology.

POLICES OF NOTE

Developed curbside pick-up zones for users that are actively picking up retail goods. These spaces are free and have a 30-minute time limit.

Started a “temporary small business parking relief program” that allocates spaces in public parking decks for free.



SAVANNAH, GA

Parking and Mobility Services is part of the Transportation Services Department in Savannah, Georgia. The City of Savannah operates approximately 7,250 parking spaces comprised of 2,750 on-street spaces and 4,500 off-street spaces across five parking decks and six surface lots. Facility hours vary but typically surface lots are open and charge Monday – Saturday, 8:00 AM – 8:00 PM. All decks are open and charge 24 hours, seven days a week. The City of Savannah manages the on-street parking in its downtown using a zoned based methodology. Additionally, they manage permit programs and mobility services for bicyclists, boaters, pedestrians, and tour buses.

POLICES OF NOTE

Offers a free Downtown transit system that connects to public parking decks.

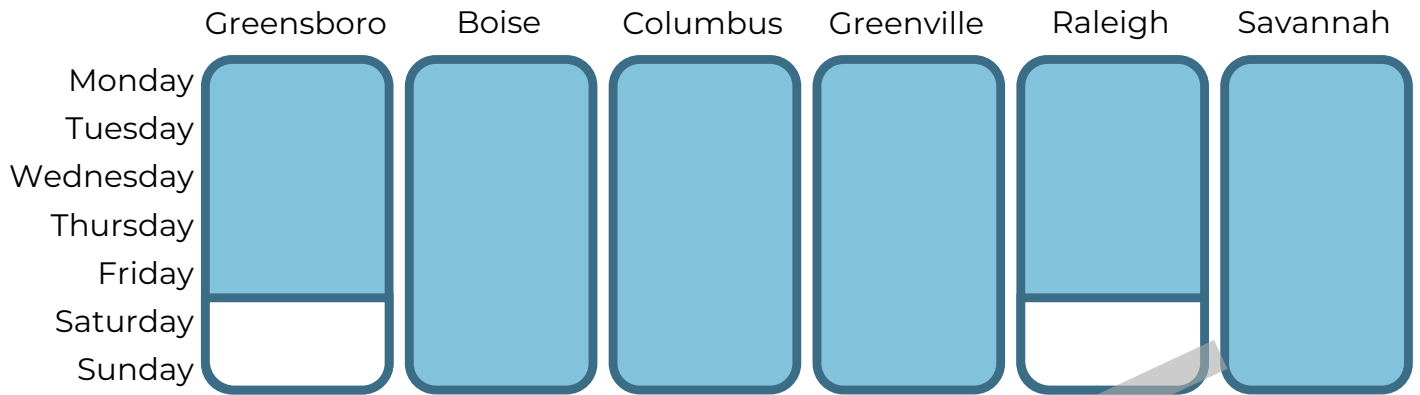
Implemented a Bicycle Rack Program where businesses can apply for bike racks in the public right-of-way near their storefront.



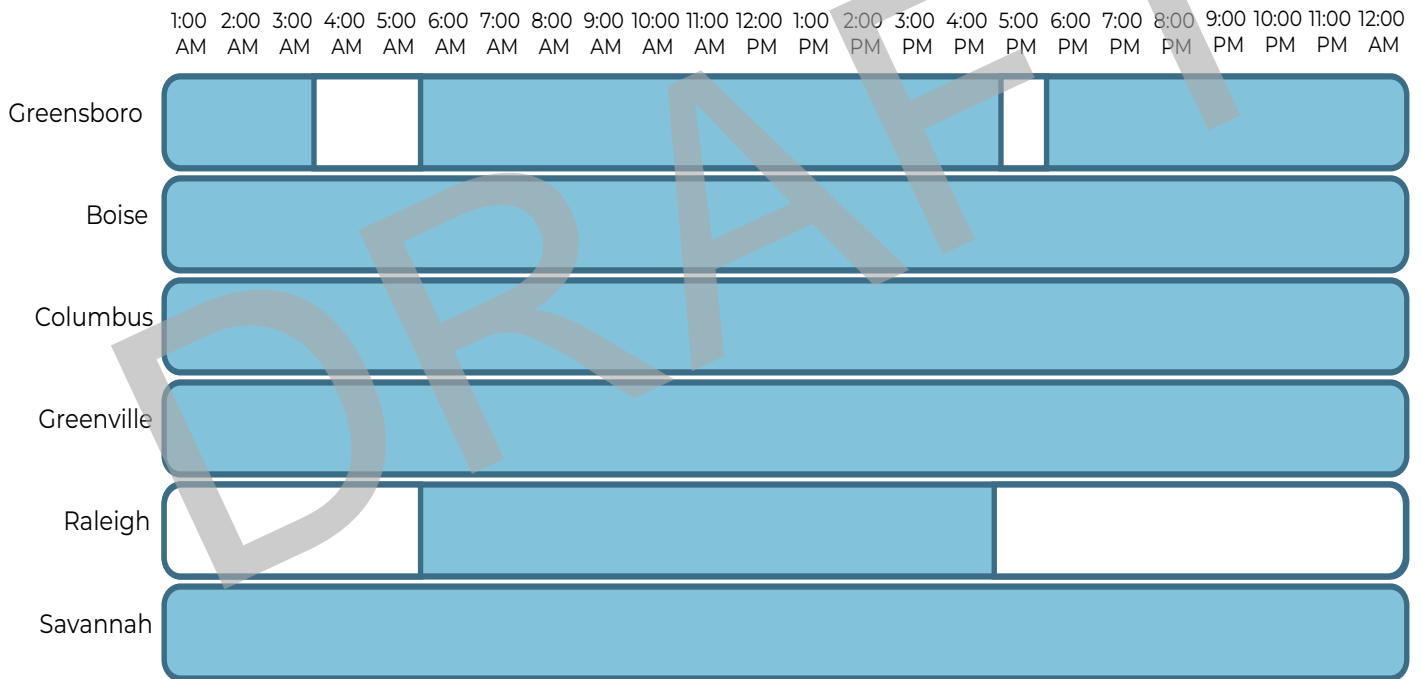
COMMON TRENDS ACROSS BENCHMARK CITIES

KEY FINDINGS

DAYS OF OPERATION



HOURS OF OPERATION



Legend: In Operation Not In Operation

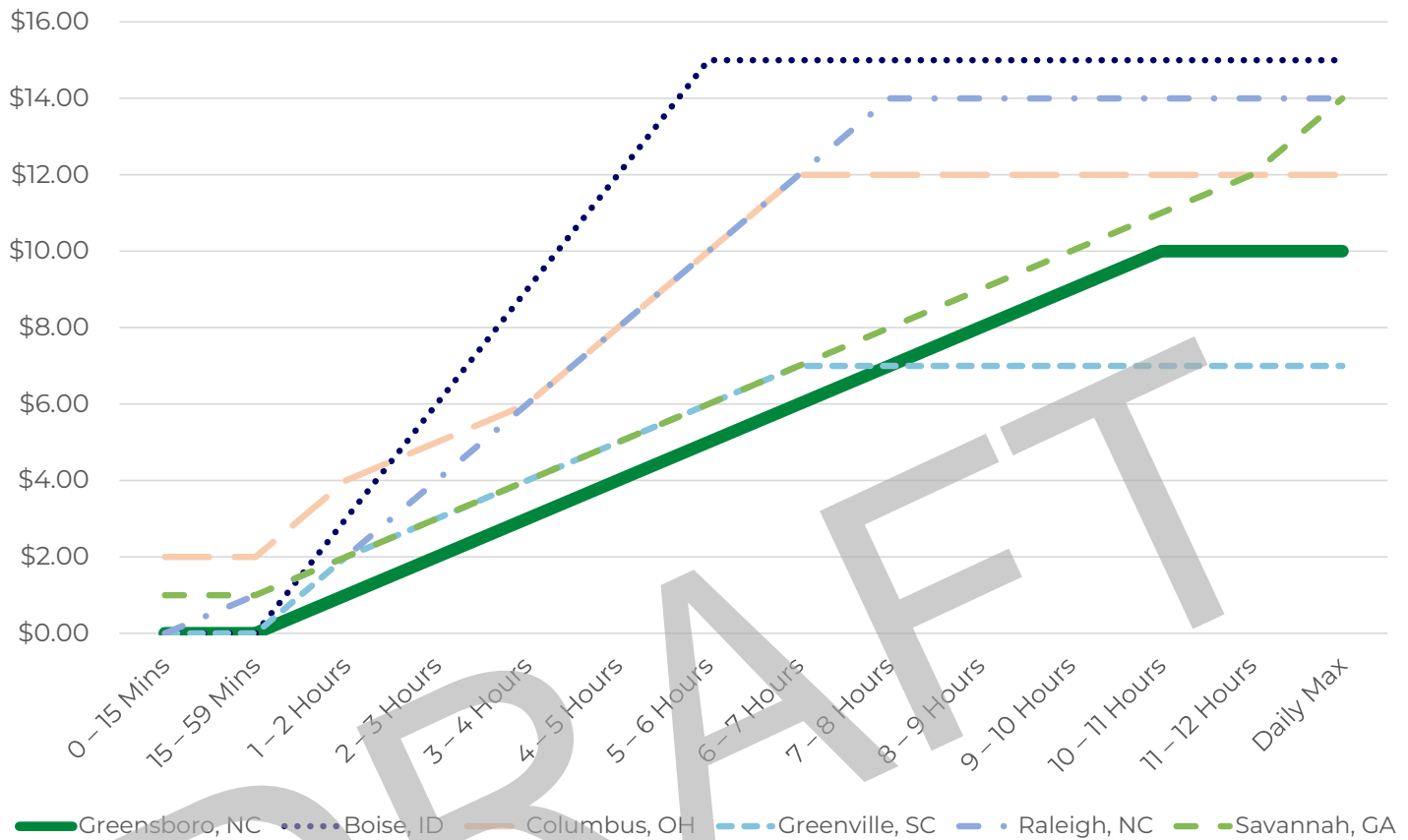
Greensboro is the only city to have interrupted hours of operation for on-street or off-street parking.

80%

OF CITIES OPERATE THEIR PARKING DECKS 24 HOURS A DAY, 7 DAYS A WEEK.



COMPARISON COST PER HOUR BETWEEN BENCHMARK CITES



100%

OF CITIES HAVE HIGHER STARTING RATES THAN THE CITY OF GREENSBORO

80%

OF CITIES HAVE HIGHER MAXIMUM DAILY RATES THAN GREENSBORO

60%

OF CITIES OFFER A DISCOUNTED PERMIT FOR SERVICE/HOSPITALITY EMPLOYEES THAT WORK DURING EVENING/NIGHT SHIFTS



KEY FINDINGS CONTINUED

On-street parking rates in Downtown Greensboro are not determined by parking demand. Streets with high demand, such as Elm Street are free, whereas streets with lower demand such as W Friendly Avenue or Washington Street require paid parking.





PEER-BASED RECOMMENDATIONS



Hourly Rate:
\$1.50 per hour
Scale to free in fringe

Hourly Rate:
\$2.00 per hour
1st hour free

Hours of Operation:
8 AM - 8 PM

Hours of Operation:
24 hours a day

Days of Operation:
Monday - Saturday

Days of Operation:
Monday - Saturday

System Change:
Meter Elm Street

System Change:
Offer Specialty Programs

Technology:
Transition to pay stations

Technology: Digital Validations for Businesses





COMMUNITY ENGAGEMENT: SURVEY RESULTS

As part of the community engagement process, a survey was sent to people in Greensboro to identify pain points and solicit ideas for improvements to the parking system. The following section is a summary of those results.

968 people

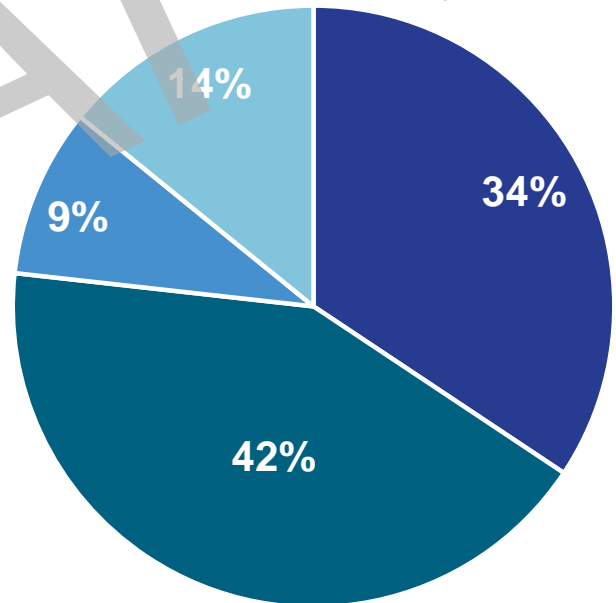
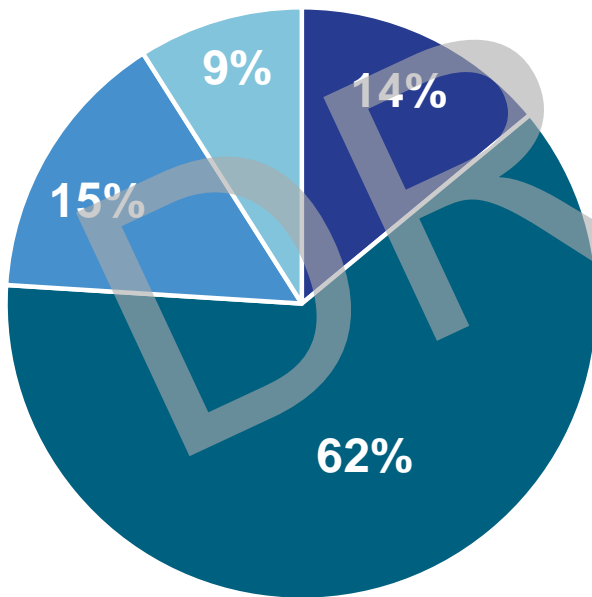
**RESPONDED TO THE GREENSBORO
PARKING USER SURVEY**



**LOCATION OF
PRIMARY RESIDENCE**



**LOCATION OF
WORK/SCHOOL**



LEGEND

- Greensboro, but not Downtown
- Guilford County
- Downtown Greensboro
- Other



GENERAL TAKEAWAYS

TOP 5 REASONS FOR VISITING DOWNTOWN*



#1 DINING: ~90% of respondents



#2 ENTERTAINMENT: ~75% of respondents



#3 SPECIAL EVENTS: ~50% of respondents



#4 WORK: ~50% of respondents



#5 SHOPPING: ~35% of respondents

*Respondents were able to select more than one option

PREFERRED PARKING LOCATION



~50%

Prefer on-street parking



~40%

Prefer a city owned deck or lot

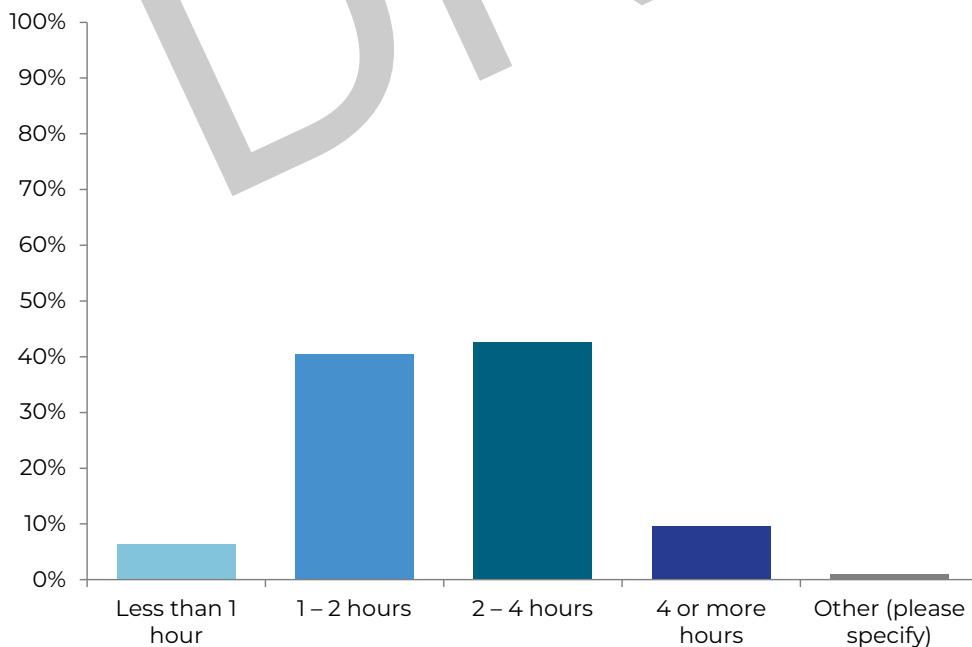


ON-STREET PARKING KEY TAKEAWAYS

REASONS FOR PARKING ON-STREET*



TYPICAL ON STREET PARKING SESSION



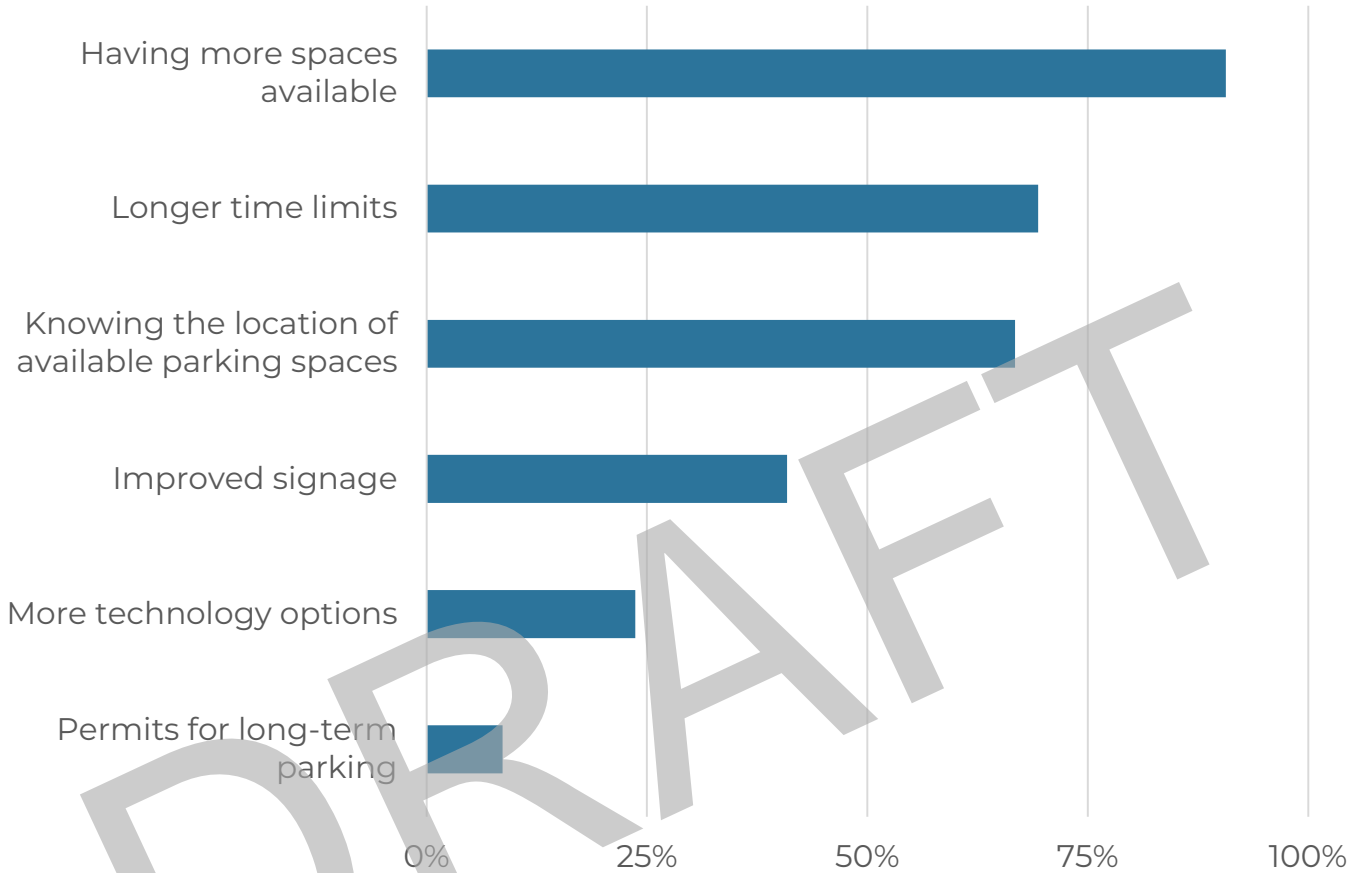
~52% report parking longer than the maximum time limit of 2 hours

~48% report parking for 2 hours or less



~80%
find it difficult to park on-street after 6 PM

ON-STREET PARKING IMPROVEMENTS*



*Respondents were able to select more than one option.

~91%
of users want more spaces available

~69%
of users want longer time limits

~67%
of users want to know the location of available parking spaces



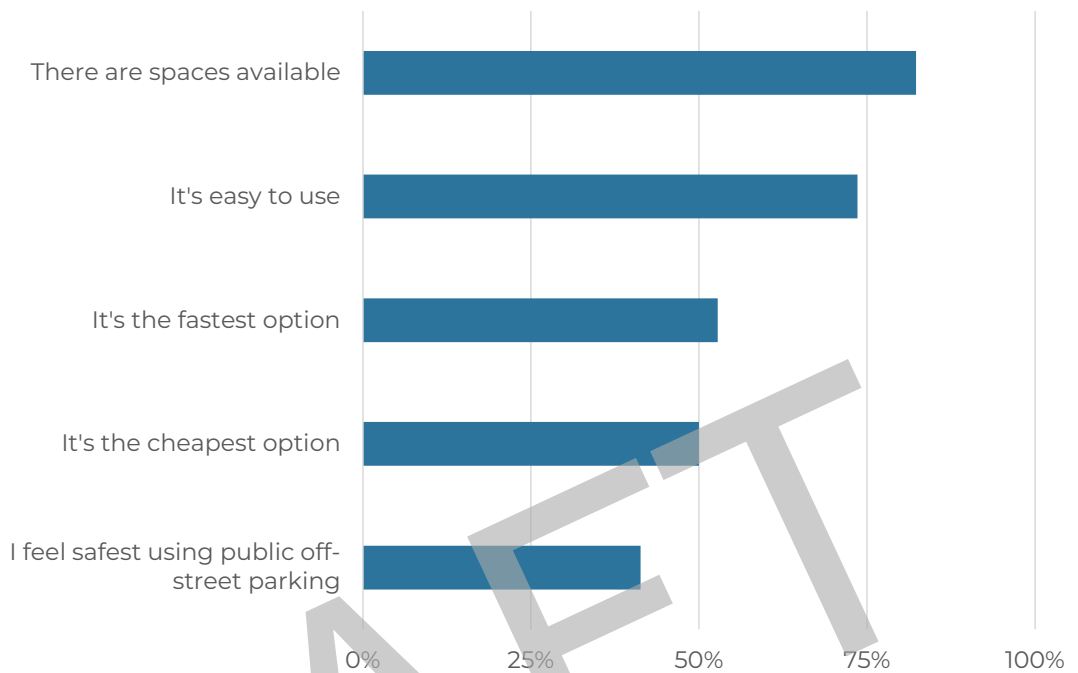
OFF-STREET PARKING KEY TAKEAWAYS

REASONS FOR PARKING IN CITY OWNED FACILITIES*

~82%
prioritize knowing there are spaces available

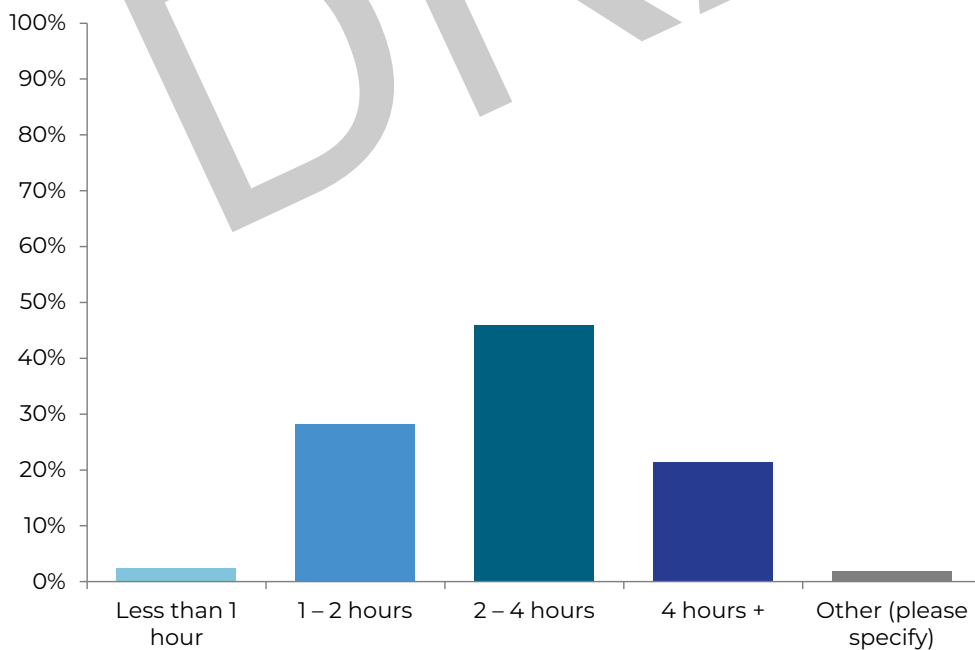
~74%
prioritize ease of use

~53%
prioritize being able to park quickly



*Respondents were able to select more than one option.

TYPICAL-OFF STREET PARKING SESSION



~67%
park at a public off-street facility for 2 hours or more

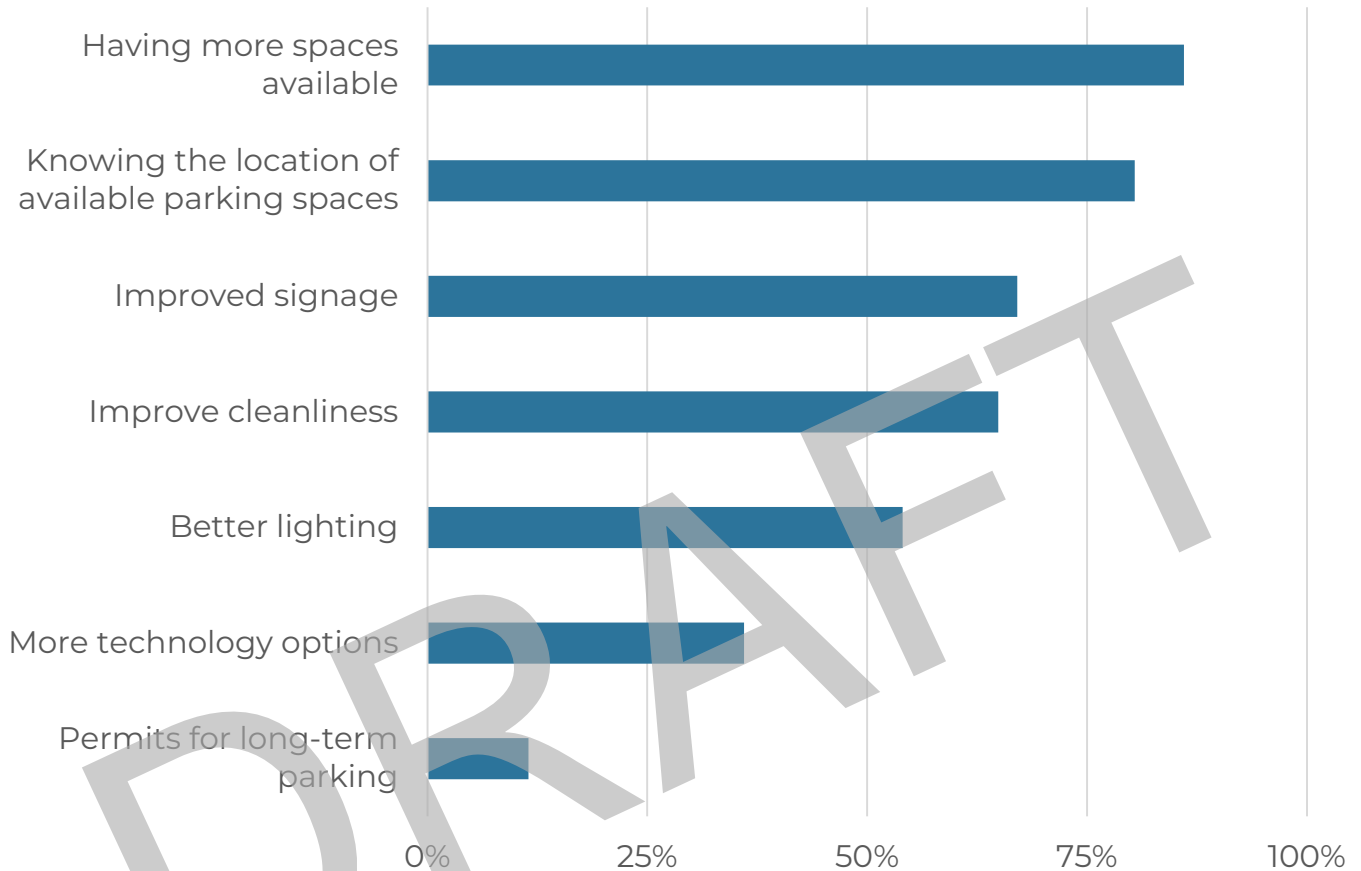
~31%
park at a public off-street facility between 1-2 hours

~2%
park at a public off-street facility for less than 1 hour



~51%
find it difficult to park off-street after 6 PM

OFF-STREET PARKING IMPROVEMENTS*



*Respondents were able to select more than one option.

~67%
of users want improved signage

~80%
of users want to know the location of available parking spaces

~86%
of users want more spaces available



PARKING SURVEY SUMMARY

THE TOP REASON WHY PEOPLE VISIT DOWNTOWN?

 **#1 DINING: ~90% of respondents**

THE #1 FACTOR IN DETERMINING PARKING LOCATION?



On-street parking
Distance to destination



Off-street parking
Availability of spaces

WHEN IS THE DEMAND FOR PARKING HIGHEST?



Time Period
Evenings from 5 PM – 8 PM

IS IT DIFFICULT FINDING AVAILABLE PARKING AFTER 6 PM?



On-street parking
80% have difficulty finding parking



Off-street parking
51% have difficulty finding parking

WHAT IS THE OVERALL SATISFACTION RATE?



On-street parking
43% report being satisfied or very satisfied



Off-street parking
47% report being satisfied or very satisfied

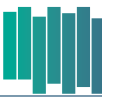
WHAT IS THE MOST COMMON IMPROVEMENT REQUEST?



On-street parking
Have more spaces available



Off-street parking
Have more spaces available



Setting a New Standard for Parking

As an industry, there are best practices on how cities approach off-street and on-street parking management. Although there is no one-size-fits-all approach to parking and curb lane management, there are widely accepted industry practices that should be incorporated into GDOT'S approach to managing parking in Downtown Greensboro. These overarching practices will be explored in more detail and will guide recommendations specific to Greensboro to help set a new standard for parking Downtown.

OFF-STREET PARKING KEY RESULTS

01

Create a Quality Parking Experience

04

Promote Multi-Modal Travel

02

Limit Parking Expansion

05

Support EV Fleet Conversion and Growing EV Charging Demand

03

Efficiently Utilize Existing Parking

CURB LANE MANAGEMENT KEY RESULTS

01

Set Curb Lane Priorities based on Surrounding Land Uses

04

Explore Strategies that Enhances Curb Lane Efficiency

02

Diversify the Curb Lane with Non-Parking Uses

05

Incorporate Smart Loading Zones

03

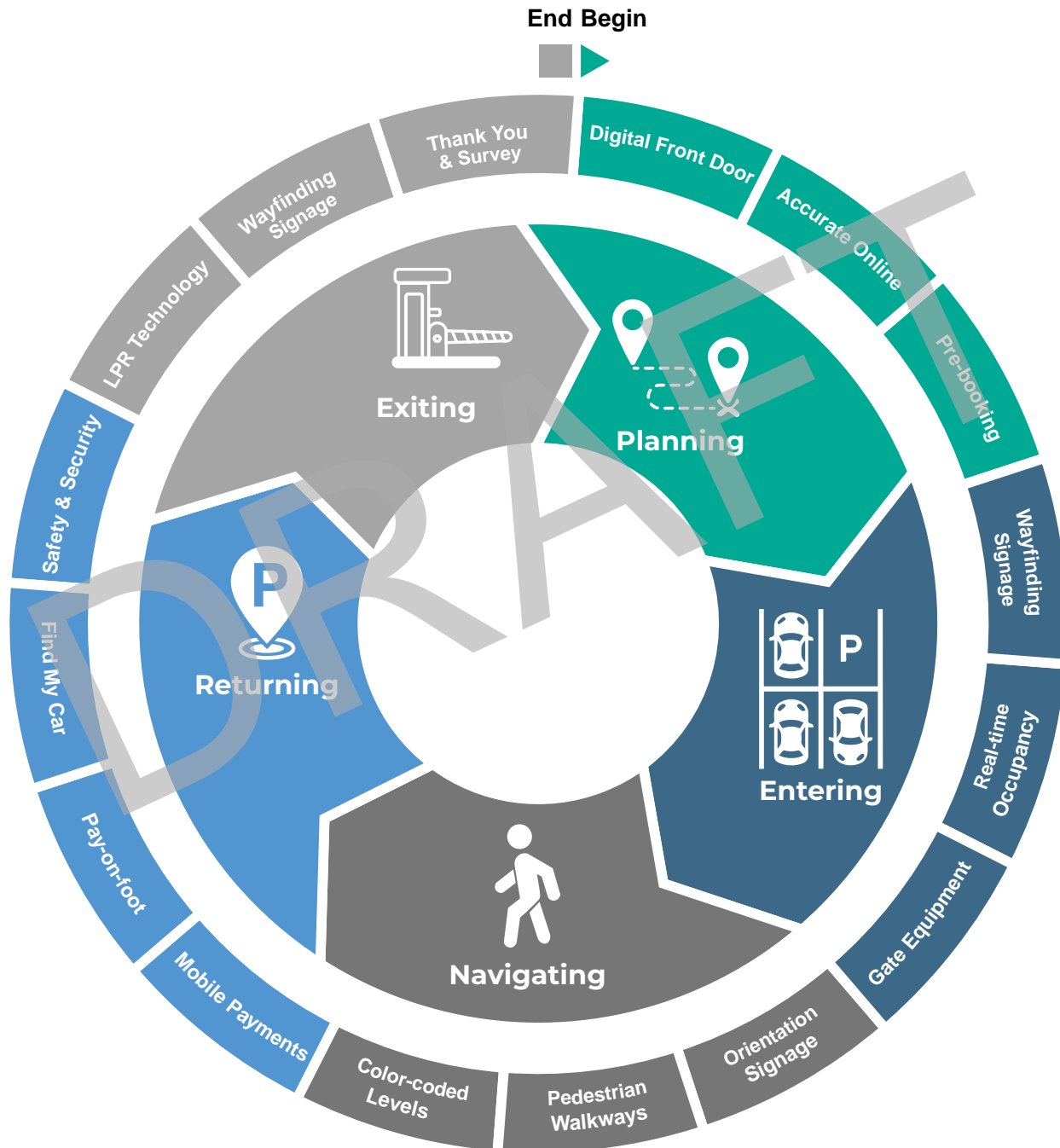
Shift from Parking Enforcement to Curb Lane Compliance



OFF-STREET PARKING BEST PRACTICES

CREATE A QUALITY PARKING EXPERIENCE

To create a quality parking experience, Greensboro should evaluate the services they offer from the customer's perspective during each segment of the parking experience: Planning, Entering, Navigating, Returning, and Exiting.





Planning should allow customers to determine where parking is available and how to reserve or purchase their parking before they arrive at the facility.

Entering focuses on creating an easy way for customers to identify the facility and begin their parking session.

Navigating helps customers safely move from their vehicle to their destination.

Returning provides a safe and seamless end to a parking session and offers customers multiple options to pay for parking.

Exiting allows customers to leave the parking facility without queuing or confusion and creates a positive parking experience.



RECOMMENDATIONS

To align Greensboro’s off-street parking experience with industry best practices, there are seven strategies that should be implemented.



CHALLENGE

People have difficulty finding information about Greensboro’s parking facilities before they begin their journey to downtown.

RESOLUTION

Enhance GDOT’s online presence and create a website that is easy to navigate, informative, and provides accurate information.



CHALLENGE

People do not know where Greensboro parking facilities are located.

RESOLUTION

Install wayfinding signage along key routes that help drivers navigate to available public parking.



CHALLENGE

People are unsure if space is available and/or the guidelines for parking in a Greensboro facility.

RESOLUTION

Inform customers of a parking facility’s availability before they enter the facility and ensure parking rates, rules, and regulations are clear.



CHALLENGE

It is inconvenient and time-consuming to pay for parking.



RESOLUTION

Enhance payment options for customers to create a frictionless parking experience.

CHALLENGE

People have a difficult time recalling where they parked.



RESOLUTION

Clearly designate public parking facility levels with easily identifiable signage and standard parking colors.

CHALLENGE

Due to dim lighting and enclosed stairwells, customers can sometimes feel unsafe in facilities.



RESOLUTION

Ensure parking facilities are safe, secure, and actively monitored.

DRAFT



STRATEGIC PARKING EXPANSION

Cities across the country have been shifting toward decreasing the number of new parking spaces created with development. Practices associated with this overarching goal are removing parking minimums, setting parking maximums, and requiring the sharing of parking spaces when possible. In Greensboro’s central business district zoning does not require parking. This allows Greensboro to strategically plan for parking expansion and support economic development without building additional parking spaces.



REMOVE PARKING MINIMUMS

This allows cities to promote in-fill developments or support the conversion of older buildings to modern uses without building additional parking.



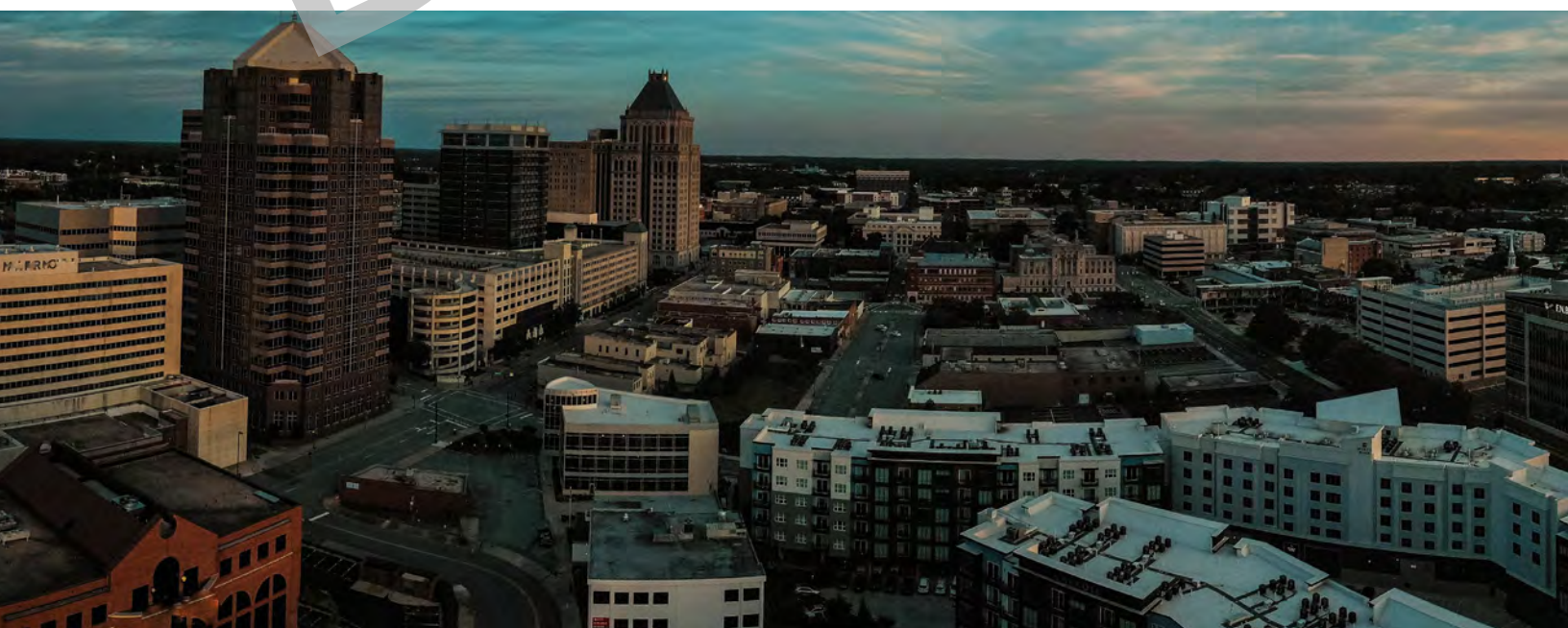
SET PARKING MAXIMUMS

Setting parking maximums prompts developers to think critically about the need for parking spaces and encourages the use of alternative modes of transportation.



LEVERAGE SHARED PARKING

Shared parking allows developers to build less parking while optimizing the use of the parking spaces that are built.





RECOMMENDATIONS

To help limit parking expansion, there are two strategies the City should consider based on existing challenges in Downtown.



CHALLENGE

Developers are used to providing parking for every land use, which can create an abundance of parking and reduce walkability.

RESOLUTION

Require shared parking studies and parking management plans for new developments and the creation of parking facilities.



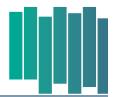
CHALLENGE

An abundance of surface parking lots limits walkability and activation in downtown.

RESOLUTION

Set parking maximums for single-use parking facilities.





EFFICIENTLY UTILIZE EXISTING PARKING

Efficiently using a city’s existing parking supply helps to ensure that previous investments in parking facilities create a return on investment, thereby limiting parking’s drain on a city’s general fund.

<p>OFFER FLEXIBLE PERMITS</p> <p>Parking operators have shifted towards offering daily parking permits or pooled permits for businesses with a significant number of employees with hybrid work schedules or shift workers.</p>	<p>INCREASE USER BASE</p> <p>Parking facilities that used to focus on office land uses will need to refocus on demand from retail, restaurant, and residential land uses.</p>	<p>PROMOTE A “PARK ONCE” EXPERIENCE</p> <p>Cities are exploring options to source parking from a common parking supply and are encouraging in-fill developments that increase walkability and density.</p>

RECOMMENDATIONS

Based on the three industry best practices related to efficiently utilizing existing parking, five strategies are recommended for Greensboro to implement.



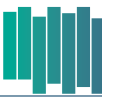
CHALLENGE

Current operations could be improved to manage parking demand without increasing supply.

RESOLUTION

Implement operational changes to existing parking facilities to increase efficiency.





RECOMMENDATIONS CONTINUED

CHALLENGE

High-demand surface lots are being used for monthly parkers, reducing turnover.

RESOLUTION

Reallocate monthly and transient demand for increased turnover in surface lots and shift long-term parking sessions into decks.



CHALLENGE

It can be difficult for parkers to find the location of public parking facilities.

RESOLUTION

Improve communication, signage, and information so drivers can easily find and park at Greensboro decks.



CHALLENGE

Local partners can feel unheard throughout changes in parking policy.

RESOLUTION

Partner with local committees, businesses, and organizations to leverage Greensboro facilities for their needs.



CHALLENGE

As Greensboro continues to grow, parking trends are likely to change year by year.

RESOLUTION

Conduct regular assessments of Greensboro's parking facilities.



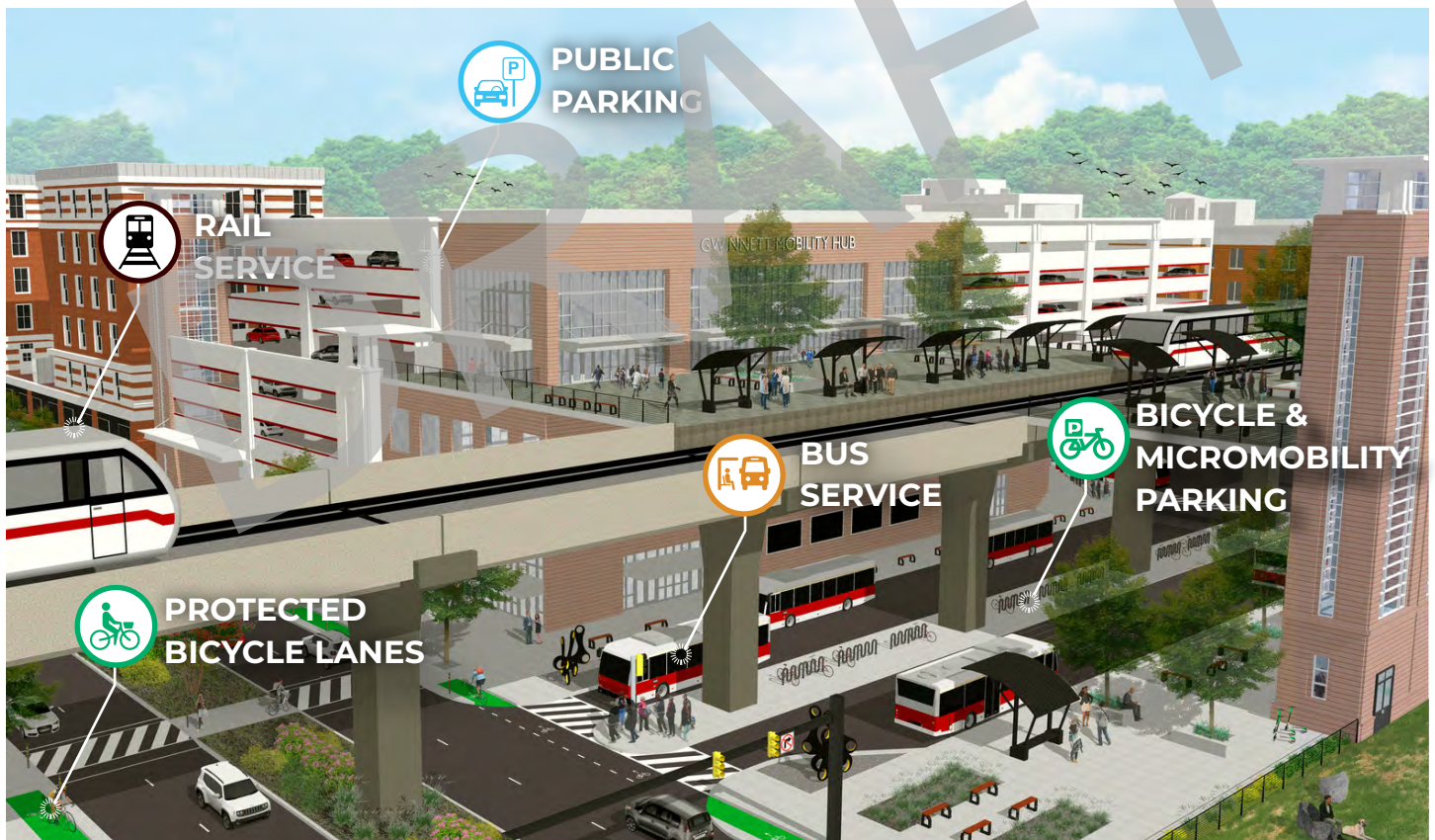


PROMOTE MULTI-MODAL TRAVEL

An emerging industry best practice for off-street parking is improving the connection between parking and other modes of transportation. Cities are exploring opportunities to develop mobility hubs in their transportation systems. Mobility hubs are places in a community that brings together public transit, bike share, car share, and other ways for people to get where they want to go without a private vehicle.

By adding amenities such as bike share and scooter stations, secured bicycle parking, transit stops, and rideshare pick-up/drop-off zones, parking facilities can connect people to destinations beyond a parking spot.

Embracing a mobility hub approach to parking facility design and management also helps to promote a park once experience. Rather than moving a vehicle and parking at each destination, commuters can park in a city-owned public parking facility, connect to other modes of transportation, and access all that downtown has to offer without getting in their car again.





RECOMMENDATIONS

There are three strategies the City can use to promote multi-modal travel in Downtown to help manage parking demand and reduce the amount of parking needed in the future.



CHALLENGE

People are less likely to use alternative transportation if infrastructure is not in place.

RESOLUTION

Increase bike and micromobility facilities and parking options near Greensboro facilities.

Connect Greensboro decks with micromobility travel options.

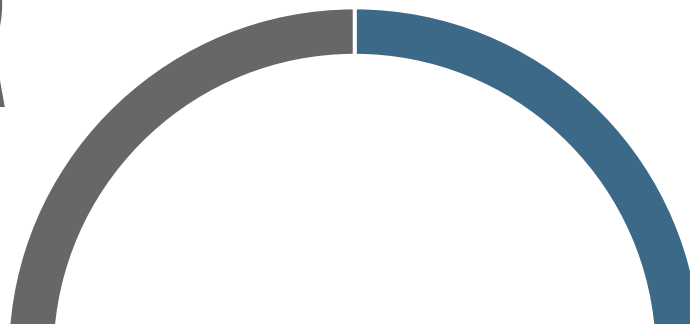


CHALLENGE

Some people's walking tolerances are smaller than the parking offered.

RESOLUTION

Encourage Greensboro decks as "park and ride" locations, specifically prioritizing implementation at the Depot Complex Lot.





SUPPORT EV FLEET CONVERSION AND GROWING EV CHARGING DEMAND

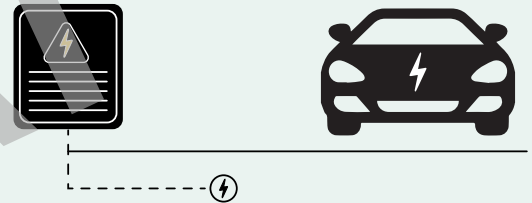
As our transportation system electrifies, there is an ongoing debate in the parking industry as to whether parking decks will be the gas stations of the future, and what role parking facilities should play in electric vehicle (EV) fleet conversion and EV charging. A facility’s parking demand profile will play a significant role in determining whether it makes sense to invest in EV supply equipment (EVSE) and at what scale equipment should be deployed. Understanding charging is critical for developing an EV ecosystem that can support the city’s current and future needs.

As cities prepare for growth in EV charging demand, implementing building code regulations that enhance EV readiness is critical. Cities across the country are adopting new building code requirements, or aligning with state and federal guidance, to expand EV charging infrastructure. These requirements typically call for a graduated level of EV readiness that spans three categories: EV Capable, EV Ready, and EV Installed.

EV - CAPABLE

Install electrical panel capacity with a dedicated branch circuit and a continuous raceway from the panel to the future EV parking spot.

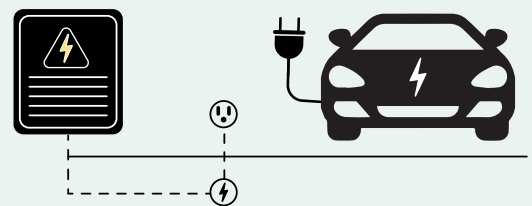
- Example City: Atlanta, GA requires 20% of parking to be EV-Capable.



EVSE - READY OUTLET

Install electrical panel capacity and raceway with conduit to terminate in a junction box or 240-bolt charging outlet (typical clothing dryer outlet).

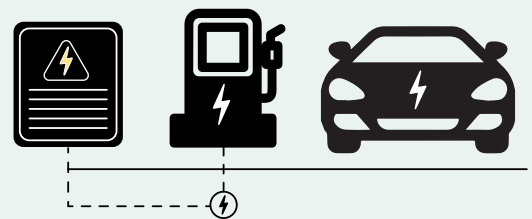
- Example City: Boulder, CO requires 10% of parking to have EVSE-Ready outlets.



EVSE - INSTALLED

Install a minimum number of Level 2 EV charging stations.

- Example City: Palo Alto, CA requires 10% of parking to be EV-Installed.





RECOMMENDATIONS

To best determine the specific EV needs of Greensboro, further study should be conducted on the City’s electric capacity, the public’s desire for electric vehicles, and potential funding sources.

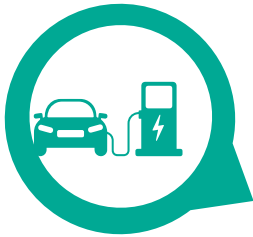


CHALLENGE

As demand for EVs continues to grow, Greensboro will need to assess its level of investment in EV infrastructure.

RESOLUTION

Develop an EV Implementation Plan.





CURB LANE MANAGEMENT BEST PRACTICES

SET CURB PRIORITIES BASED ON SURROUNDING LAND USES

Curb lanes in an urban environment serve as a resource for the surrounding land uses. As such, the priorities Greensboro sets for curb lanes shape a curb’s ability to meet the needs of surrounding land uses and support a vibrant downtown environment. This approach to curb management can transform curbs from areas used predominately for on-street parking to flexible spaces that meet an array of user needs. Establishing the priorities for a curb allows for the strategic allocation of curb space and a planned approach to determining trade-offs between different curb uses.

Curb Priorities



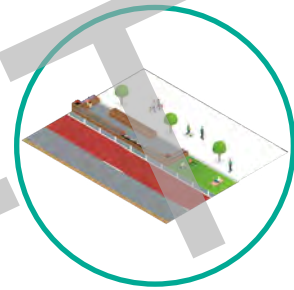
ACCESS FOR PEOPLE

People arrive at their destination or transfer between different modes of transportation.



ACCESS FOR GOODS

Goods and services reach customers and markets.



ACTIVATION

Offers vibrant social spaces and enhances aesthetics and environmental health.



STORAGE OF VEHICLES

Provides storage for vehicles or equipment.



MOBILITY

Moves people and goods.



RECOMMENDATIONS

There are two strategies Greensboro can implement to help set curb priorities based on the needs of the surrounding areas.



CHALLENGE

There are high-demand areas in Greensboro that could benefit from increased management to ensure turnover and equitable access.

RESOLUTION

Identify areas that need additional curb management and incorporate them into the system.

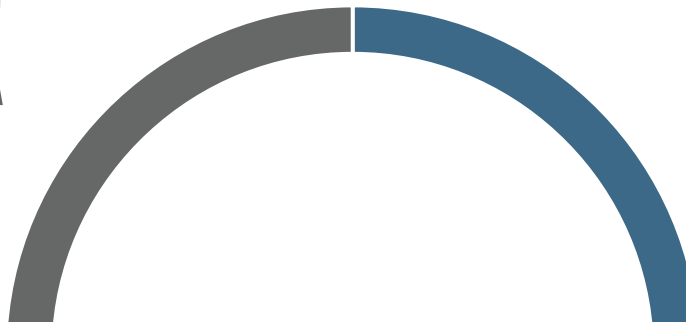


CHALLENGE

Business owners can typically feel excluded from curb lane usage decisions although their businesses could be impacted.

RESOLUTION

Engage business owners in evaluating curb amenities.





DIVERSIFY THE CURB LANE WITH NON-PARKING USES

Creating a balanced and efficient curb lane ecosystem requires a mixture of uses at the curb. Competing priorities for curb space can lead to congestion and unsafe conditions for vehicles, cyclists, and pedestrians. This is typically demonstrated by the conflict between using curb space for on-street parking and dedicating curb space for non-parking uses. An industry best practice in curb management is to allocate curb space based on defined priorities.

Curb Use Examples

 <p>Access for People</p>	<ul style="list-style-type: none"> Bikeshare Stations Bus Stops Carshare Commuter Shuttles Pick-up/Drop-off Zones Public Transit Specialized Loading Taxi/TNC Zones Tour/Charter Buses
 <p>Access for Goods</p>	<ul style="list-style-type: none"> Commercial Loading Curbside Delivery Curbside Pick-up Smart Loading Zones Other Delivery
 <p>Activation</p>	<ul style="list-style-type: none"> Benches/Seating Community Services Food Stands & Shops Food Truck Zones Parklets Public Art Sidewalk Widening Streeteries Wayfinding & Signage
 <p>Storage of Vehicles</p>	<ul style="list-style-type: none"> ADA Parking Bicycle Parking/Corrals Driveways Employee Parking EV Charging Stations Metered Parking Private Parking Residential Parking



Mobility

- Bike Lanes
- Bus Only Lanes
- No Parking Zones
- Parking Protected
- Bicycle Lanes
- Transit Lanes
- Travel Lanes
- Visibility Zones

RECOMMENDATIONS

To diversify the curb lane with non-parking uses relevant to Greensboro.



CHALLENGE

Non-compliance at the curb could be an indication that the existing curb use is not meeting users' needs.

RESOLUTION

Regularly evaluate block faces for patterns of non-compliant curb uses.

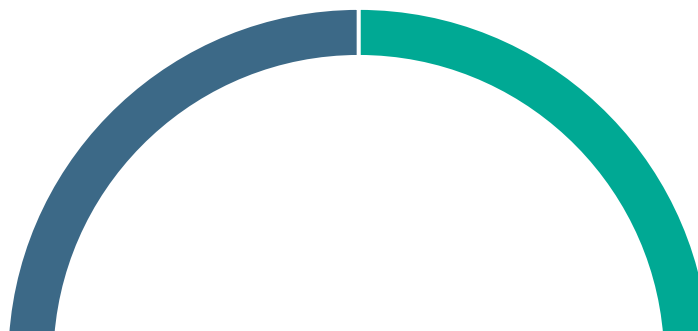


CHALLENGE

Expanding multi-modal infrastructure along roadways in downtown will encourage people to use alternative modes of transportation and help manage parking demand.

RESOLUTION

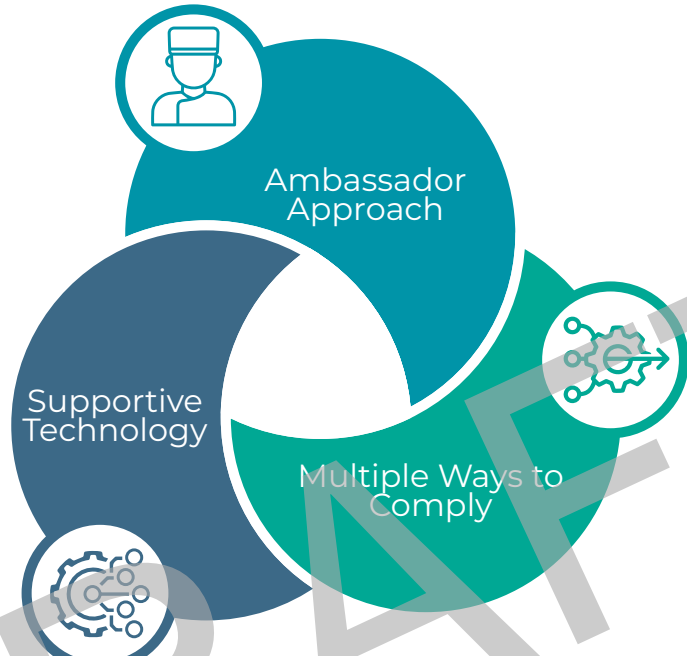
Determine potential corridors that would be candidates for alternative modes of transportation.



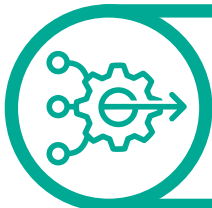


SHIFT FROM PARKING ENFORCEMENT TO CURB LANE COMPLIANCE

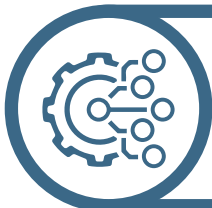
Modern curb lane management systems have shifted their focus from parking enforcement to curb lane compliance. Rather than relying on the issuance of citations to penalize infractions, cities are actively engaging with customers to ensure they understand the rules and regulations that govern the curb and foster a parking system that supports the city’s overarching goals.




Parking compliance staff can serve as ambassadors that help customers navigate the parking system.



Cities can provide customers with multiple payment options, operational meters, and routinely updated and accurate parking signage.



As cities shift from parking enforcement to parking compliance, they update protocols for citation issuance to align with their technology.



RECOMMENDATIONS

There are three strategies Greensboro can implement to shift parking from an enforcement to compliance model.



CHALLENGE

Non-compliance at the curb can be caused by lack of awareness and education.

RESOLUTION

Ensure the community is made aware of changes to the parking system.



CHALLENGE

Non-compliance at the curb can be caused by differing enforcement practices within the city, leading to confusion.

RESOLUTION

Develop standardized enforcement routines and procedures.



CHALLENGE

Citation prices are artificially low in Greensboro, which may encourage some users to violate the rules.

RESOLUTION

Adapt the violation fine schedule to rates similar to Greensboro's peer cities.





ENHANCE CURB LANE EFFICIENCY

To enhance curb lane efficiency, Greensboro should incorporate pricing and management strategies that promote parking turnover and distribute parking demand. When parking is free, users typically park for longer sessions. This behavior decreases parking turnover and reduces availability for other users. This negative outcome is amplified when curb management regulations are not consistently monitored. As seen in the graph below, free parking results in the lowest turnover rate resulting in less availability. Paid parking has a higher turnover rate, but requires time limits and consistent enforcement to increase parking availability. Dynamic pricing uses a combination of escalating rates and enforcement to generate the highest rates of turnover and availability.

Legend

- 

Free Parking,
No Time Limits
- 

Metered Parking,
No Time Limits
- 

Metered Parking,
with Escalating Rates
- 

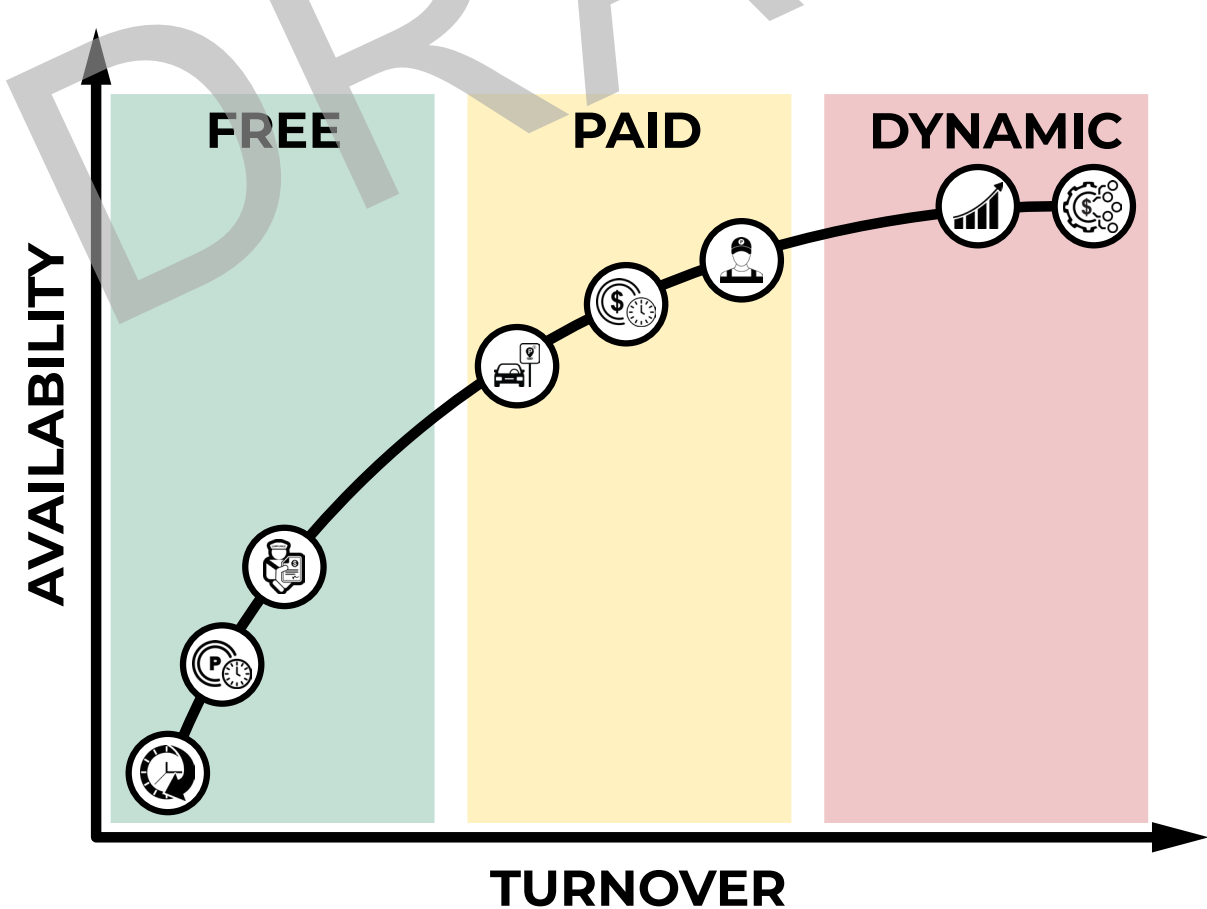
Free Parking,
with Time Limits
- 

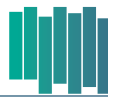
Metered Parking,
with Time Limits
- 

Metered Parking,
with Escalating Rates
and Enforcement
- 

Free Parking, with
Time Limits and
Enforcement
- 

Metered Parking,
with Time Limits
and Enforcement





Parking management strategies that generate parking turnover and consistent enforcement of curb lane regulations are essential to increasing parking availability in high demand areas.

RECOMMENDATIONS



CHALLENGE

There is limited parking turnover in high demand areas such as Elm Street resulting in less availability.

RESOLUTION

Implement metered parking on Elm Street and provide consistent enforcement of curb lane regulations to increase turnover.

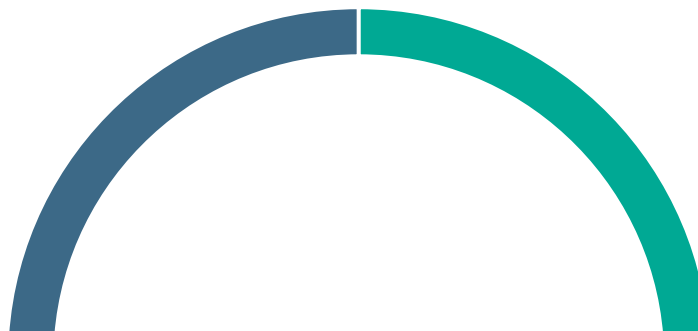


CHALLENGE

Historically, parking management strategies have not been implemented equitably throughout Downtown.

RESOLUTION

Develop standardized thresholds for implementing parking management strategies and ensure implementation is distributed in a consistent manner.





A combination of approaches and strategies is necessary to support an efficient curb environment. Additionally, strategies will vary based on context. The purpose of parking enforcement is to ensure compliance with posted limits so that access to the curb can be maintained and safety outcomes can be achieved. Generating parking revenue or attempting to ticket every violation are unwise goals for parking enforcement. A variety of management strategies are provided below. The expected outcome of each strategy is provided to establish a clear connection between curb management and the resulting turnover rates.

FREE PARKING

PAID PARKING



Free Parking, No Time Limits

Free parking with no time limits has the lowest turnover rate.



Metered Parking, with Time Limits

Metered parking with time limits generates a high level of parking turnover based on the maximum time limit.



Free Parking, with Time Limits

Free, time limited parking generates low levels of turnover without enforcement.



Metered Parking, with Time Limits and Enforcement

Metered parking with time limits and enforcement generates consistently higher levels of turnover but can rely on punitive measures.



Free Parking, with Time Limits and Enforcement

Free, time limited parking generates moderate levels of turnover when enforcement is consistent.



Metered Parking, No Time Limits

Metered parking without time limits generates moderate turnover based on a parkers willingness to pay.

**FREE PARKING
EQUALS LOW
TURNOVER**

**PAID PARKING
EQUALS MODERATE
TURNOVER**



Before exploring opportunities for dynamic pricing, Greensboro should ensure that customers understand how to navigate a paid parking system and reach target compliance thresholds.

DYNAMIC PRICING



Metered Parking, with Escalating Rates

Metered parking with escalating rates and no time limits generates higher levels of turnover based on a parkers willingness to pay.

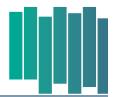


Metered Parking, with Escalating Rates and Enforcement

Metered parking with escalating rates and consistent enforcement generates higher turnover rates with limited punitive measures.

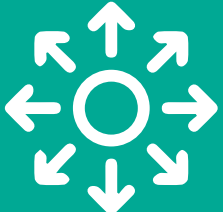
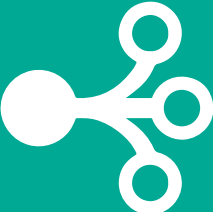

**DYNAMIC PRICING
EQUALS HIGH
TURNOVER**

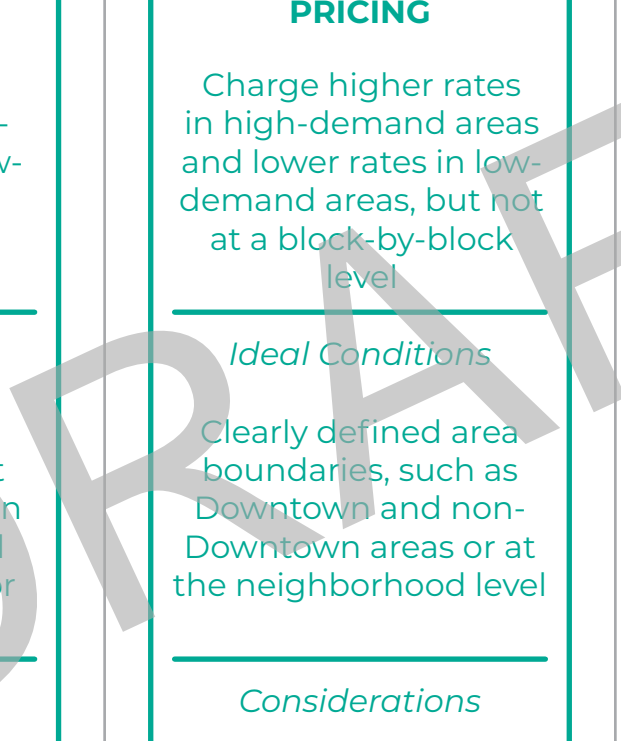




DYNAMIC CURB PRICING STRATEGIES

Dynamic curb pricing strategies can vary based on the desired outcome. Three common strategies include demand-based pricing, zoned-based pricing, and tiered pricing.

		
<p>DEMAND-BASED PRICING</p> <p>Distribute parking demand from high-demand areas to low-demand areas</p>	<p>ZONE-BASED PRICING</p> <p>Charge higher rates in high-demand areas and lower rates in low-demand areas, but not at a block-by-block level</p>	<p>TIERED PRICING</p> <p>Generate turnover by price increases in areas with extended or no maximum time limits</p>
<p><i>Ideal Conditions</i></p> <p>A grid system that allows users to shift their parking location from high-demand areas to moderate or low-demand areas</p>	<p><i>Ideal Conditions</i></p> <p>Clearly defined area boundaries, such as Downtown and non-Downtown areas or at the neighborhood level</p>	<p><i>Ideal Conditions</i></p> <p>Areas with smart meters or mobile payment areas that can track parking sessions by license plate</p>
<p><i>Considerations</i></p> <p>Customers may be confused about the price of parking in an area</p>	<p><i>Considerations</i></p> <p>Equity concerns that areas of high-demand are for the exclusive use of people who can afford it</p>	<p><i>Considerations</i></p> <p>The cost of an on-street parking session can be expensive for parkers that don't understand the rules of tiered pricing</p>





RECOMMENDATIONS

To more efficiently use existing curb space, Greensboro should initiate the following recommendations.



CHALLENGE

Certain areas in Greensboro have high demand and low turnover, making it difficult to find on-street parking.

RESOLUTION

Expand metered on-street parking system to manage demand.



CHALLENGE

Certain areas in Greensboro have high demand outside the current hours of operation for on-street parking.

RESOLUTION

Update hours of operation for the on-street system to increase turnover.

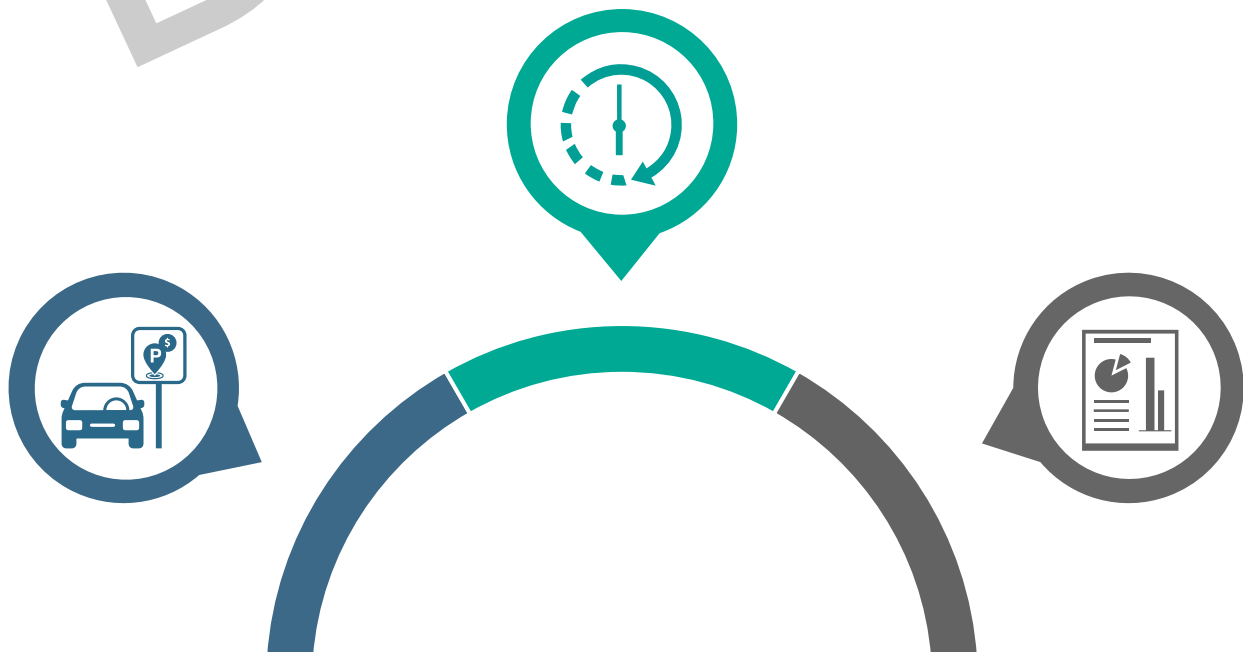


CHALLENGE

As Greensboro continues to grow, curb lane needs are likely to change.

RESOLUTION

Conduct occupancy and duration studies every year to track changes in demand and engage with businesses to understand changing needs.





INCORPORATE SMART LOADING ZONES

Loading zones are placed adjacent to high-volume and high-demand businesses to ensure close and frictionless loading experiences. By incorporating technology such as open data sources or camera sensors, Greensboro can equip their curb with Smart Loading Zones. Smart Loading Zones are similar to traditional loading zones but are equipped with technology that communicates the availability/occupancy of a loading zone, tracks the usage of a loading zone by user or company type, monitors the duration of loading zone activity, and seamlessly charges users for their loading zone activity.

Technology solutions for Smart Loading Zones vary in their capability to manage loading needs. When selecting a technology solution, it’s important to have a full understanding of its capabilities to ensure the implemented technology results in the desired outcome.

Legend: Included Not Included

Features	In-ground Sensor	Mobile App	RFID	Open-Source Data	Camera Sensors
Automated User Check-In	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Loading Zone Booking	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loading Zone-Specific Occupancy Detection	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
General Curbside Loading Detection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Duration Tracking	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Automated Enforcement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Automated Payments and Invoicing	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Capture Non-permitted Users	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Requires Legislative Change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>



In-ground sensor technology allows for accurate tracking of loading zone usage, but has limited enforcement and monetization capabilities.

Mobile app usage at loading zones allows drivers and logistics companies to reserve and pay for loading zone access, but requires active interaction with the system. Additionally, reserved loading zones may be in use by other vehicles, reducing the efficiency and reliability of this technology solution.

Radio Frequency Identification (RFID) allows for passive interaction with a smart loading zone system and users can be charge for their loading frequency and duration. However, RFID technology does not allow for passive enforcement or monetization of loading zones usage when vehicles do not have a permit/RFID tag.

Open-source data technology allows a smart loading zone system to capture loading/unloading activity by vehicles that may not use designated loading zones. Automatic payments and invoicing can be performed at the fleet level, resulting in higher capture rates. However, open-source data technology requires delivery fleets to provide access to data sources such as in-vehicle telematic systems. Loading zone enforcement for delivery fleets that do not participate in the smart loading zone system is limited.

Camera sensors allow for automatic enforcement and automated billing for loading zone usage. Additionally, camera sensors can capture loading zone usage by non-permitted vehicles. Infrastructure limitations, such as a readily available power source for camera sensors and tree canopy, can limit the feasibility of implementing this smart loading zone solution.

RECOMMENDATION

To manage demand, Greensboro can incorporate smart loading zones, prioritizing the loading zones along Elm Street with high demand.

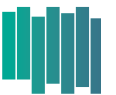


CHALLENGE

As curb space continues to grow in demand, cities can better leverage and monitor their loading zones.

RESOLUTION

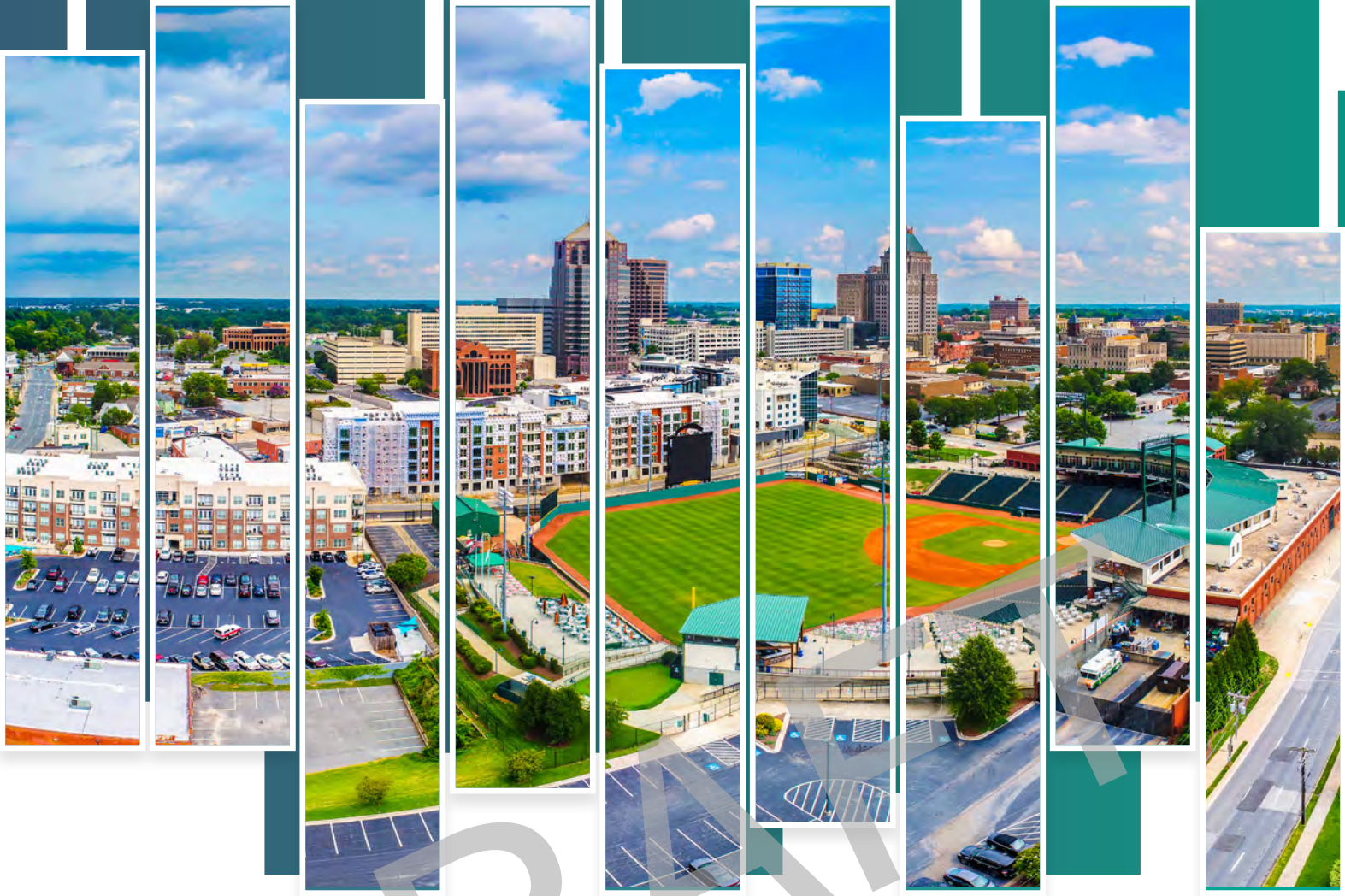
Review smart loading zone options and decide on the best type of technology to use to meet Greensboro's loading needs.



Key Results	Challenge	Strategy	Priority Level		
			High	Mid	Low
Off-Street Recommendations					
Create a Quality Parking Experience	People have difficulty finding information about Greensboro's parking facilities before they begin their journey to downtown.	Enhance GDOT's online presence and create a website that is easy to navigate, informative, and provides accurate information.	High		
	People do not know where Greensboro parking facilities are located.	Install wayfinding signage along key routes that help drivers navigate to available public parking.		Mid	
	People are unsure if space is available and/or the guidelines for parking in a Greensboro facility.	Inform customers of a parking facility's availability before they enter the facility and ensure parking rates, rules, and regulations are clear.	High		
	It is inconvenient and time-consuming to pay for parking.	Enhance payment options for customers to create a frictionless parking experience.		Mid	
	People have difficulty recalling where they parked.	Clearly designate public parking facility levels with easily identifiable signage and standard parking options.		Mid	
	Due to dim lighting and enclosed stairwells, customers can sometimes feel unsafe in facilities.	Ensure parking facilities are safe, secure, and actively monitored.	High		
Strategic Parking Expansion	Developers are used to providing parking for every land use, which can create an abundance of parking and reduce walkability.	Require shared parking studies and parking management plans for new developments and the creation of parking facilities.			Low
	An abundance of surface parking lots limits walkability and activation in downtown.	Set parking maximums for single-use parking facilities.		Mid	
Efficiently Utilize Existing Parking	Current operations could be improved to manage parking demand without increasing supply.	Implement operational changes to existing parking facilities to increase efficiency.	High		
	High-demand surface lots are being used for monthly parkers, reducing turnover.	Reallocate monthly and transient demand for increased turnover in surface lots and shift long-term parking sessions into decks.		Mid	
	It can be difficult for parkers to find public parking facilities.	Improve communication so drivers can easily find and park at Greensboro decks.	High		
	Local partners can feel unheard throughout changes in parking policy.	Partner with local committees, businesses, and organizations to leverage Greensboro facilities for their needs.		Mid	
	As Greensboro continues to grow, parking trends are likely to change year by year.	Conduct regular assessments of Greensboro's parking facilities.		Mid	



Key Results	Challenge	Strategy	Priority Level		
			High	Mid	Low
Off-Street Recommendations Continued					
Promote Multi-Modal Travel	People are less likely to use alternative transportation if infrastructure is not in place.	Increase bike and micromobility facilities and parking options near Greensboro facilities.			High
		Connect Greensboro decks with micromobility travel options.			High
	Some people's walking tolerances are smaller than the parking offered.	Encourage Greensboro decks as "park and ride" locations, specifically prioritizing implementation at the Depot Complex Lot.		Mid	
Support EV Fleet Conversion and Growing EV Charging Demand	As demand for EVs continues to grow, Greensboro will need to assess its level of investment in EV infrastructure.	Develop an EV Implementation Plan.		Mid	
On-Street Recommendations					
Set Curb Lane Priorities based on Surrounding Land Uses	There are high-demand areas in Greensboro that could benefit from increased management to ensure turnover and equitable access.	Identify areas that need additional curb management and incorporate them into the system.	High		
	Business owners can typically feel excluded from curb lane usage decisions although their businesses could be impacted.	Engage business owners in evaluating curb amenities.	High		
Diversify the Curb Lane with Non-Parking Uses	Non-compliance at the curb could be an indication that the existing curb use is not meeting users' needs.	Evaluate block faces for non-compliant curb uses.		Mid	
	Expanding multi-modal infrastructure along roadways in downtown will encourage people to use alternative modes of transportation and help manage parking demand.	Determine potential corridors that would be candidates for alternative modes of transportation.		Mid	
Shift from Parking Enforcement to Curb Lane Compliance	Non-compliance at the curb can be caused by lack of awareness and education.	Ensure the community is made aware of the changes to the parking system.	High		
	Non-compliance at the curb can be caused by differing enforcement practices within the city, leading to confusion.	Develop a more standardized enforcement routine and procedure.	High		
	Citation prices are artificially low in Greensboro, leading some users to be more willing to violate the rules.	Adapt enforcement violations to prices similar to Greensboro's peer cities.		Mid	
Enhances Curb Lane Efficiency	Certain areas in Greensboro have high demand and low turnover, making it difficult to find on-street parking.	Expand metered on-street parking system to manage demand.	High		
	Certain areas in Greensboro have high demand outside the current hours of operation for on-street parking.	Update hours of operation for the on-street system to increase turnover.	High		
	As Greensboro continues to grow, curb lane needs are likely to change.	Conduct occupancy and duration studies every year to track changes in demand.			High
Incorporate Smart Loading Zones and Monetize Loading Zone Access	As curb space continues to grow in demand, cities can better leverage and monitor their loading zones.	Implement smart loading zones.			



THE END

Prepared for:

Greensboro Department of Transportation

Business and Parking Division

Prepared by:

Kimley»»Horn