



DRAFT

DELRAY BEACH
PARKING
& CURBSIDE
MANAGEMENT

MASTER PLAN

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Executive Summary





Glossary

Central Business District: An area, defined within land development regulations (Section 4.4.13), designated as the core downtown area. Within the CBD, there are five sub-districts: Beach, Central Core, Railroad Corridor, South Pairs Neighborhood, and West Atlantic Neighborhood.

Community Redevelopment Agency (CRA): Established in 1985, the CRA's purpose is to oversee redevelopment and community activities in eight subareas, including the Central Business District. Projects include streetscape, events, parks, and transportation. delraycra.org

Delray Beach Downtown Development Authority (DDA): The DDA is a dependent taxing authority established in 1971 to carry out multiple activities to enhance economic vitality in the downtown district. The DDA ins involved in planning public and private projects, business development, and marketing.

Micromobility: For purposes of this Master Plan, the term micromobility encompasses both motorized and non-motorized low-speed vehicles: skateboards, bicycles, and scooters, as well as mopeds (gas and electric).

Microtransit: Microtransit refers to low-speed, electric multi-passenger vehicles that can be summoned from a mobile app or hailed on-street. Routes are typically restricted to roadways with a posted speed limit at or below 35 mph (though crossings of higher speed streets are allowed). In Delray Beach, the Freebee service operates downtown and is funded through the CRA and the City.

Neighborhood Electric Vehicles (NEVs): NNEVs (mainly golf carts) are used for transportation by residents and several City departments. Like microtransit, they are restricted to streets posted at or below 35 mph. With growing interest in a next generation of agile urban vehicles, new enclosed models of NEVs are emerging for deliveries, microtransit, and replacements for a car or second car.

Off-Street Parking: For purposes of this Master Plan, off-street parking refers to public parking in surface lots and garages..

On-Street Parking: On-street parking spaces are those on the street next to curbs.

Periphery Parking: This term is used to describe new parking options to expand supply west of Swinton Avenue: the Courthouse Garage, the Library Lot, the Tennis Lot, the City Hall Lot, and the CRA Lot.

Pick-Up/Drop-Off Spaces: Curbside spaces, usually converted on-street-parking, are reserved for passenger pick-up and drop-off. These can include valet and food delivery uses, though are typically associated with ridehail services such as Uber or Lyft. Directing drivers and passengers to pick-up points can reduce congestion and increase service efficiency.

Ridehail Services: Ridehailing includes traditional taxicabs as well as app-based Transportation Network Companies such as Uber and Lyft.

Right-Priced Parking: This Master Plan references right-priced parking. This new demand- responsive approach seeks parking rates that make optimal use of supply while leaving some spaces for new arrivals. Within the parking profession, parking managers seek consistent occupancy of 85-90%. Through monitoring, a manager may reduce rates with lower occupancy (e.g., 60%), or enact additional management measures when occupancy is over 90% .

Transportation Demand Management (TDM): TDM institutes incentives for non-auto modes of travel. Similarly Parking Demand Management refers to many of the same measures that have the impact of reducing parking demand.



Executive Summary

The City of Delray Beach initiated this parking study in 2019 to assess options for better management of parking and traffic along Atlantic Avenue. With regional growth and expansion of the City's core business district, parking demand is rising. Increasing land prices, coupled with increasing construction costs, reduce the feasibility of constructing new garages and lots. The rise in e-commerce and other technologies have introduced new competition for space along curbsides and on sidewalks. This plan examines Delray Beach's parking and curbside assets and presents recommendations for a performance-based, actively managed parking system in the Downtown area north and south of Atlantic Avenue.

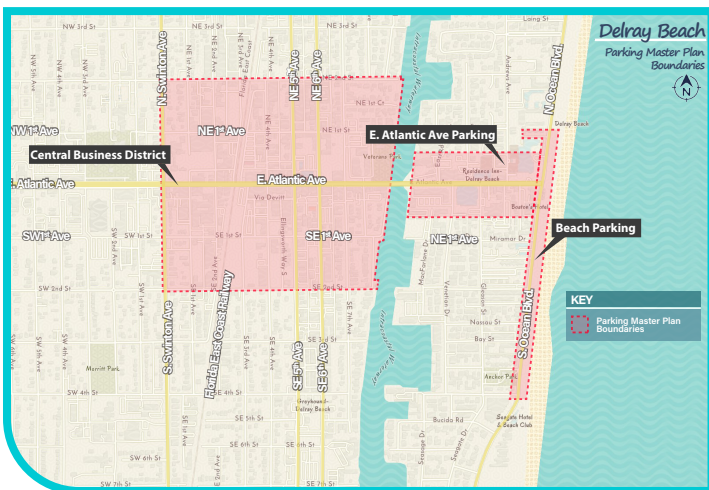


Image 1: Parking Master Plan Boundaries

While previous Delray Beach studies included recommendations on future supply and garages, the purpose of this study is to better match demand and existing parking in and around Atlantic Avenue while supporting the myriad of stakeholder groups who are key to the district's success. The plan provides monitoring and metrics to use in assessing whether or when to change policies, pricing, and/or decisions on adding parking supply.

At the study kick-off meeting, the study team was able to conduct initial counts and stakeholder interviews, however in March 2020, COVID interrupted data collection. The study was reoriented to assess trends affecting parking and curbside management during recovery and into the future.

The study area is comprised of three subareas:

Central Business District (CBD) – This area runs along Atlantic Avenue from Swinton to the Intracoastal Waterway encompassing all on and off-street paid and time limited parking West of the Intracoastal.

Beach – Beach parking encompasses all on-street and three (3) off-street locations along Ocean Boulevard/A1A from Casuarina Road in the south, to Beach Drive in the North.

East Atlantic Avenue – East Atlantic Avenue parking extends from the Intracoastal Waterway along Atlantic Avenue to Ocean Boulevard, encompassing all on-street parking on Atlantic Avenue and the adjacent side streets.

Even before the pandemic, several trends such as e-commerce and mobility technologies increased demand for sidewalk and curb space. Cities nationwide also began reallocating street space for festivals, open streets events, and outdoor dining, a move that was popular with residents and business owners who reap the benefits of added foot traffic. With shifting trends, Delray Beach's traditional parking study began to incorporate new and expanded focal areas, with added emphasis on economic development, curbside management, and the ability to leverage technology to better use and manage existing parking assets. These technologies are transforming parking with abilities to collect data and institute real time management measures.

The evolution in parking planning includes traditional elements (signage, meters, enforcement) with new technologies and policy innovation to incorporate:

Active Management

With new technologies, parking managers can monitor conditions and change operations to manage curbsides in real, or near-real-time. This is a departure from traditional operations that lack the ability to match supply and demand, which results in frustration, congestion, and inefficient use of parking and curbside assets. Active management often relies on setting performance standards for the parking system. For example, a best practice for providing optimal parking is maintaining 10%-15% of spaces open along a block face. Once a performance target is breached, the parking manager examines conditions leading to failed performance and takes additional management steps. Likewise, a manager can reduce rates where parking demand is low.

Emerging Technologies

Technologies for active parking management work in several ways. First, most technologies collect data to document parking and congestion patterns by location, time of day, day of the week, and duration. For drivers, the parking journey can begin prior to starting their trip – not just upon arrival. Through mobile apps, digital signage, and in-car dashboard communications displays, drivers can tell where open spots are available, as well as information on pricing and time limits. Though relatively new, dynamic pricing systems give cities the ability to institute demand-based pricing that adjusts in real-time, or according to scheduled reviews and revisions.

Parking Demand Management

Parking demand management is a term used to describe various policies and programs that result in more efficient use of parking. Strategies usually include shared parking, shifting auto trips to lower impact modes, pricing, and directing drivers to underused parking areas.

WHY is this new approach to parking management important in Delray Beach?

Through interviews and surveys, Atlantic Avenue stakeholders provided a multifaceted array of observations and challenges to address:



Real and perceived parking shortages



Finding the right balance of traffic flow to retain the cultural vitality of cruising Atlantic Avenue while reducing excess traffic related to drivers circling in search of parking



Employee parking that is convenient and safe



Driver desire to park in front of their destination



Tools to find where open parking spaces



The need for parking ambassadors to provide customer service (not just enforcement)



Demand for sidewalk and curb space that results in congestion on sidewalks, along curbs, and in travel lanes



A well-managed delivery loading area program

One of the top reasons to adopt an active management approach is the difficulty of justifying the cost of a new garage when Delray Beach has underutilized parking proximate to Atlantic Avenue. A second reason is the unknown nature of how several mobility trends will affect the demand for parking.

With respect to technologies, Delray Beach has a growing portfolio of parking management technologies such as the ParkMobile system and garage real-time parking guidance. Ridehail services such as Uber and Lyft were one of the first disruptive mobility technologies in Delray Beach, lessening the demand for parking but creating new demand for curbside pick-up and drop-off points. ParkMobile continues to add features within their app; reservation systems are on the horizon. Pineapple Grove is home to a new mechanical (or robotic) garage that fits more cars within a smaller building footprint.

Emerging technologies are also poised to become mainstream elements of the transportation system. Florida is home to several autonomous shuttle pilot projects and services, which could translate into accelerated deployments throughout the state. Self-parking and self-driving cars will further alter the amount, size, and location of parking facilities, though the exact design and policy outcomes are still unknown.



Unlocking existing parking capacity

involves several key concepts that emerged during interviews and from research:

	People First	Delray Beach's Central Business District is a very active place where people congregate for events, nightlife, and commerce.
	Efficient Utilization	Delray Beach's Central Business District is a very active place where people congregate for events, nightlife, and commerce.
	"Park Once" Environment	Create an environment where a driver parks once and carries out other trips by foot while in the Downtown area.
	Choice	People should have a variety of parking and travel options from which to choose.
	Pricing	Parking should be priced to reflect demand, spread demand evenly, promote utilization of periphery parking, and help reduce traffic from drivers circling in search for a space.
	Prioritization	The most desirable spaces should be managed to favor higher priority uses and users, which can change throughout the day.
	Sharing	Parking facilities should serve multiple users and destinations, and adjacent buildings should share parking facilities to the extent practical.
	Quality & Quantity	Parking facility quality should be considered as important as quantity, including convenience, comfort, aesthetics, and security.
	User Information	Motorists should have easily accessible and real-time information on their parking and travel options.
	Flexibility	Parking plans and curbside management should accommodate uncertainty and change.
	Adaptability	Adopt a phased approach that uses data and a performance-based approach to parking management.



Based on stakeholder input and research, strategies for the parking and curbside master plan were evaluated and are presented in a phased and performance-driven format with associated evaluation metrics. There are two types of metrics involved with performance-based parking.

- **Monitoring metrics:** As noted, Delray Beach should strive for a consistent occupancy of 85-90%, a target that signifies optimal use of parking facilities while having open spaces for new arrivals.
- **Threshold (or action) metrics:** This metric denotes when the City needs to adopt additional measures to balance parking supply and demand.

In supporting this systems approach to parking, strategies were chosen for the following categories based on how Delray Beach currently manages parking.



On-Street Parking



**Infrastructure
and Curbside
Management**



Off-Street Parking



**Digitization and
Technology**



Mobility



**Traffic
Management**



Valet Parking



**Programming
Atlantic Avenue**

For implementing the recommended strategies and measures, this plan groups strategies to form an Implementation Framework:

Systems

- Formalize a Parking Benefit District
 - *Optional: Within the Parking Benefit District, Establish an Entertainment District*
- Right Pricing Parking
- Digitization and Technology Roadmap
- Mobility

Elements

- Periphery & Shared Parking
- Connected Garages & Atlantic Avenue By-Pass
- Infrastructure & Curbside Management
- Wayfinding

Operations

- Coordinated Valet Operations
- Employee Parking Programs
- Commercial Loading Zones
- Traffic Management & Enforcement
- Funding Strategy

Delray Beach's Existing Parking Program

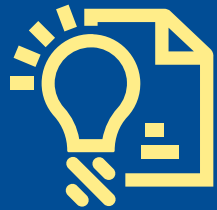




Planning Context

Policy Framework in the Comprehensive Plan (Always Delray)

Before assessing short-term opportunities, it's helpful to begin with an understanding of Delray Beach's overarching goals established in the 2020 Comprehensive Plan (Always Delray), as well as those for the Downtown Central Business District.



The Vision statement in *Always Delray* is as follows:

"Delray Beach is a vibrant, award-winning "All-America City" composed of a charming downtown Village by the Sea and dynamic, diverse neighborhoods. We proudly celebrate our historic heritage and look forward to a bright future. Our goal is to provide a high quality of life that is healthy and welcoming for residents, visitors, and business owners."

Parking is addressed within the Mobility Element of the Comprehensive Plan. Specific goals, objectives and policies related to this Master Parking and Curbside Management Plan (hereafter referred to as the Master Parking Plan) are summarized below:

GOAL 1

Mobility System: Plan for and provide a safe and effective mobility system that is accessible to all users and meets their needs to access employment, goods, services, and recreational and cultural activities, while preserving neighborhoods, protecting natural resources, and promoting economic development.

Summary: Within this Goal, objectives and policies address support for a multimodal-transportation system that prioritizes walking, biking, low-speed vehicles, and transit by providing facilities and street design for safe and effective travel. For transit, policies address connections between destinations. For parking, policies call for "park once environments" that help reduce auto travel.

GOAL 2

Infrastructure: Accommodate the existing and future mobility and accessibility needs of all users by providing a superior multimodal system.

Summary: Within this Goal, objectives and policies seek to optimize connectivity for safe and effective operation of the transportation network. Related to this study, two policies call for protecting and enhancing alleys as a vital part of the transportation network. Policies note the City shall not abandon alley rights-of-way and recognize the important functions and multiple benefits alleys provide.

GOAL 3

Maximized Investment and Retrofitting: Accommodate future growth through projects that maintain and enhance the City's mobility system, directed toward enhancing walkability, accessibility, and the quality of life.

Summary: Within this Goal, objectives and policies seek to better use existing assets through several strategies including Transportation Demand Management (TDM), operations, parking, and transit-oriented development (TOD). The suggested TDM measures aim to reduce the number and length of car trips while policies related to operations are intended to shape the effectiveness of traffic systems. One policy specifically calls for Curbside Management. The TOD objective includes a parking reduction policy as a possible incentive for developers.



The parking objective seeks to promote policies that adjust parking requirements to account for changes in car ownership trends, the growth of ridesharing, connected vehicles, and vehicle automation. Detailed policies include:

- Regular assessment and updates (customized to context) to Land Development Regulations to reflect actual parking trends and needs.
- Consideration of car and ridesharing, connected vehicles, vehicle automation, and shared use of parking in forecasts of future parking needs.
- Reassessment of the Parking Management Plan every four years to identify parking strategies, shared parking, and future locations of parking structures and lots in the downtown area.
- Implementation of shared parking principles for mixed-use developments and for adjoining properties by employing the latest updates of professionally accepted standards.
- Identification of appropriate locations in the downtown area for ridesharing, ridehailing, and valet pick-up/drop-off services that are safe, well-lit, and limit disruption of traffic flow.

Additionally, parking policies can also be found in other sections of Always Delray:

The Economic Placemaking Element includes an objective for Workplace Access and Policy to implement a comprehensive, coordinated parking strategy in the downtown area to improve access for customers and employees, including wayfinding signage, diverse payment methods, and superior maintenance of public parking garages.

The Coastal Management Element contains a goal for balancing between built and natural environments which includes a public access policy to retain the existing public parking under City control on the barrier island and explore the expansion of public parking opportunities on existing paved areas for increased public beach access.

The Conservation, Sustainability, and Resiliency Element contains a goal to protect and improve the quality of the City's air resources by reducing vehicle-related emissions. There is an associated policy to require a percentage of alternative fuel, off-street parking spaces in the Central Business District and assess the need for alternatively fueled vehicle spaces throughout Delray Beach.

The Open Space, Parks, and Recreation Element contains an accessibility and connectivity objective with related policies to maintain existing access points and beach parking lots. A second objective seeks to create urban and open spaces, with a policy to incorporate parklets on streets with limited street trees and green spaces to increase landscaping in the public realm.

The Neighborhoods, Districts, and Corridors Element presents several mobility and parking policies that:

- Apply the density and intensity in mixed-use land use designations to encourage development that advances strategic, policy-driven goals, including public parking.
- Create compact development within mixed-use Regional Activity Centers with a variety of community-serving uses and design characteristics such as off-street parking designed to support walking.
- Retain City ownership of alleys, especially those located in the downtown area and within the Old School Square Historic District.
- Create a district-wide parking program that strategically locates public garages and lots to maximize access without conflicting with pedestrian activity, provides for on-street parking, designates ride-share pick-up and drop-off locations, and develops "park once" areas.
- Provide transit-oriented workforce housing with incentives, such as increased density, smaller unit sizes, and reduced parking requirements in areas located within one-quarter mile of commuter rail stations and along main transit corridors. Policies seek to minimize impacts to surrounding neighborhoods by providing compatible transitions through the application of Land Development Regulations.
- Continue to develop new land use and zoning incentives for eligible and historic resources.



Previous Parking Recommendations

Parking has been the subject of several planning efforts over the past 20 years. The table below summarizes recommendations from the 2002 Downtown Master Plan, a [2010 Parking Management Plan](#), the [2017 Shopability Analysis](#) (Gibbs Report), the 2021 Comprehensive Plan ([Always Delray](#)), and this current plan.

	Downtown Master Plan (2002)	Parking Mgmt. Plan (2010)	Gibbs Report (2017)	Always Delray (2021)	Parking & Curbside Mgmt. (2022)	Implementation Status
Right-pricing for premium on-street parking		X	X		X	Partial
First 20 minutes free		X	X			Yes
Parking Benefit District (or similar concept)		X	X		X	No
Shared Parking	X	X	X	X	X	Yes
Retain functionality of alleys	X			X	X	Yes
Citywide Valet System	X	X	X		X	No
Adjust extended time limits (> 2 hours)			X		X	Partial
Improve bicycle/pedestrian infrastructure	X (ped)	X	X	X	X	Partial
Use Library & Courthouse lots			X		X	No
Transportation Demand Management		X		X	X	Partial
Unified branding & wayfinding for parking			X	X	X	Planned
Reduce sidewalk clutter/maintain standards			X	X	X	Partial
Hire ambassadors		X			X	No
Employee permit parking			X		X	No (in codes, but no permit)
Downtown shuttle		X		X	X (expanded microtransit)	No
Fee In-lieu of improvements	X	X	X		X	Yes
Active management or similar concept			X*	X*	X*	No
Factor in emerging technologies				X	X	Partial
Commercial loading zone regulations					X	Partial
Digital infrastructure plan					X	No
Performance-based decision framework					X	No

*Continuously re-evaluate data to determine when rate changes needed.

Table 1. Summary of Recommendations from Previous Studies

In the 12 years since the previous parking study, competition for curb space has grown significantly, both in the volume of traditional traffic and the increasing number of competing uses. As such, this Parking Master Plan incorporates additional analysis and management topics

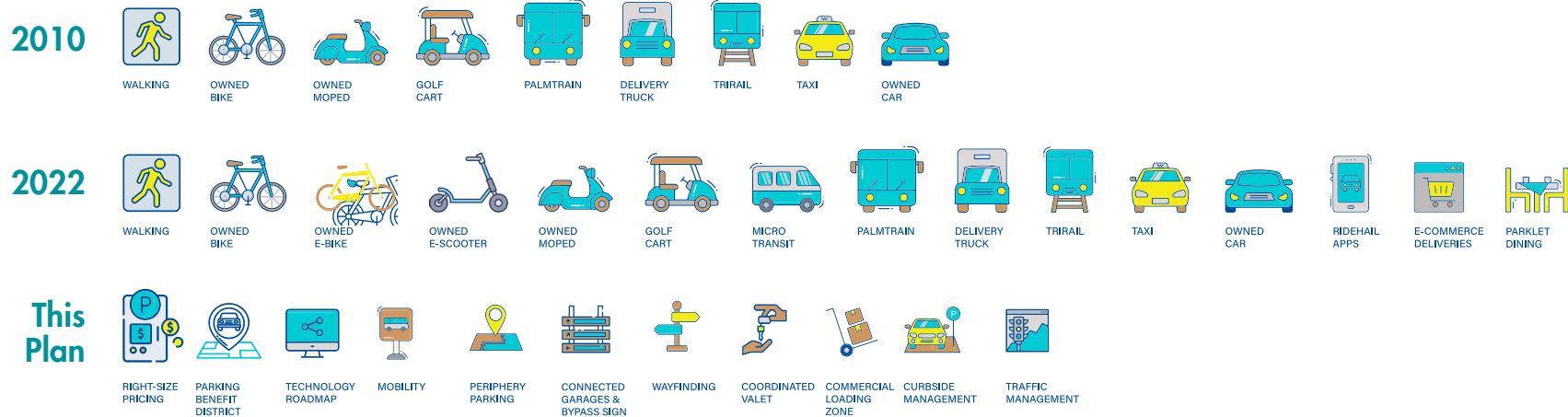


Image 2: Mobility changes since the 2010 Parking Plan



Parking Assets - Garage

Old School Square Garage - 95 NE 1st Ave.

Overview: OSS is the largest City-owned garage and is the most technologically advanced (LPR and parking guidance systems).

Number of Spaces: 525

Pricing + Time Limits: Monday - Saturday 4:00 PM-12:00 AM \$5 flat rate fee (in before 4:00 PM, free all night); Free on Sundays; 14-hour limit.

Assessment: Old School Square roof level underutilized at all times; counts at peak period showed 130 open spaces; motorcycle "burn out" marks were observed on the roof level.

IPIC Garage (also the The 4th & 5th Garage)- 25 SE 4th Ave.

Overview: Newer garage with public and privately managed parking.

Number of Spaces: 90 publicly managed spots/236 IPIC-managed spots.

Pricing + Limits: Monday - Saturday 4:00 AM-12:00 AM \$5 flat rate fee (in before 4:00 PM, free all night); Free on Sundays; 14-hour limit.

Assessment: The IPIC garage is heavily utilized and operates at or near capacity each time observed; the third-floor gantry is confusing and forces drivers to turn around in a tight area. Once past the gantry, rates are higher than the public \$5 flat fee.

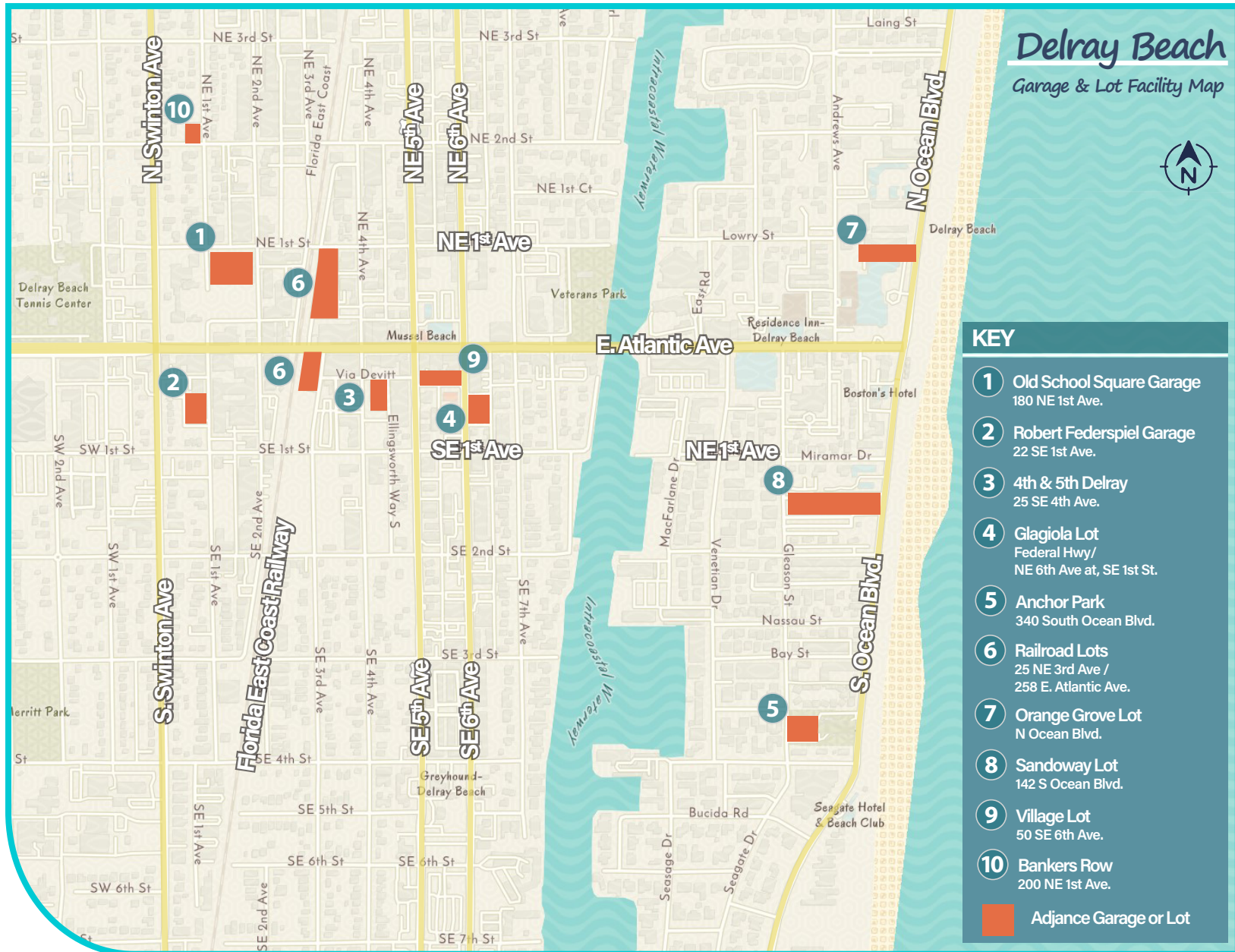
Robert Federspiel Garage - 22 SE 1st Ave.

Overview: Older garage with numerous maintenance issues.

Number of Spaces: 202

Pricing + Limits: Monday - Saturday 4:00 PM-12:00 AM \$5 flat rate fee (in before 4:00 PM, free all night); Free on Sundays; 14-hour limit.

Assessment: Garage conditions have deteriorated (poor lighting, garage elevator out of service). Stakeholders have mentioned potential use of the Federspiel garage for valet parking given its condition.





Parking Assets - Surface Lots

Bankers Row 200 NE 1st Avenue

Overview Small surface lot near Pineapple Grove. There are three electric charging stations

Number of Spaces: 30 (two Handicap)

Pricing: Free parking; 4-hour time limit

Assessment: This small lot is popular during peak parking periods

Gladiola Lot

Overview & Features: Surface lot near in the core Downtown area

Number of Spaces: 40

Pricing + Limits: Free parking; 9-hour time limit

Assessment: During peak periods (Friday night), the Gladiola Lot was at 110% of capacity (cars were illegally parking in drive aisles) with no enforcement observed

Railroad Lots (191 spaces total) North Railroad Lot 25 NE 3rd Avenue

Overview & Features: Centrally located lot popular with employees and diners

Pricing: Free parking; 9-hour time limit

Assessment: There is considerable circling in search of parking given the long time periods. There are also motorcycle and golf cart parking spaces. The North Railroad Lot is well lit

South Railroad Lot 30 NE 4th Avenue

Overview & Features: Centrally located, though with a shorter time limit

Pricing + Time Limits: Free parking; 2-hour time limit

Assessment: Popular with diners. There are two private parking lots nearby with paid parking

Village Lot 50 SE 6th Avenue

Overview: Located across from the Gladiola lot.

Number of Spaces: 40

Pricing + Time Limits: Free parking; 2-hour time limit

Assessment: Popular during peak hours





Parking Assets - Beach Facilities

Beach On-Street Parking

Number of Spaces: 180 between Casuarina Road to the south, and Beach Drive

Pricing + Limits: Ocean Blvd/A1A North & Ocean Blvd/A1A South: \$1.50 an hour for up to 4 hours; East Atlantic Ave- Intracoastal Waterway to SR A1A \$1.50 an hour for up to 2 hours; Enforced 8:00 AM - 8:00 PM, seven days a week

Anchor Park 340 South Ocean Boulevard

Number of Spaces: 82

Pricing: \$1.50 an hour, 8:00 AM to dusk

Orange Grove Lot – 10 North Ocean Boulevard

Number of Spaces: 29

Pricing: \$1.50 an hour, 8:00 AM to dusk

Sandoway Lot 142 South Ocean Boulevard

Number of Spaces: 140

Pricing: \$1.50 an hour, 8:00 AM to dusk



Delray Beach's Current Parking Program

The City has adopted several measures to manage parking and continues to invest in new technologies and operational improvements. The parking system performs well financially, bringing in an average Net Operating Income (NOI) of more than \$200,000/month. Analyzed reports indicated the system generated more than \$5,000,000 in NOI between its inception in June 2017 through September 2019.

In addition to the 2019 data and desk research, WGI visited Delray Beach on Thursday April 15th, 2019, Friday April 16th, 2021, and January 29, 2022, to collect data and record observations. Due to the pandemic and ensuing shutdowns, the original data collection plan was delayed and later resumed when restrictions were eased. More detail is presented in **Appendix 1**.

Snapshot of Parking Revenue (2019 data):

- 883,670 total parking transactions which generated \$2,858,528.
 - Of these transactions, 68% (58% of revenue) were for on-street parking and 32% were off-street in garages and lots (48% of revenues).
- Approximately 9% of transactions generate no revenue (the 20-minute free period).
- In general, mobile payments account for 32% of transactions, with the other two-thirds using meters and payment kiosks.
- The slowest month was September, and the highest demand was in March.
- Between March and April, parking demand falls by 50% at the beach, but only 25% in the CBD.

To determine the areas of highest on-street parking demand, counts were conducted during three different time intervals: weekday morning (12:00 PM-2:00 PM), weekday evening (4:00 PM-6:00 PM), and weekend evening (4:00 PM-6:00 PM).

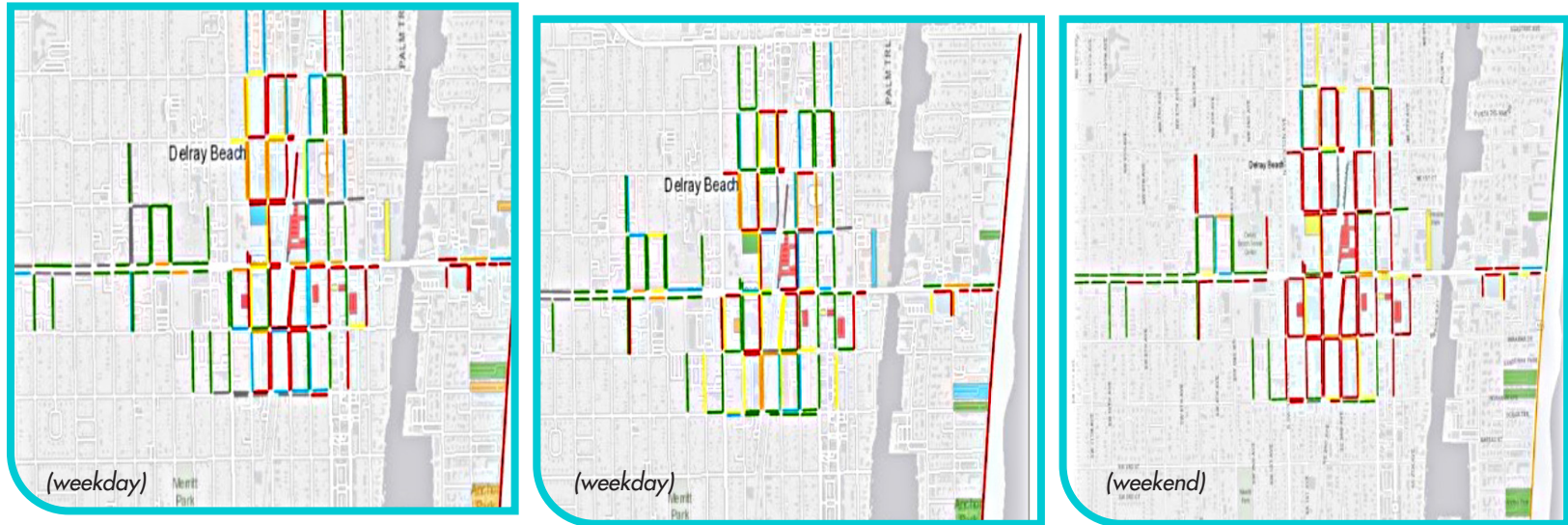


Image 3: Parking Heat Maps



Current Parking Program and Operations

Operations are conducted within four main categories:

Parking Regulations: Parking is governed by several plans, overlay districts, and ordinances. Parking supply, design, and programming is regulated under Delray Beach's zoning code through several ordinances including the Fee-In-Lieu of Parking program, Parking Minimum Requirements, On and Off-Street Parking Rates, Employee Parking, Beach Parking, Residential Parking, and Valet Parking.

Revenue Collection: For parking revenue collection, the City uses a combination of beach and residential permit programs, a mobile payment application (ParkMobile), and multi-space meters (T2) placed throughout the downtown area. The City uses License Plate Recognition (LPR) equipment in the Old School Square garage and has installed a mobile unit on one of the municipal parking enforcement vehicles.

Curb-Side Valet Management and Operations: There are currently seven (7) curb-side valet services operating in Delray Beach. Valet operators lease curb/queue spaces from the City, and typically begin operations at 5 p.m. Valet operators are specifically associated with adjacent restaurants and/or entertainment venues and prices are capped at \$15 for parking services.

Neighborhood Electric Vehicles (Golf Carts): Golf carts have designated parking in three areas downtown (on and off-street). There is unsanctioned parking at the northern end of the public beach on A1A. Any cart that occupies a regular space must pay the same parking rate as an automobile. Golf carts that have a top speed of 20 mph are not required to be registered and titled. However, new low speed electric models that can travel over 20 mph must be registered and titled.



Study Area Results

The following is a summary of activity within the three main study areas:

Central Business District:

This area runs along Atlantic Avenue from Swinton Avenue to the Intracoastal Waterway, encompassing all on and off-street paid and time-limited parking west of the Intracoastal.

Parking in the CBD represents 49% of total transactions and 51% of total revenues. The peak month is March, and the peak time period is 6:00PM – 8:00PM. Forty-four percent of parking transactions in the CBD are made by mobile payment.

East Atlantic Beach Area:

The East Atlantic Avenue Area extends along Atlantic Avenue from the Intracoastal Waterway to Ocean Boulevard, encompassing all on-street parking on Atlantic Avenue and the adjacent side streets.

The East Atlantic Beach Area parking represents 6% of total transactions and 4% of total revenues for Delray Beach. The peak month is March, and the peak time period is 12:00PM – 2:00PM for transactions and revenues. Thirty percent (30%) of parking transactions on East Atlantic use mobile payment. The East Atlantic Area parking seems to serve as spill-over beach parking once beach-side areas are full.

The Beach:

Beach parking encompasses all on-street and three (3) off-street locations along Ocean Boulevard/A1A from Casuarina Road to the south, and Beach Drive to the North. Beach parking represents 45% of both total transactions and total revenues for Delray Beach. The peak month is March, and the peak time period is 12:00PM – 2:00PM for transactions and 10:00AM – 12:00PM for revenues. 32% of parking transactions at the Beach use mobile payment. According to April (2019 and 2021) counts, on-street occupancy reached 100% by noon.

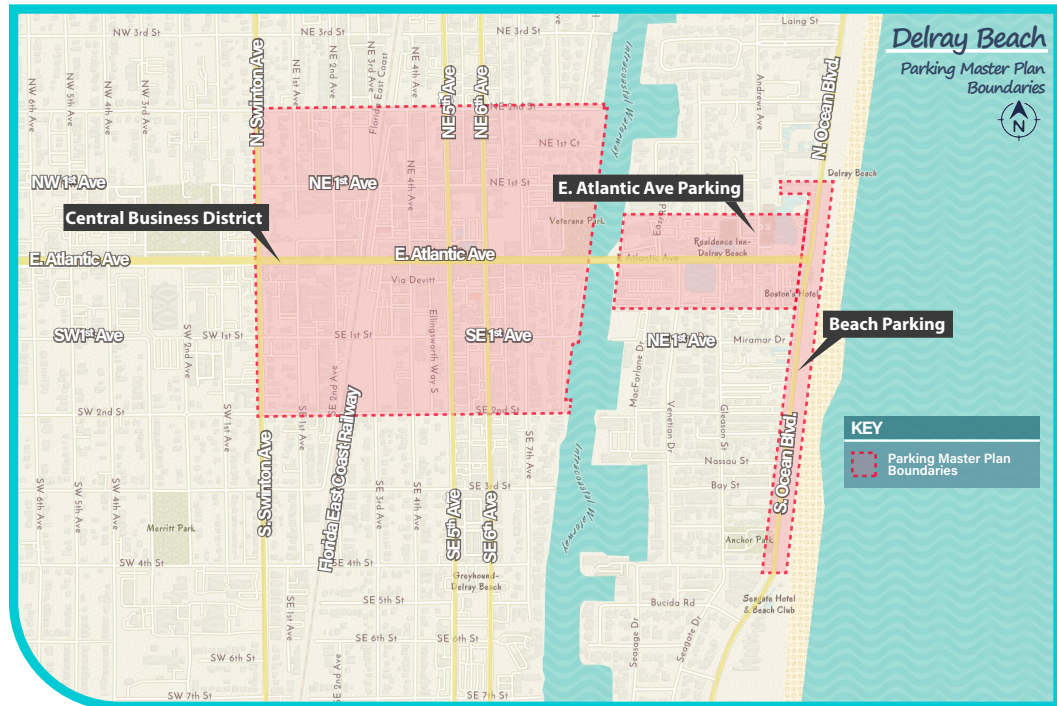


Image 1: Parking Master Plan Boundaries



Permit System

Delray Beach offers five different permits for City residents:

■ City Resident Downtown Parking Permit

- Open to all residents
- \$12/year, valid from October 1 – September 30
- Limited to two permits per household
- Permits are valid only in designated garages, surface lots, and side-streets in Downtown Delray Beach
- Enables free parking seven days a week, between 12:00 PM – 6:00 PM in the designated lots, garages, and some side streets, with free garage parking all night if drivers enter before 6:00 PM

■ Downtown Resident Parking Permits

- Only available to downtown residents where off-street parking is not provided
- \$96.30/year
- Allows parking seven days a week in specified garages and surface lots all day/overnight without hourly limits or parking meter fees

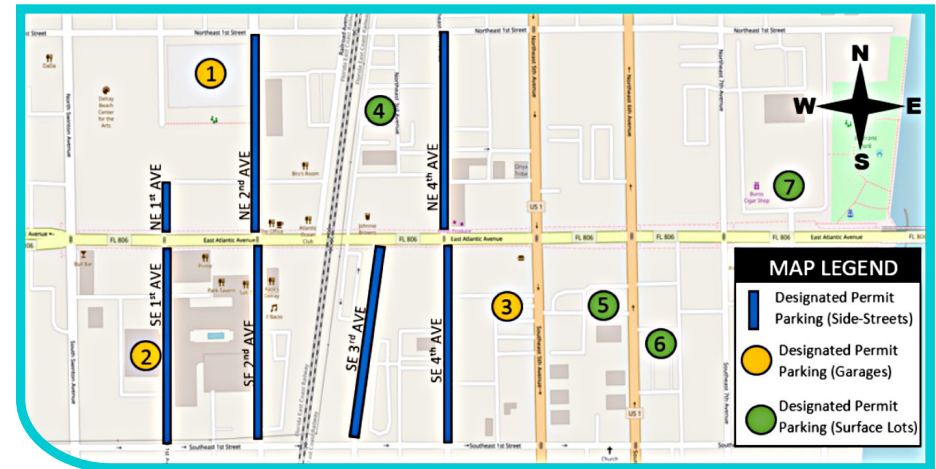


Image 4. City Resident Downtown Parking Permit The City Resident Downtown Permit allows parking in 1. Old School Square Garage, 2. Robert Federspiel Garage, 3. 4th & 5th Delray Garage (First 90 public spaces only), 4. North Railroad lot, 5. Village Lot, 6. Gladiola Lot, and 7. Veterans Park.



Image 5. Downtown Resident Parking Permit. This permit allows parking in 1. Old School Square Garage, 2. Robert Federspiel Garage, 3. 4th & 5th Delray Garage (First 90 public spaces only), 4. North Railroad lot, and 5. Gladiola Lot.

Permit System cont.

■ Beach Parking Permits

- Available to residents and non-residents
- \$96.30/year
- Applies to beach parking lots (Sandoway Park, Anchor Park, Ingraham Park, Orange Grove, and Atlantic Dunes North and South Lots)

■ Senior Beach Permits

- Available to residents 70 years and older
- \$101.65/year, valid October 1-September 30
- Applies to beach parking lots (Sandoway Park, Anchor Park, Ingraham Park, Orange Grove, Atlantic Dunes North and South Lots, and Ocean Boulevard/ State Road A1A - South of Miramar Drive and North of Atlantic Avenue)

■ Marina Historic District Parking Permits

- Marina/Boat Residents only



MARINE HISTORIC PARKING PERMIT	FEE (PLUS TAX)
Residential Parking Permit Package (One annual resident parking permit plus one temporary resident guest pass)	\$60.00/year
Second Annual Resident Parking Permit (Available to dwelling unit residents only)	\$60.00/year
Short-term Parking Permit	\$5.00/week up to 13 weeks
City Marina Temporary Boat Resident Guest Pass (Available to City Marina residents only)	\$30.00/year

Table 2. Marine Historic Parking Permit

The permit system appears to be lightly used. Based on the December 2019 financial data provided, only \$108 of collected revenues were from residential parking permits. Low usage was verified during the January 29, 2022, counts where only one car across the six lots and garages surveyed had a residential permit displayed.



Curbside Management

Three main trends have sparked a transformation in how streets, curbs, sidewalks, and alleys are used: COVID-19, e-commerce (food and goods deliveries), and mobility apps. The competition for on-street spaces, once reserved mainly for parking, valet stands, and morning deliveries now require extensive coordination to avoid congestion. Currently, curbside management is governed largely through signage and reserved spaces; for example, designated pick-up/drop-off points for valet and ridehail services.



Traffic Management

The City is in the process of completing an Urban Core Mobility Concept Design (UCMCD) study of the Atlantic Avenue and Swinton Avenue intersection. The project goals include improving bicycle/pedestrian safety at this intersection, reducing traffic congestion on Atlantic Avenue by encouraging traffic to use by-pass routes, and improving the safety of pedestrians crossing Swinton Avenue. The preferred solution includes implementing raised intersections at 2nd Avenue, 1st Avenue and Swinton Avenue along Atlantic Avenue along with other traffic characteristics and traffic control changes to improve traffic operations. A mid-block pedestrian crossing with a Rectangular Rapid Flashing Beacon (RRFB) was also suggested on Swinton Avenue north of Atlantic Avenue to improve pedestrian safety. The improvements are also intended to encourage eastbound traffic to divert prior to reaching Swinton Avenue. Overall, these improvements will help reduce traffic congestion on Atlantic Avenue in the Downtown core and improve pedestrian/bicycle safety.



Summary of Observations on Existing Parking System

In researching current usage patterns, the following system elements reveal management needs:

Turnover:

On-Street parking space turnover was very low during observation periods, likely due to low parking meter rates, extended time periods in some lots (Gladiola), and lack of enforcement during the peak period of 10 AM to 12 PM.

Pricing:

Pricing is the most underutilized tool in Delray Beach's management toolbox. On-street parking is underpriced, particularly in areas of highest demand. Free parking in public lots is underpriced relative to rates charged in private lots and leads to cruising/congestion as drivers seek close-by, free spaces. Garage parking is likewise underpriced, and the "in by 4 PM" pricing structure does not seem to help increase turnover or incentivize employee parking based on observed counts at 4:00 PM.

Permits:

More information is needed on financial transactions to ascertain the performance of the permit program, though it seems like they are lightly used. In conducting counts, we found little usage of residential permits in lots and garages. Likewise, the City's code cites employee permits, though these are not offered in the current parking permit program.

Existing Technology:

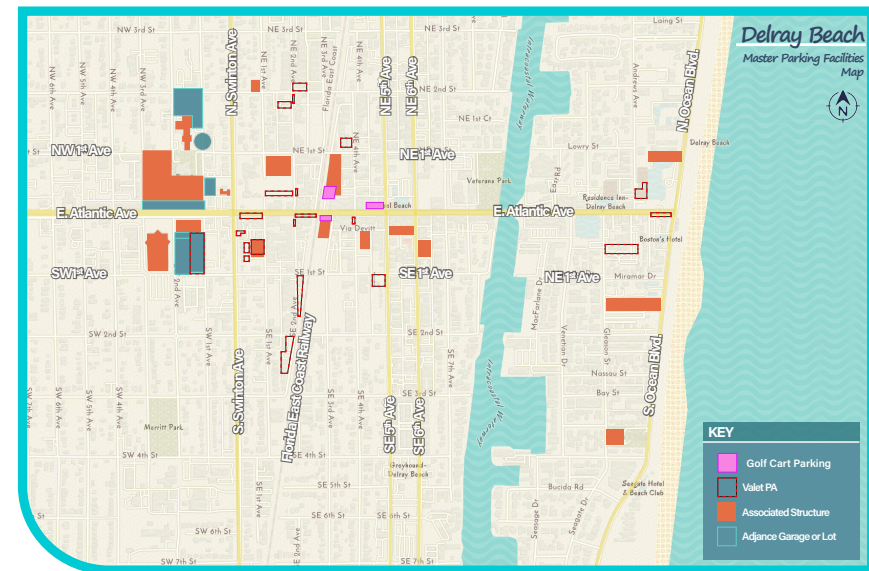
Delray Beach has invested in a suite of innovative technologies, including payments systems, parking guidance, and use of LPR. LPR cameras at garage entrances and exits are used for verifying payment/authorization to park but are not being used to full effect in order to track facility occupancies.

Future Technology:

The City's mobile parking payment vendor, ParkMobile, continues to add features that can be factored into parking and curbside management. For example, they are working on a reservation system within the app that could be used by both drivers and delivery companies. New garage occupancy signage, as recommended in this plan, will require corresponding investments in garage occupancy sensors or cameras.

Enforcement:

With a program shift, Delray Beach should reposition its traditional enforcement team to a parking performance team. In addition to enforcement, staff will serve as ambassadors to assist drivers with the new dynamic parking system, and agents who carry our important data collection activities at the core of active management.



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Section 2

Outreach & Stakeholder Engagement



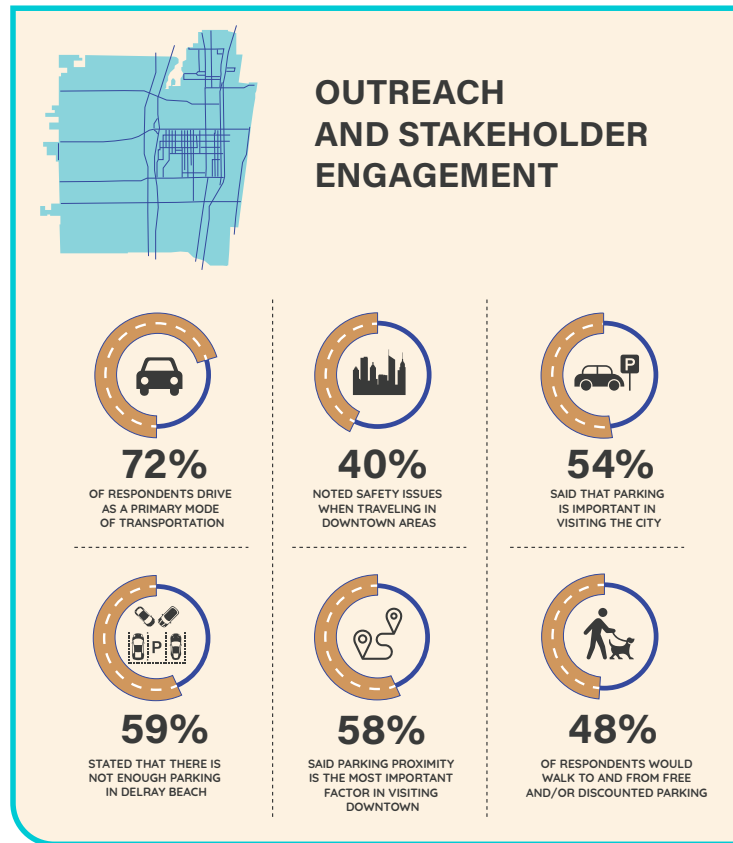


Outreach & Stakeholder Engagement

This plan is based on extensive outreach efforts conducted throughout the study period. The main efforts, detailed in **Appendix 2** include:

Steering Committee: The Steering Committee was comprised of the city staff and downtown stakeholders. The Committee met on February 28, 2020, November 23, 2020, February 12, 2021, and June 23, 2021. The Committee also held a workshop on May 14, 2021.

Public Survey: A 49-question survey was sent to 2,000 members of the public in March and April of 2019. Of those queried, more than 600 people responded with an 84% completion rate. The survey included 21 general questions for all respondents, 19 questions for the public, 9 questions for businesses/employees, and 6 questions for residents. There were also three questions on demographics and an open comment field.



Public Workshop April 2, 2020: Two public meetings (4:00 PM and 6:00 PM) were held in the Old School Square Breeze Room.

Public Workshop July 20, 2021: There were two in-person public workshops held at the Veterans Park Community Center (morning and evening) with 30 people in attendance across the two sessions. At this meeting, participants were asked to comment on a draft set of recommendations.

For more details, see **Appendix 2**.

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Section 3

Parking & Curbside Assessment





Parking and Curbside Assessment

This section assesses seven elements of Delray Beach's parking system.



**Parking Management
and Operations**



**Valet
Operations**



**Parking Supply
Opportunities**



**Mobility
Options**



**Mobility
Infrastructure**



**Multi-Use
Space**



**Legibility, Signage, and
Wayfinding**

Each element is presented with an overview and sub-elements. Under each sub-element, the study provides background information, target actions, recommendations, related monitoring metrics, "Pros & Considerations," and cost factors.



This section covers key aspects of Delray Beach's parking and curbside operations, as well as recommendations. Metrics, costs, and a list of benefits and considerations are presented for each recommendation.

Costs are presented for each in the following ranges:

\$ = <\$25,000

\$ \$ = \$25,000 - \$100,000

\$ \$ \$ = >\$100,000



Parking Management and Operations

Parking is a resource that must be actively managed to effectively achieve the goal of optimal use of parking and curb assets. Meeting these goals will require proper allocation of investment and labor for operational activities.

Delray Beach's parking management system is co-managed by the public sector, private sector, and partnerships between the two. Each entity's operations vary, though all contribute to the overall parking system. Public and private operators alike balance considerations related to initial investments (e.g. technology and parking infrastructure), operational costs, operational efficiencies, enforcement, user experience, safety, and policies. Public sector managers also need to factor in inter-related community goals encompassing economic development, sustainability, access, equity, connections to transit, and stakeholder relations. Public entities also take on most enforcement duties, infrastructure improvements, and policy-setting. Private operators have fewer constraints, though may operate under developer agreements with specific requirements on shared parking and public access. Private operators also factor in competitive advantages to maximize market share. Partnerships such as the City's Downtown Development Authority (DDA) take on some parking management roles, such as overseeing events, outreach, and representation of downtown business interests.

This Parking Master Plan evaluates four elements related to parking management and operations:

- Parking Rates
- License Plate Reader Technology (LPR)
- Permits
- Enforcement

A. Parking Rates

As noted in the Executive Summary, Delray Beach's current pricing is a barrier to better management. The current pricing is:

On-Street: The maximum allowed by City Code is \$3.00/hour during daytime periods (8:00 AM – 6:00 PM/7 days a week) (Sec. 71.058. - COST OF PARKING OR STANDING VEHICLE IN CERTAIN METERED SPACES). The current rates are \$1.50 to \$2.00/hour (with the first 20 minutes free) with a three-hour time limit between 12:00 PM and 9:00 PM. When using ParkMobile, there is a \$0.35 surcharge.

Surface Lots: Publicly owned surface lots are free and have varying time limits: North Railroad Lot (9-hour limit), South Railroad Lot (2-hour limit), Village Lot (2-hour limit), Gladiola Lot (9-hour limit). Note: there are several privately owned and managed lots in the CBD charging a flat fee of \$5-\$10 during the day and up to \$23 at night.

Garage: Public garage parking is free if a driver arrives by 4:00 PM, or a \$5 flat fee between 4:00 PM to midnight. Residential parking permit holders can park for free if they arrive by 6:00 PM.

Beach: On-street parking is \$1.50/hour for up to 3 hours seven days a week from 8:00 AM to 8:00 PM. Beachside public lots are also \$1.50/ hour seven days a week from 9:00 AM to 9:00 PM.

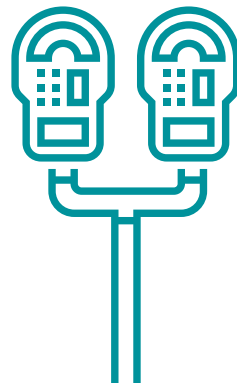


The current rate structure results in several management issues:

- For evening visits under 2 ½ hours, it is more economical to use on-street or lot parking than garages that are located off Atlantic Avenue. This encourages circling for parking and related congestion.
- Surface lots are also highly valued for both visitors and employees. However, the 9-hour time limit results in low turnover. The current rate structure incentivizes long-term parkers to park in high value spaces better used for shorter durations. There are also private lots where parking rates are up to \$23 for evening parking.
- Drivers often ignore the lightly-enforced “20-minute free” parking option.
- The “in before 4:00 PM” free rate provides a benefit for employees with an early evening shift, but disincentivizes turnover during peak periods. Rather, an “out by-” schedule could stimulate turnover for two dining cycles while retaining free business parking during the day and an employee parking program.
- Variable pricing within garages could help distribute parking to upper floors, which would be offered at a discounted price compared to ground floor parking. This would require retooling ticket machines to distribute different rates by floor.
- Parking rates are codified within City Code and can only be adjusted through a lengthy process. This constrains the City’s ability to create a dynamic demand-response parking program.

To date, Delray Beach has successfully traversed the initial introductory period of paid public parking implementation. In the future, parking pricing should be demand (or performance) based and grounded in supply/demand economics that help consumers make decisions based on convenience/cost tradeoffs.

Adjustments should be made as necessary to maintain maximum efficiency for the parking system. Under accepted parking standards, maximum efficiency for a parking system is achieved when the system maintains an 85-90% occupancy. The first City to adopt demand-based parking (San Francisco, California) reviews and updates rates four time a year.



The benefits of creating demand-based rates includes:

- ✓ Reducing traffic and congestion from people “cruising” for an on-street space
- ✓ Stimulating greater turnover of prime parking spaces, which helps businesses
- ✓ Spreading traffic demand throughout downtown
- ✓ Reducing environmental impacts from less driving and/or travel by low impact modes through effective wayfinding, increased walking, and biking, electric circulators
- ✓ A possible reduction in parking rates when and where demand is low

Making the shift to demand-based parking will require new data collection requirements to determine changes in demand, and consequently, parking rate changes. This monitoring can be conducted in several ways:

- **Resource-light:** The most resource-light approach would entail conducting manual counts on a pre-determined schedule, focusing on areas of highest demand. Once action thresholds are exceeded, the City can establish new rates within ParkMobile.
- **Use of LPR:** A second method would expand the City's LPR capabilities to collect information during enforcement rounds. This information can complement field counts and ParkMobile data to supply periodic counts. Delray Beach can establish an evaluation schedule (e.g., 2-4 times yearly) to consider new rates. LPR data, when combined with artificial intelligence (AI) can produce predictions of where parking is likely to be and fed into parking apps. This eliminates the need for sensors or cameras.
- **Demand-based pricing:** A third, more advanced, system is built on demand-based pricing in real (or near real) time within an established parking district. This type of system requires a heavier investment in technology that monitors the majority of, or all, spaces within a district and adjusts pricing based on demand, usually by block face or facility. In this case, a city can adjust rates once every 3-4 months.

Because drivers want advance notice on pricing, the system will also rely on a communications component to broadcast price changes on parking and navigation apps (e.g., mobile apps, in-dash displays) and signage.

The City needs to better manage the 20-minute free parking period. This grace period is valuable for shoppers picking up small items or food orders. However, it is difficult to enforce with patrols and often abused.

There are several digital options. The first is to require parking activation through the meters or ParkMobile app for a non-extendable, free 20-minute period. This will alert enforcement and the driver. Parkmobile also allows integration of coupon codes and reduced rates. For example, [Hollywood, FL offers residents a lower beach parking rate](#) through the multi-space, master meter or mobile app. A resident must first register online or in person to obtain the lower rate. This type of discount or coupon code could be used as an alternative to the free 20-minute parking rules currently in place.

Similarly, if the City finds that eliminating free 20-minute parking is a burden, there is an option to provide one short term parking space per block near affected businesses. If higher turnover for short trips is an objective, the City can lower the free time period to 10 or 15 minutes.



Portland Oregon developed a [performance-based parking plan](#) in 2018 to determine when parking demand rose to a level that warranted new paid parking requirements. To monitor demand, the plan recommended observing occupancy at least two weekdays measured in separate weeks. The plan defined a minimum parking demand for taking action as occurring when:

- Average occupancy reaches or exceeds 85% during 3 or more hours during the day
- Average occupancy reaches or exceeds 70% during 5 or more hours during the day



Technology Highlight

San Francisco's Demand-Responsive Pricing and Real-Time pricing map.

In 2011, the City of San Francisco initiated a demand-responsive parking pilot called SFPark, utilizing emerging technologies at almost 7,000 downtown parking meters and 15 parking facilities. The City extended the pilot and eventually integrated demand-responsive rates into the parking program in 2017.

Under adopted rules, meter hourly prices could go up or down gradually, or stay the same. The SFMTA raises the rate by \$0.25 on blocks where average occupancy is above 80%, lowers the rate \$0.25 on blocks where average occupancy is below 60%, and does not change the rate on blocks that hit the target occupancy between 60% and 80%. **The rate adjustments are reviewed every three months and if needed, adjusted in increments of \$0.25/hour.**

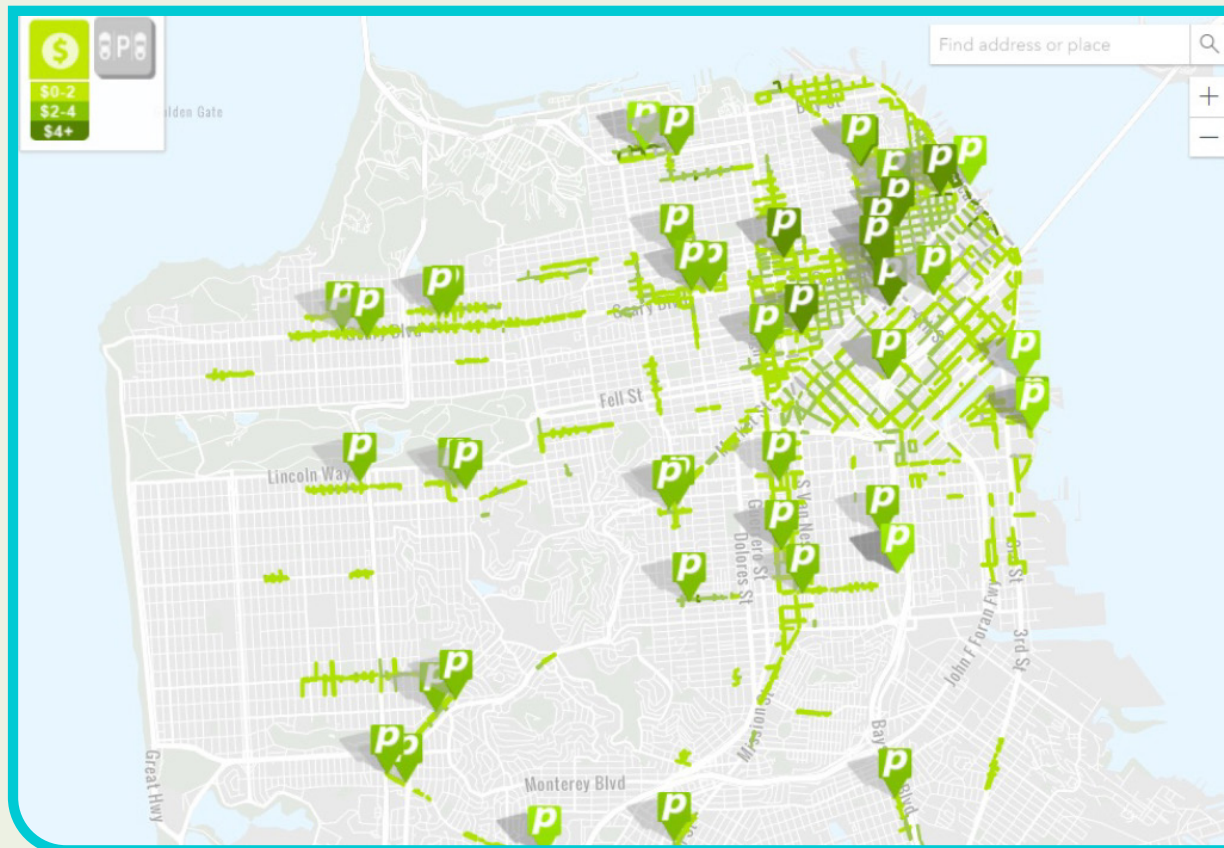
The City Council approves an annual rate schedule within a Master Fee Schedule. The Parking Commission has the authority to modify rates within the bounds set in the Master Fee Schedule.

The main results of the program are:

- Higher demand takes place along the waterfront and stadium. Rates are raised during events and games, though are capped at \$8 per hour.
- Areas with lower demand feature lower rates, and in some cases, hourly rates that are lower than those that existed prior to the demand responsive parking pilot.
- The City's parking app also enlists drivers to report typical occupancies. This crowdsourced information is used to establish parking patterns and let drivers know ahead of time where there is likely to be parking based on the user's destination.

To learn more, visit San Francisco's Demand-Responsive parking page. <https://www.sfmta.com/demand-responsive-parking-pricing>.

Screenshot of San Francisco's real time parking prices (public and private).





Problems Parking Rates Can Address

- Real & perceived parking shortages
- Parking search-related congestion
- Low turnover
- Spread parking demand (locations, time of day)



Target Actions

- Manage parking demand through pricing of premium parking
- Set the stage for demand-based pricing

Parking Management & Operations

PARKING RATES RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Increase rates along and adjacent to East Atlantic Ave and A1A. Set at rates higher than lots and garages up to adopted rate of \$3/hour	On-street occupancy greater than or less than 85%	<p>Pros: Spread out demand, increase multi-modal travel; additional revenues to reinvest in downtown Delray; easy administration within ParkMobile app</p> <p>Considerations: Public feedback</p>	<p>Initial Costs: Determining rates will depend on the scope of stakeholder and public outreach (\$-\$)</p> <p>On-going Costs: Coordination with ParkMobile (\$)</p>
2. Institute modest hourly rates for lots in the CBD (priced less than on-street parking during the day and less than private lots during peak hours, but greater than in the garages)	Lot occupancy greater than or less than 90%	<p>Pros: Right-pricing for desirable parking; spread out demand, increase multi-modal travel; additional revenues to reinvest in downtown Delray; easy administration within ParkMobile app</p> <p>Considerations: Will raise employee parking cost; public feedback</p>	<p>Initial Costs: Installing additional pay stations (\$\$) Determining rates; public outreach (\$-\$)</p> <p>On-going Costs: Coordination with ParkMobile (\$)</p>
3. Implement a 4-hour time limit for the CBD parking lots and set aside space for "employee only" parking via an employee parking permit	<p>Lot occupancy greater than or less than 90%</p> <p>Average parking session duration in lots (to test 4-hour limit)</p>	<p>Pros: Increased turnover; easy administration within ParkMobile app</p> <p>Considerations: Will eliminate popular employee parking; public feedback</p>	<p>Initial Costs: New signage and outreach (\$)</p> <p>On-going Costs: More frequent enforcement; employee parking outreach; coordination with ParkMobile (\$)</p>
4. For surface lots in the CBD, replace time limits with progressive pricing (higher rates for longer parking sessions)	Lot occupancy greater than or less than 90%	<p>Pros: Stimulates turnover while providing a longer-term option.</p> <p>Considerations: More complicated for users than a flat or fixed rate</p>	<p>Initial Costs: New signage and outreach; Assessment to determine pricing structure (\$)</p> <p>On-going Costs: More frequent enforcement; employee parking outreach; coordination with ParkMobile (\$)</p>

Parking Management & Operations

PARKING RATES RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
5. In garages, eliminate \$5 flat rate and free before 4:00 PM policy, replace with a modest hourly and daily rate (less than CBD parking lots - (consider \$1.50/hour)	Garage occupancy greater than or less than 90% on all levels	Pros: Aligns pricing with on—street and lot hourly pricing. Considerations: Higher daily rates for workers	Initial Costs: New signage and outreach; assessment to determine pricing structure (\$) On-going Costs: Occupancy monitoring (\$)
6. Introduce short-term (2-hour) premium priced parking on the lower levels (\$2-\$3/hour) of the garages for a target of 15-20% of total spaces (excluding IPIC Garage) Install multi-space meters on each level of the garages to facilitate differentiated parking by floor	Garage occupancy greater than or less than 90% on all levels	Pros: Provides an incentive to park in less desired parking spaces; spread out demand Considerations: Increased hardware costs and maintenance; more robust public outreach needed with more complex pricing system	Initial Costs: Requires installation of additional meters for each garage parking level (\$-\$\$) On-going Costs: Maintenance for new ticketing kiosks; Coordination with ParkMobile (\$)
7. Create new zones in the ParkMobile app with rates calibrated to demand	On-street occupancy greater than or less than 85%	Pros: City already pursuing new zones; pricing to match supply & demand Considerations: Public pushback	Initial Costs: Determining zones & rates; public outreach (\$) On-going Costs: Coordination with ParkMobile (\$)
8. Require activation of a meter or mobile app (e.g., Parkmobile) for a non-extendable, free 20-minute session)	Number of vehicles exceeding 20-minute time limit Number of vehicles using short term parking spaces (AM and PM counts) Business feedback	Pros: Increased turnover; enhanced revenue Considerations: Driver/business criticism; need for cost-effective, short-term parking; enforcement	Initial Costs: Changing signage and meter programming; stakeholder outreach (\$) On-going Costs: monitoring and enforcement; Coordination with ParkMobile (\$)
9. Alternatively, reduce 20-min free period (i.e. 10 or 15 mins)	Number of vehicles exceeding 10- or 15-minute time limit Number of vehicles using short term parking spaces (AM and AM counts) Business feedback	Pros: Provides alternative to elimination of 20-minute free parking; support for small businesses that rely on quick transactions Considerations: Driver/business criticism; the need for cost-effective, short-term parking	Initial Costs: Changing signage; stakeholder outreach (\$) On-going Costs: monitoring and enforcement; Coordination with ParkMobile (\$)
10. Alternatively, program T2 meters to allow for coupon codes from participating vendors	Number of coupons redeemed	Pros: Provides a managed period of free parking for downtown patrons Considerations: Adds complexity and steps to a downtown driver's trip	Initial Costs: Setting up a coupon system within Parkmobile; revision of all materials that refer to 20-minute free parking

Parking Management & Operations

PARKING RATES RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
11. Alternatively, supply one short term parking space/block near affected businesses and mark with "20-minute parking only parking"	Number of drivers using the short-term parking space	<p>Pros: Provides a managed free parking space for downtown patrons</p> <p>Considerations: Enforcement would be critical for success to avoid long-term parkers</p>	<p>Initial Costs: New signage for the short-term spaces; outreach (\$\$)</p> <p>On-going Costs: enforcement</p>
12. Continue to offer free or heavily discounted parking in the periphery parking lots with no time restriction (west of Swinton)	Parking occupancy greater than or less than 85%	<p>Pros: Provides discounted parking for long-term parkers</p> <p>Considerations: Need to implement suite of improvements for access to periphery parking (mobility options, infrastructure upgrades)</p>	<p>Initial Costs: Improving signage, lighting, landscape, and streetscape (\$\$\$); possibly installing pay-stations (\$\$\$)</p> <p>On-going Costs: Maintenance of facilities and enforcement (\$)</p>
13. Apply parking revenue towards streetscape and parking improvements (Note: this is also included in any Parking Benefit District)	Amount of additional revenue from parking rate changes	<p>Pros: Provides source of revenue; can be structured to direct all or a portion of proceeds to improvements</p> <p>Considerations: Delray Beach remits parking revenue back to the General Fund</p>	<p>Initial Costs: Depends on whether revenue allocation system expands current revenue program or if a new program is established (\$-\$\$)</p> <p>On-going Cost: Program management</p>
14 Outreach - Provide outreach (stickers on meters, signs) noting how the increases will be reinvested locally, and that surface lots and garages are options for lower priced or free parking	<p>\$ amount invested in outreach</p> <p>Number of complaints or questions on new parking rates/hours</p>	<p>Pros: Reduces public frustration that comes with lack of information; lower volume of interactions</p> <p>Considerations: Public outreach is a critical component of new parking policies and rates</p>	<p>Initial Costs: materials, design, labor (\$)</p> <p>On-going Costs: continued outreach via City and DDA channels (\$)</p>
15. Conduct periphery parking occupancy counts and patterns to track before and after activity	Occupancy counts	<p>Pros: Provides needed data to assess before and after studies</p> <p>Considerations: May want to conduct periodically</p>	<p>Initial Costs: Resources to take parking occupancy counts (\$)</p>
16. Establish hourly parking rates in garages and lots and remove all free parking. This includes converting IPIC to paid parking at all times (consider \$1.50/hour)		<p>Pros: Introduces paid parking in a later phase once all previous measures are exhausted</p> <p>Considerations: Driver response</p>	<p>Initial Costs: Converting any free spaces to metered spaces; Outreach on new rates (\$\$)</p> <p>On-going Costs: Enforcement</p>
17. Decodify parking rates within the Delray Beach Code of Ordinances	Code of Ordinance change	<p>Pros: Allows a more fluid demand-responsive process for establishing parking rates, which may be properly priced at rates higher than \$3/hour</p> <p>Considerations: Public reaction to higher rates; predictability of parking rates</p>	<p>Initial Costs: Process for modifying the Code of Ordinances</p> <p>On-going costs: none</p>

B. License Plate Reader Technology (LPR) and Parking Guidance



LPR camera at Old School Square Garage

Assessment of Current LPR

At the Old School Square Garage, there is a fixed-lane LPR camera installed at the entrance which is used solely to catalogue the entry time of each vehicle to enforce the fee requirements for the garage (\$5 fee if arriving after 4 p.m., free if arriving before, or residential parking permit before 6:00 PM). However, LPR cameras are not currently used to provide facility occupancy counts. The collected data is only archived for one month, which may not be long enough to operate a demand-responsive pricing system.

Assessment of Current Park Assist

The Park Assist system refers to the overhead mounted lights showing open (green) or occupied (red) parking spaces. This technology provides more capabilities than LPR as it can track not only the entry time, but the length of stay. However, the monitoring system is currently not in use, perhaps due to the absence of head-in parking rules.



Parking Assist technology in use at the Old School Square Garage

Options

If head-in parking rules are instated, the Park Assist system can become a much more effective in managing the garage because it can direct enforcement to specific levels and spaces. In future iterations of rate strategies, the Park Assist system could offer the ability to reserve areas for advance sale or allow for location-based pricing, where more convenient spaces are held at a premium rate.

If the Park Assist program is used in the Old School Square garage, the City can relocate the fixed LPR camera to another parking facility to expand the real-time parking availability program. For example, LPR data could aggregate vehicle information for the Federspiel Garage. Additional vehicle-mounted LPR can expand to provide both block-face (on-street) and off-street inventories in real time. This data would provide Delray Beach parking managers with real time (or near real time) occupancy data to support decisions block by block. This means the City would not need to install new hardware (e.g., embedded sensors) to create a reliable feed of parking occupancy information. The City will likely need a new organizational framework necessary to make best use of this enhanced data across Departments.

Expanding the operational use of LPR can also be used for enforcement. This would entail outfitting additional enforcement vehicles with LPR cameras and acquiring additional handheld LPR devices. When used in coordination with law enforcement, the use of LPR in parking can also provide monitoring to enhance public safety.



Problems LPR Can Address

- Lack of information on occupancy and turnover patterns
- Higher costs and shortcomings of alternative occupancy and data collection systems
- Ability to leverage current investments in LPR to meet monitoring and data collection needs



Target Actions

- Investigate additional capabilities of LPR systems and the parking systems needs

Parking Management & Operations

LPR AND PARKING GUIDANCE RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Investigate additional capabilities of LPR systems (e.g., data for occupancy, turnover, parking patterns)	Number of additional uses for LPR	<p>Pros: Builds on existing investments and programs</p> <p>Considerations: Costs of additional LPR technologies and training</p>	<p>Initial Costs: New equipment and possibly software; training (\$\$)</p> <p>On-going Costs: Depends on scope of additional uses (\$-\$\$)</p>
2. Create a head-in parking policy for all facilities Note: This recommendation applies only if the City chooses to expand use of LPR	Number of unscanned plates during rounds, number of head-in parking infractions (tickets)	<p>Pros: Facilitates use of LPR for expanded parking management and enforcement activities</p> <p>Considerations: From field observations, approximately 20% of parkers back into spaces so enforcement and education will be important</p>	<p>Initial Costs: Costs of public outreach and signs for the new policy (\$)</p>
3. Leverage LPR for enforcement	Number of parking citations	<p>Pros: Additional public safety resource; improve enforcement efficiency; lower enforcement staffing needs</p> <p>Considerations: Public feedback to expanded monitoring</p>	<p>Initial Cost: Depends on whether and how many new units are involved</p> <p>On-going Cost: Data analytics (\$)</p>
4. Determine additional system needs to grow the LPR/Park Assist capabilities	Outline of system needs (data collection, data storage, GIS and analytical software, hardware, personnel)	<p>Pros: The City can build on existing assets to grow its parking programs</p> <p>Considerations: May need to procure additional hardware, software, and cloud storage</p>	<p>Initial Costs: Time and resources to develop the assessment (\$); Additional hardware and software</p> <p>On-going Costs: Data and cloud storage management</p>
5. Collect and analyze LPR data for publicly accessible private lots to benchmark factors such as occupancy patterns and pricing	Occupancy, recurrent use	<p>Pros: Real-time data on usage and occupancy; future data for predictive analytics</p> <p>Considerations: Concerns over use of data by private lot owners; Need for use-of-data and records retention policies</p>	<p>Initial Cost: Additional patrols</p> <p>On-going Costs: Data storage and analysis; New Software for data analytics</p>

C. Permits

As part of the rebranding of parking, a concerted effort should be made to reinvent the permit program to encourage its adoption and use by city residents and local business employees. The City currently five permit types:

- City Resident Downtown Parking Permit
- Downtown Resident Parking Permits
- Beach Parking Permits for Residents and Non-Residents
- Senior Beach Permits for Residents and Non-Residents
- Marina Historic District Parking Permits (Marina/Boat Residents only)

In addition, Delray Beach's zoning code contains a provision for an "employee parking permit" that is valid only for City employees when used in the Old School Square Garage (Sec. 71.060. - PARKING METER PERMITS).

Cities with parking challenges similar to Delray Beach's are implementing employee parking programs and permits. As long-term parkers, employees should not be using parking spaces that hold the highest value based on frequent turnover. Instead, employees should use periphery parking, so long as the connections are safe and convenient. Sarasota, Florida has a well-developed employee permit system with the following features:

- Applications are made available to employers and individual employees
- Drivers can opt for an access card or hang tag
- Drivers can choose from three municipal lots or the upper floors of a garage shared with a grocery store

Sample Employee Parking Programs

Successful Municipal Parking Permit Program Examples

- **City of Sarasota, FL**
www.sarasotafl.gov/our-city/parking-information/permit-parking
- **City of St. Augustine, FL**
www.citystaug.com/499/Residential-Parking-Permit
- **City of Hollywood, FL**
www.hollywoodfl.org/284/Parking-Permits



Problems Permits Can Address

- Poor turnover (and resulting reduction in economic activity) from long-term parkers using lots best suited for visitors whose trips are two-three hours.
- Lack of an employee permit within the City's existing permit framework
- Poor use of existing permits



Target Actions

- Create new employee parking program in Phase 1 of this Parking Master Plan
- Determine new employee parking locations

Parking Management & Operations

PERMITS RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Create a pilot employee parking permit allowing employees to use (1) the upper levels of the garage for free and (2) designated spaces in the North Railroad and Gladiola lots). In addition: 1) Monitor parking occupancy in the downtown lots and garages. 2) Survey employers and employees on the parking experience and proposed alternatives	Pilot results Survey results	Pros: Allows the City, DDA and other stakeholders to test an employee permit system prior to development of a full program Considerations: Need to establish roles and responsibilities for administering the program; Pushback from employers and employees over new rates and times in centrally located lots	Initial Costs: Development of a pilot project; outreach; sign-up
2. If the employee permit pilot is successful, develop permanent program	Numbers of employees and employers enrolled Number of employers and employees who would support permanent employee parking permit program	Pros: Adds clarity to best locations for employee parking; Low administrative costs if instituted within ParkMobile app Considerations: There can be considerable resource investments needed for a new permit and its administration (likely need monthly permits to account for high employee turnover); need for safe mobility options to periphery parking during late light hours (e.g., microtransit)	Initial Costs: Establishing program within Delray Beach's existing permit program; outreach to employers & employees; permit issuance (digital or paper) (\$-\$-\$) On-Going Costs: Program administration, customer service; permits (digital or paper) (\$\$)
3. If parking supply in lots and garages becomes constrained, institute "employee permit only" spaces on the top two floors for permit holders within the Old School Square and Robert Federspiel Garages	Lot and garage occupancy that coincides with employee shift changes (> 85-90%)	Pros: Provides employees with lower cost parking Considerations: Garage parking has availability	Initial Cost: Establishing program and outreach (\$) On-Going Costs: Enforcement, customer service, issuing permits (\$)
4. Monitor spillover parking in residential neighborhoods after raising parking rates	Before & after study results Block face occupancy on neighborhood streets	Pros: Proactively assess impacts from any spillover parking Considerations: The need to institute a new residential permit program with new sub-zones	Initial Cost: Staff time monitoring occupancy (\$) Potential Cost: New permit program for residential zones adjacent to the downtown core (\$)
5. If spillover causes >90% occupancy, develop residential zone parking permits for affected blocks	Occupancy counts	Pros: Provides an option to residential areas impacted by spillover parking; Practice that has been implemented successfully in similar downtowns Considerations: Resources involved in developing and enforcing the program	Initial Costs: Resources for monitoring, costs of developing a new residential zoned permit (\$-\$-\$) On-going Costs: Enforcement, program administration (\$\$)

D. Enforcement

The CBD traffic and congestion during peak periods makes parking enforcement patrol by vehicle inefficient. It is recommended for the City to introduce walking parking enforcement or ambassadors to enforce parking rules and serve as an information resource to patrons during peak periods and events, etc. more efficiently. City visitors and businesses would benefit from a more active and engaged City personnel presence at the curb. The Delray Beach Police Department previously provided this service through a volunteer program; however, it may be more effective to simply designate parking enforcement staff to offer this customer service on downtown streets.



Problems Enforcement Can Address

- Poor turnover
- Disputes related to confusion over new parking rules
- Lost opportunity to use existing or new technologies



Target Actions

- Modify enforcement to include "parking ambassador" functions
- Investigate existing technologies to enhance enforcement

Parking Management & Operations

ENFORCEMENT RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Change hours of enforcement to match peak hour parking (morning)	Number of actions within expanded enforcement window	Pros: Improved driver comportment with parking rules; Enforcement matches time frame of peak parking Considerations: Driver reaction to increased ticketing	Initial and On-going Costs: Increased labor costs (\$)
2. Add training for enforcement personnel and parking ambassadors to assist visitors and drivers with new parking prices/rules	Customer service surveys	Pros: Customer-oriented services for finding parking and understanding new parking regulations Considerations: Costs of hiring and training ambassadors	Initial Cost: Updating training materials On-going Costs: Hiring/training operational costs (\$\$\$)



Valet Operations

There are currently five (5) valet loading areas along Atlantic Avenue between Swinton Avenue and Federal Highway. There are two others outside the core downtown area (one is located two blocks north of East Atlantic Avenue on NE 2nd Ave and NE 2nd Street, and another east of the Intracoastal Waterway. Valet stands are currently assigned to a host restaurant.

Based on observations and interviews, demand for valet services is close to capacity during peak weekend evening periods. This activity leads to congestion as queues form to access valet services. This section provides analysis and recommendations for Downtown Delray Beach's valet program.

For additional details on valet operations, see **Appendix 4**, Curbside Valet Management and Operations Memo

A. Valet Pricing & Queue Leasing

Valet pricing and operations have not been assessed recently, which has led to mis-pricing and outdated, inefficient management practices. This does not serve the best interest of valet operators, drivers, or the City.

Valet operators currently lease on-street parking spaces at the curb adjacent to their host venue for queues. The City does not operate the valet operations, but rather charges a set rate for each on-street space leased. The current defined lease rate for valet queue spaces is misaligned with the variable demand the curb experiences in Delray. Valet services that lease queue spaces for the entire business day (9AM – 10PM) in high demand locations (Atlantic Avenue and Ocean Boulevard) should not pay the same lease fee as valet services that do not open until 5PM and/or utilize on-street spaces with lower demand.

As for parking spaces that valet operators lease from the City for queuing, drivers who are not using the valet system often park in leased queue spaces. These spaces are not intended for vehicle storage but to allow valeted vehicles to pull out of the right of way and safely load and unload passengers. In interviews, valet operators pointed to a reluctance to enforce or tow mis-parked cars. This is frustrating for operators, who are paying for a blocked queue they cannot use and can be hazardous because cars awaiting valet service cannot pull out of traffic into a queue space.

As such, management measures are needed to deter drivers from blocking queue spaces. One method is to program parking meters adjacent to valet queues to not accept payment two hours prior to when valet queues are leased and not become active for payment until the lease period has concluded each day the space is leased.

In combination with the low rates charged for public parking, the City's restriction capping valet rates (\$15) has placed an undue burden onto valet operations as parkers utilize the valet operations to store vehicles while patronizing several locations in the peak demand areas. Valet operations have been essentially converted to overflow, close-proximity parking. The inability of the valet operators to charge accrued fees for the length of stay, or to charge an escalated fee for users not patronizing their host venue, complicates the valet operator's ability to provide the intended service to their venue.

The curb should be priced higher when leased in the evening and on weekends due to the higher demand during these periods. It is recommended that Delray Beach create a variable lease rate, or curb value assessment process that can be scaled relative to the parking demand for the queue spaces and valet operating hours each venue/valet service intends. The City has all the necessary data (e.g. meter and mobile payment revenues) to provide an ongoing assessment of curb values throughout the City where paid parking is in place. Another factor to consider is the assessed value of the property adjacent to the valet stand. Additionally, the City should establish a process to credit valet operators for leased curb spaces that are not vacated by self-parkers.



Problems Valet Can Address

- Low parking turnover
- Unbalanced parking demand across the system
- Inequities in how valet pricing is structured



Target Actions

- Right-price valet parking

Valet Operations

VALET PRICING RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Program all parking meters adjacent to valet queues to not accept payment two hours prior to when valet queues are leased and not become active for payment until the lease period has concluded each day the queue is leased. Add signage	Before and after study results: number of non-valet automobiles parked in leased valet spaces	Pros: Can clear non-valet parked cars from leased spaces Considerations: Loss of revenue during that two-hour period	Initial Cost: Additional or redesigned signage (\$) On-going Costs: enforcement
2. Eliminate the valet price cap to match private parking rates or eliminate cap altogether	Private parking rates	Pros: Updated pricing for valets Considerations: Driver and valet operator feedback	Initial Cost: Update valet agreements to modify valet parking rate policy (\$)
3. Reset valet queue space leases to reflect demand and the vendor's leasing period	Assessment on variable lease rates or curb value assessment	Pros: Aligns pricing based on hours of operation Considerations: Valet reaction from vendors with extended hours	Initial Costs: Conducting a variable lease rate or curb value study; administrative costs of updating valet agreements (\$)
4. Examine and adjust rates for drivers using valet for longer term storage, rates by location, and credits for spaces taken by self-parkers	Assessment on variable lease rates or curb value assessment	Pros: Increases turnover for valets; recognizes premium locations, recognizes loss of revenue from self-parkers Considerations: Added administrative costs	Initial Cost: Conducting a variable lease rate or curb value study; administrative costs of updating valet agreements; new administration processes for the City and valet operators (\$)
5. Program all parking meters adjacent to valet queues to not accept payment 2 hours prior to when valet queues are leased and not become active for payment until the lease period has concluded each day the queue is leased	Before and After: Number of violations for blocking a valet queue	Pros: Lessen occurrence of blocked queues . Considerations: Lost revenue for the two-hour time block	Initial cost: Recalibrating parking meters and Parkmobile; new signage, training On-going costs: Enforcement; lost revenue

B. Valet Stand Location

The 2010 Parking Study highlighted several problems with valet stand locations, some of which have yet to be addressed:

- The majority of valet stands are located on the south side of East Atlantic Avenue, which causes inefficiencies for eastbound travelers, and for retrieval of valet-parked cars.
- Current locations were installed based on individual applications over time; hence the stands are sporadically placed and not necessarily in the most logical spaces.
- The 2010 study recommended moving valet queues from Atlantic Avenue onto other north-south streets. Since the 2010 study, valet-related congestion at the intersection of Swinton and Atlantic Avenues has grown.

Another solution is to centralize valet operations either at single location, or two locations, one north and one south of Atlantic Avenue. Coral Gables operates a [centralized valet](#) in partnership with the Coral Gables Chamber of Commerce and the Business Improvement District. Customers can drop off their vehicles at any of the five valet stations and pick them up at a different station for their convenience. Customers can request in advance that their vehicle be available for pickup at a specific valet station and be alerted by text when the vehicle is ready.

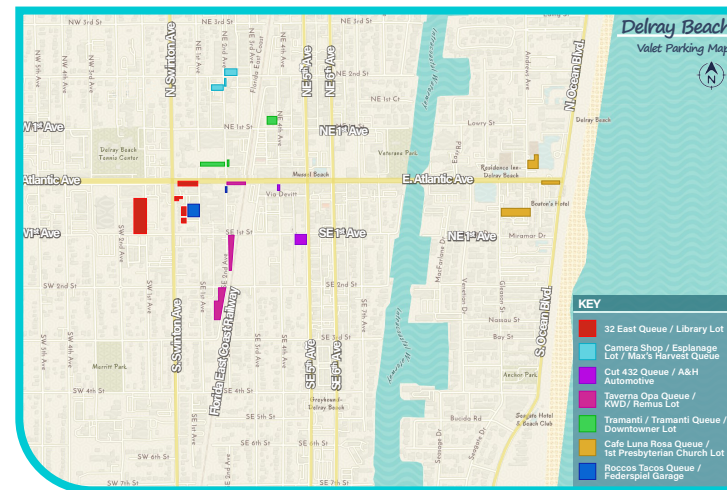


Image 6: Location of valet stands in Downtown Delray Beach



Problems Relocating Valet Stands Can Address

- Valet-related congestion



Target Actions

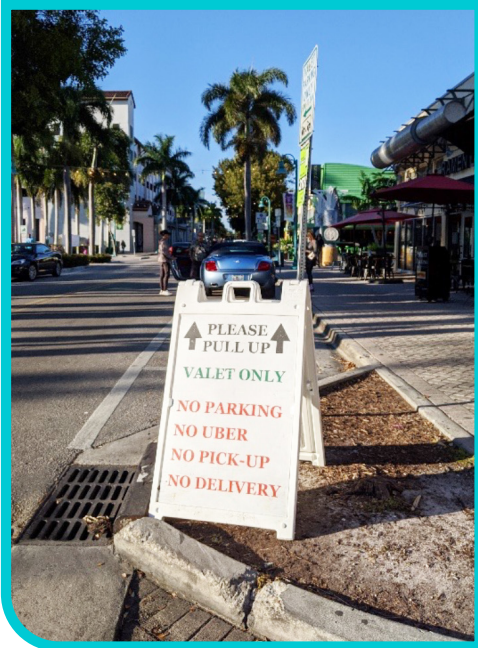
- Review and relocate stands

Valet Operations

VALET STAND LOCATION RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Assess where adequate queuing space exists along side streets to prevent spill back onto Atlantic Avenue	N/A	Pros: Provides informed decisions for relocating valet stands Considerations: There are other factors valets and drivers value aside from circulation and queuing, including the friction and costs of relocating stands	Initial Cost: Valet stand queuing study (\$)
2. Relocate, and if needed, consolidate valet stands. Note: this can be conducted as a pilot to assess the benefits and complications of relocating valet stands	Before and after study results: valet queue-related congestion with new valet stand configuration	Pros: Reduces number of queues and associated congestion Considerations: Consolidation results in fewer options for accessing valet stands; potentially longer valet queues with reduced number of stands	Initial Costs: Cost of before and after study; signage showing where the valet stands are located. (\$)
3. Determine feasibility to utilize entire block for queuing and eliminate segregation of block faces to reduce customer confusion	Assessment	Pros: More clarity on valet stand and queue locations Considerations: Loss of parking during times of valet operations	Initial Cost: Assessment, Signage (\$) On-Going Costs: Enforcement
4. Identify locations for staging and storage for a central valet	New location(s) for centralized valet	Pros: Reduces confusion of having valet station outside of select restaurants; Driver convenience for drop-off and pick-up Considerations: Requires a shift from the current program	Initial Cost: Study on valet locations (\$) On-going costs: Program management (assuming city and DDA partnership) (\$-\$-\$-\$)

C. Coordinated Valet Operations

Valet Ordinance, Permit, and Standards: To operate a curb side valet service in Delray Beach, an operator need to secure an agreement between the City and the host venue. The agreement provides some specifics regarding the venue to be served, the number of curb spaces leased,



the hours of valet operation, the storage location, and routes of travel for the valet vehicles. The agreement lacks requirements for signage, safety, employee identification, and/or competency of the operators from the agreement. The agreements are enacted between the host venues and the City and in essence remove the valet operators from discussions affecting their operations.

Uncoordinated operations also create a lack of transparency regarding the valet system for leasing, administering, and managing active valet queue spaces in the public right of way.

These agreements can be effective in establishing the host venue

responsible for the valet operation and the parameters of operations but could be improved with the implementation of a valet permitting processes that provides further minimum requirements for valet operators to operate in the public right-of-way.

The Valet Permit could include requirements for sign branding and standards, an operational staffing plan, liability insurance verification, valet storage location, number of parking spaces designated for storage and lease agreements for parking area, vehicular route from queue to parking location, picture identification of all valet staff, and Hi-Visibility outerwear (vest or armband) to increase safety. In addition, the permit would stipulate participation in valet technology pilots and programs.

Sample Ordinances & Licenses

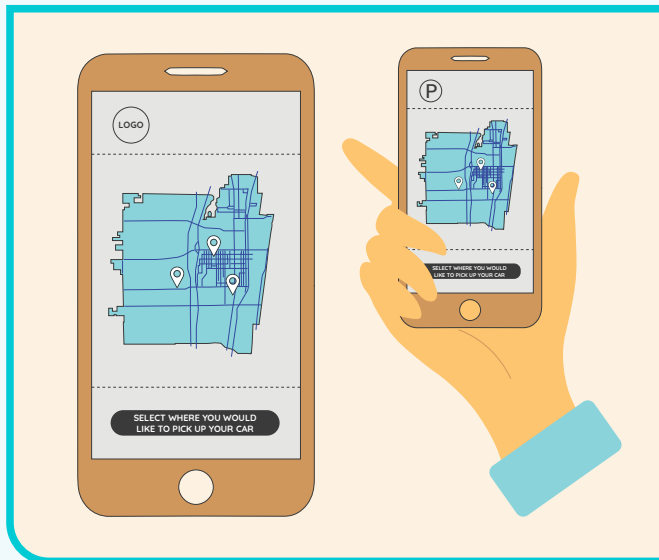
- **Fort Lauderdale, FL** – Valet Ordinance (§ 26-229. Operational standards., Article VIII. VALET PARKING ON RIGHTS-OF-WAY AND PUBLIC PARKING FACILITIES, Chapter 26. TRAFFIC AND PARKING, Code of Ordinances, Fort Lauderdale (elaws.us)
- **Houston, TX** – Valet Permit Applications and Checklists (Forms and Applications (houstontx.gov) Dallas, TX – Valet License Applications (Parking Permits and Licenses (dallascityhall.com))
- **Chicago, IL** – Valet Ordinance and Business License (City of Chicago : Valet Parking Operator Business License)
- **St. Louis, MO** – Valet Ordinance (Ordinance 69139 -- Ordinance pertaining to valet parking (stlouis-mo.gov))
- **Scottsdale, AZ** – Valet Ordinance (City of Scottsdale - Valet Ordinance No. 2896, 4-1-96 (scottsdaleaz.gov))
- **Charlotte, NC** – Charlotte NC Zoning Code, Article XII. Valet Parking (charlottenc.gov) Zoning (charlottenc.gov)

Implementing the valet permit will provide the city with a minimum standard of service. A valet service that consistently fails to meet the standards set forth by the permit could have their valet permit revoked while the host venue is still able to hire another group to operate. The current agreements do not set forth enforceable standards of performance for the valet service operators, which in most instances are not employees but contractors of the host venues.

Valet Technology: With the exception of one valet operator, all curbside valet services in Delray Beach currently use paper valet tickets and manual tracking processes for the valet vehicles they serve. This is a highly antiquated process whereby each vehicle is issued a paper claim check, has a manual vehicle inspection form that must be completed by the valet driver, and a manual tracking process for the vehicle and keys. Manual processes limit the service level, efficiencies, and synergies the City, host venues, and valet operators could realize by using digital valet systems, applications, and technologies.

Modern valet technologies offer features that would benefit valet services and drivers in Delray Beach. Some of the additional features include reservations, digital vehicle inspections, and the ability to text or call ahead to request vehicle retrieval. The system would also provide useful data on usage, travel times, fees charged, and the ability to accept credit cards. Where charges or services are disputed, the software can provide digital records otherwise missing in paper-based systems.

Valet Interchange Software Pilot: If multiple valet services are using the same valet technology, the opportunity exists to develop a Pilot Program for a valet interchange that would allow valet services to transfer vehicles to other host venue services when a customer moves from one venue to another without retrieving their vehicle.



How does it work? Currently when a customer wishes to have their vehicle returned, they must physically present their claim check at the valet stand where they parked and wait for the service to send a valet to retrieve the vehicle. During peak periods this could equate to a lengthy wait for the customer, and inefficiencies for the valet operator. Valet software would allow a guest to remotely request or schedule the return of their vehicle without being physically present. In addition, providers can move key storage and staff to storage locations to expedite the return of vehicles when they are requested.

If all valet queue services were using the same software, the software could facilitate the interchange of vehicles between different queues to essentially provide some of the same features as centralized valet. Additionally, the City would be provided enhanced data to allow monitoring of valet queues for curb management decisions and compliance with permit criteria.

The City could undertake a pilot program to test the implementation, viability, and usefulness of valet software to provide enhanced valet services to parkers, while obtaining data from the valet. Unlike other valet operators, Ameristar Parking operates the valet stands for three consecutive blocks along E. Atlantic Avenue, Rocco's Tacos (Between 1st and 2nd St.), Taverna Opa (Between 2nd and 3rd St.),

and Lionfish (Between 3rd and 4th St.). The City could offer to provide valet software to Ameristar as a pilot under the condition that they allow customers the ability to retrieve their vehicle from any of the valet stands. In exchange, the City would receive vital data and feedback on the viability of the software. In addition, with the gain in operational efficiencies, this technology may aid in relieving the traffic congestion along Atlantic Avenue. If the pilot program proves successful, the use of the valet software could become a required component for receiving a valet permit in Delray Beach.

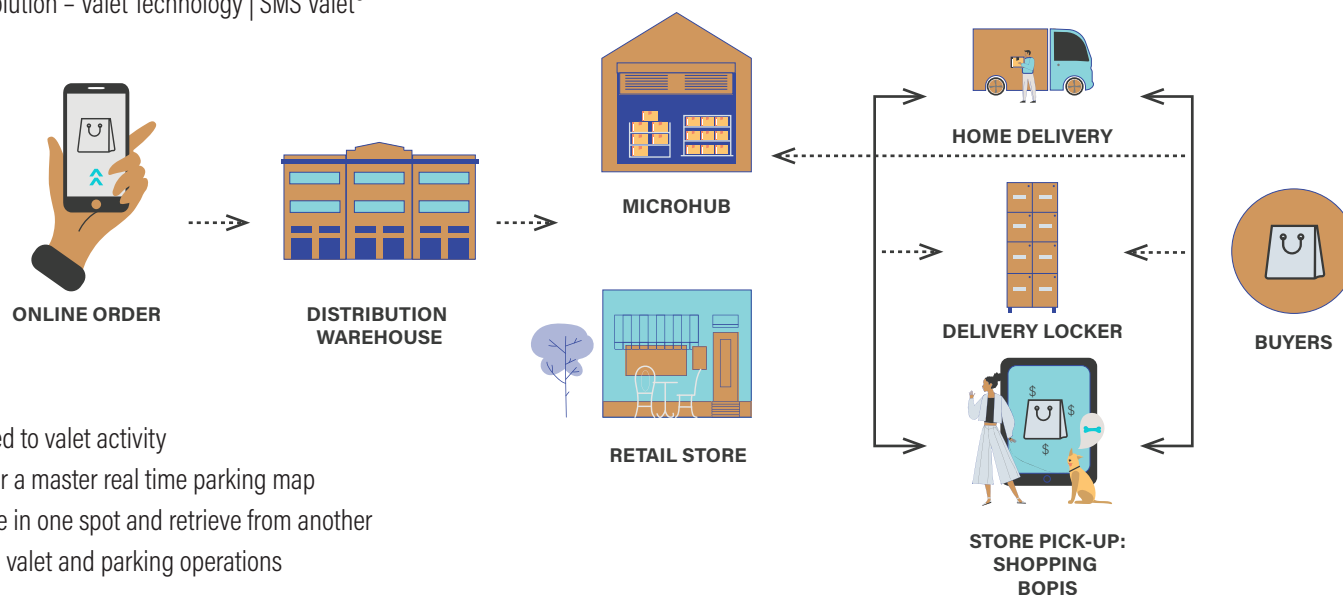
There are several companies currently offering this type of valet software (note: inclusion of these companies is not an endorsement):

- Valet Parking Software Solutions | FlashValet by FlashParking
- Valet – AVPMi
- Ticketless Text Message Solution – Valet Technology | SMS Valet®

Ultimately, the pilot should be seen as a step towards developing a coordinated valet system within the entire downtown district. The benefits of a coordinated system include:

- Better user experience
- Reduced congestion related to valet activity
- Coordinated information for a master real time parking map
- The ability to drop a vehicle in one spot and retrieve from another
- Systemwide data to inform valet and parking operations

With a centralized system, drivers can drop their vehicle off, no matter the restaurant visited, or valet used. On a larger scale, the valet system may also include shuttles; instead of delivering the car to drivers, shuttles could take drivers to cars in peripheral lots. This requires coordinated operations within a district using pricing and technology to deliver a positive parking experience.



Problems Coordinated Valet Service Can Address

- Lost opportunity to improve customer service through mobile technology
- Inefficient valet ticketing and retrieval
- Lack of data to assess performance
- Valet sign clutter and confusion



Target Actions

- Convene stakeholders to develop coordinated valet system
- Use technology as a coordination and data collection platform

Valet Operations

COORDINATED VALET OPERATIONS RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Audit all public revenues and City processes involved with the leasing of public right of way parking spaces for valet queues, valet off-street storage space leases, and all parking violations issued associated with the valet queue or storage spaces	Audit completed/not completed	<p>Pros: An audit can provide baseline information on the costs and benefits of public investment in a valet program</p> <p>Considerations: Need for accurate recordkeeping to perform a credible audit</p>	Initial Costs: Cost of conducting the audit (\$)
2. Convene valets to discuss challenges and opportunities related to operations, technology, and coordination	Collect baseline information on valet stand-related congestion (field survey)	<p>Pros: Obtain insights and information from the various valet operators; Drivers will benefit from improved and new services; The City will have access to information and efficiencies with coordinated operations</p> <p>Considerations: If moving stands is required, there could be pushback from companies and drivers; Will require culture change in a move towards coordinated valet operations</p>	Costs: Cost to convene valets to discuss challenges and opportunities related to operations, technology, and coordination (\$)
3. Concurrent with the Wayfinding Plan, create unified valet signage	Total number of signs reduced and customer service surveys	<p>Pros: Reduced sign clutter; easier wayfinding for drivers seeking valet service</p> <p>Considerations: increased costs for creating new signs</p>	Initial Cost: Coordination with City on signage; sign design; costs for new signs (\$)
4. Initiate a valet interchange software pilot to align all vendors into one system and create a consistent digital ticketing system	Customer service survey	<p>Pros: Streamlined operations, faster transactions, data for assessing valet performance and for dispute resolution</p> <p>Considerations: Requires 100% participation; costs of new system and training</p>	<p>Initial Costs: Pilot and software development; hardware for each valet operator; training (\$\$)</p> <p>On-going Costs: (If pilot is a success): depends on model chosen (custom application versus subscription with valet software company) (\$\$)</p>
5. Update current agreements to require minimum levels of service and penalties if not adhered to	Updated agreements	<p>Pros: enhances customer service and safety</p> <p>Considerations: Requires specification for levels of service</p>	<p>Initial Cost: Resources for updating the legal terms and agreements</p> <p>On-going Cost: Enforcement</p>
6. Monitor and track valet operations. Conduct customer service surveys	Survey data (number of surveys, response rate)	<p>Pros: Ability to assess performance in a coordinated manner</p> <p>Considerations: Resources needed for expanded coordination and outreach</p>	<p>Initial Costs: Establishing a valet monitoring system (\$\$)</p> <p>On-going Costs: Periodic surveys and reports (\$)</p>



Parking Supply Opportunities

Discussions on additional parking supply often turn to the potential location of new garages and lots. Given land costs for surface lots and the costs of structured parking (i.e. \$25,000 per space for above ground; \$50,000 per space for underground) and operating/maintenance (i.e. \$500 per space per year), improving the performance of existing parking assets is a more cost-effective option. Based on parking counts and observations, the parking facilities west of Swinton Avenue (i.e. Courthouse Garage, Library Lot, Tennis Lot, City Hall Lot, and CRA Lot) have substantial parking, though require greater education, infrastructure upgrades, and mobility options are required to increase occupancy. In addition, shared parking increases the number of users in the same space.

A. Shared Parking

Shared parking is a tool through which property owners or establishments share their parking among different uses/users and reduce the number of parking spaces that each would provide on their properties individually. There are two types of shared parking arrangements. Delray Beach's zoning code (Article 4.6.9(C) 8 a.) refers to "shared parking" as occurring within a unified site or sites. For example, within a mixed-use building, an office use will make spaces available to a restaurant use after normal business hours. The second shared arrangement can take place among buildings that are not part of a unified site, though proximate to each other (e.g., 300-400 feet).

City-wide, interdepartmental coordination will be required to help identify opportunities for shared parking and required legal documents. As stated previously, new parking is costly to construct and manage, and may not be the highest and best use of land. Also, the growth in shared mobility (e.g. ridehailing, electric bike share, microtransit, etc.) and the potential for autonomous vehicles (AVs) to disrupt parking needs make constructing parking a less attractive option since it may not be needed 10 or more years from now.

The Delray Beach Parking Division, Office of Economic Development, and Downtown Development Authority should work to identify potential shared parking opportunities with private or public facilities. To help make a shared parking agreement more attractive to a private owner, the City should potentially be willing to agree/compromise regarding the following items listed below:

- Pay market rate to lease spaces
- Pay for parking access and revenue control infrastructure
- Share parking revenue with owner
- Provide enforcement and management services
- Take on shared liability responsibilities
- Share in cost to maintain condition of parking facility
- Implement technologies that facilitate shared parking
- Provide transportation connectivity options throughout downtown

As part of entering into a shared parking agreement the following issues listed below may need to be addressed:

- Term and extension periods
- Hours of operation and permitted users
- Maintenance and operation responsibilities
- Cost and revenue share
- Utilities and tax responsibilities
- Installation of signage for new policies
- Enforcement / security policies
- Capital improvement costs
- Insurance and liability, and
- Termination of agreement



Many communities have implemented successful shared parking agreements with the private sector including Fort Worth, Texas and Sacramento, California. Below is a summary of the major features associated with these shared parking agreements between the public and private sectors:

Fort Worth, Texas improve infrastructure

- Downtown Tax Increment Fund (TIF) leases approximately 3,300 privately-owned parking spaces for the evenings and weekends,
- Pays on average \$130 per space per year,
- Offers free parking to the public in Downtown, and
- Downtown TIF is managed by Downtown Fort Worth, Inc.

Sacramento, California

- Shared parking program initiated in 2006,
- The City's parking code eliminated parking minimums in the Central City in 2012,
- The City's parking code allowed shared parking agreements between private entities to satisfy parking requirements,
- The City has at least 21 shared parking agreements with privately-owned parking facilities,
- City agreements with private parking owners that may involve revenue sharing once the City has broken even on lot improvements and operation costs (i.e. signage, marketing, enforcement, management, etc.), and
- The City offers an "enforcement only" shared parking option where the City offers enforcement services for no management fee or revenue sharing.



Problems Shared Parking Can Address

- Inefficient use of parking spaces
- Need for additional capacity



Target Actions

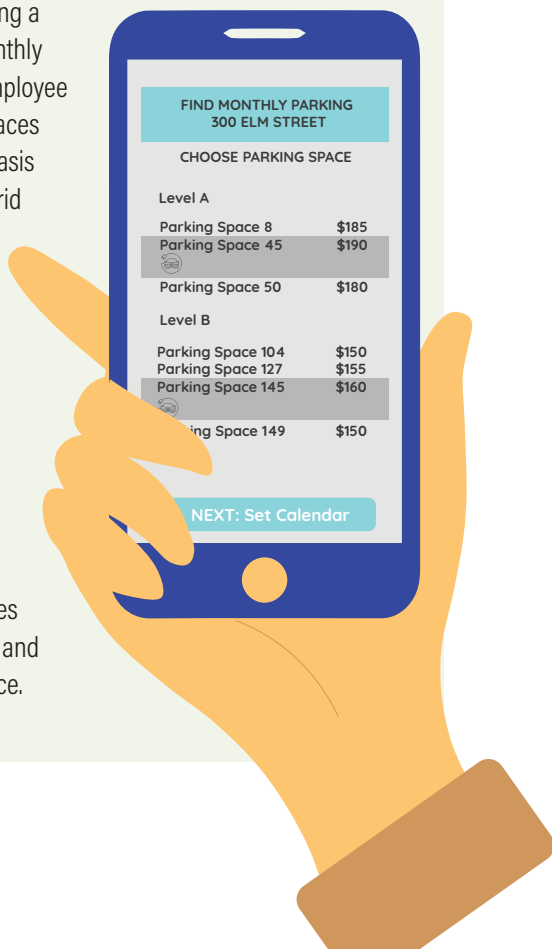
- Expand capacity through negotiations with developers and property owners on shared parking

Parking Supply Opportunities

SHARED PARKING RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Negotiate shared parking agreements for new developments	Number of new spaces acquired through developer agreements and utilization of that parking	<p>Pros: Expands parking capacity</p> <p>Considerations: Under Delray Beach's code, shared parking only applies to commercial buildings within a unified plan</p>	<p>Initial Cost: Costs associated with negotiating legal agreements and potential contribution towards construction (\$\$\$)</p>
2. Increase number of publicly available private parking with private and public sector partners (e.g., shared use licensing agreements for private parking lots)	Number of new spaces acquired through shared parking agreements and utilization of that parking	<p>Pros: This is a current practice that can add public parking; makes use of vacant or underutilized properties</p> <p>Considerations: For agreements that are renewed periodically (e.g., annually), there is a cost for compliance. This may include inspections to ensure building owners are following contract requirements for public access</p>	<p>Initial Cost: Costs associated with negotiating legal agreements and possible parking access and revenue control upgrades to allow public parking (\$\$)</p> <p>Ongoing Costs: Possible maintenance, enforcement, and management of facilities (\$\$)</p>

Technology Highlight

Several companies have developed parking platforms and mobile apps that streamline shared parking. Like an Airbnb for parking, the software allows a parking or building manager the ability to rent and share spaces. The demand for technology to facilitate shared parking has grown as a result of COVID-induced changes in commuting patterns such as work-from-home and hybrid scheduling. Instead of leasing a space on a monthly contract, an employee can reserve spaces on an ad hoc basis to match a hybrid schedule. The apps include features for reservations, payment, and alerts. To overcome common concerns over liability, these companies offer insurance and customer service.



B. Transportation Demand Management

Transportation Demand Management (TDM) is a parking supply strategy since it has the effect of freeing up parking when drivers choose options other than an automobile trip. The goal of a TDM plan is to provide targeted methods for optimizing the use of all available transportation options within a local network—not just single-occupancy vehicles.

Common strategies, also known as mobility management strategies, are presented throughout this Parking Master Plan. In general, strategies fall into three main categories:

- Support for multi-modal transport options (e.g., rideshare programs, guaranteed ride home programs, and bike/transit integration programs),
- Financial incentives or disincentives that raise the value of using modes that reduce parking demand (such as parking pricing and transit passes), and
- Information campaigns

The foundation for a TDM program is already in place within Delray Beach's Comprehensive Plan (Always Delray) and is a guiding principle for the City's Mobility Element initiatives. TDM is also embraced in the 2010 Delray Beach Parking Management Plan which provides 12 mobility management strategies such as:

- carpooling, vanpooling, and "schoolpooling"
- guaranteed ride home programs (like that of the FDOT-funded South Florida Commuter Services)
- flexible work weeks
- bicycle and pedestrian master planning
- employer and public outreach to influence non-automobile trips

As for establishing a formal TDM program, the 2010 Parking Management Plan recommended:

"the City should expand the current requirement [for large employers within the City's Transportation Concurrency Exception Area (TCEA)] to a tailored TDM plan for citywide or CRA-wide implementation. This plan should include specific implementation strategies and performance measures tied to participation in the program."

The City's Land Development Regulations for Administrative Provisions (Section 2.4.3) directs TDM requirements for employers with more than 50 employees:

"a land use application, which will add use area or establish a new use, that will result in the addition on the premises of more than 50 employees, located in the City's TCEA, shall include submittal of a program to implement employer-based TDM activities. These activities may include, but are not limited to, ride sharing, van pooling, and flexible work hours."

Other communities, such as Boca Raton, Florida, extend their TDM strategies to new and existing residential developments as well. Specifically, Boca Raton's TDM Ordinance sets requirements for Downtown Developments that employ 50 or more full-time workers or contains 30 or more residential units. New developments fitting these criteria must complete a TDM form, which indicates all property characteristics and proposed TDM measures, and provide a TDM narrative outlining the property's overall TDM plan in accordance with the City's TDM program.

For the purposes of this Parking and Curbside Management Plan, it is recommended that the City of Delray Beach take a more holistic approach to TDM by focusing on two main issues:

TDM requirements for new residential and commercial developments: For example, Boca Raton has enacted an ordinance which applies to new commercial (with 50 or more employees) and residential (more than 30 units) developments. Building owners and managers can choose from a menu of common TDM services and practices that can include:

- Information kiosks on multi-modal commute options
- Secure bicycle parking, lockers, and showers
- Public transit incentive programs (including free or discounted passes) or shuttles to nearby stations or stops
- Ride-sharing incentives for car and vanpools, including preferred parking
- Flex time (to arrive early or depart later in the day to avoid rush hour traffic)
- Telecommuting (work from home) or compressed work weeks

The City's TDM page is at this link <https://www.myboca.us/754/Development-Requirements>

and the TDM application can be found at this link. <https://www.myboca.us/DocumentCenter/View/7772/TDM-Form-2018-PDF?bidId=>

Downtown Delray Employees: The City can develop a custom program targeting small business, restaurant, and retail entities downtown with particular attention to assisting employees who work late hours.

This plan recommends several measures that can be folded into a formalized program that is managed by the City, the DDA, or through a partnership. The main measures include:

- Bicycle, scooter, and moped parking
- Microtransit services to periphery parking and TriRail with extended hours
- An employee parking permit



Problems TDM Can Address

- Parking shortages and need for additional capacity
- Traffic congestion
- Environmental impacts from auto traffic and congestion
- Lack of effective travel options

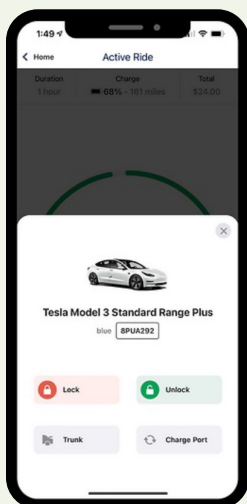


Target Actions

- Develop and adopt a Transportation Demand Management Program

Parking Supply Opportunities

TRANSPORTATION DEMAND MANAGEMENT RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Adopt a Transportation Demand Management (TDM) program for new developments and downtown employers	New ordinance in place Number of employers enrolled in TDM plan	Pros: TDM programs are a proven method for reducing travel and parking demand. Considerations: To be effective, TDM programs require administrative oversight and outreach; Employers may not be willing to enroll given the commitment to outreach, education, and incentives	Initial Cost: Resources for establishing a TDM ordinance and program (\$) On-going Costs: Programming for administrative and compliance activities; cost of incentives (\$-\$\$)
2. As digital communications options grow (integrated mobile apps, information kiosks), incorporate mobility services into existing and future mobile applications and information kiosks	Number of kiosks Number of app subscribers	Pros: Enhanced user information on multi-modal trips; ease of multi-modal travel Considerations: Must ensure data feeds are made available from mobility providers; information must be accurate and consistent across providers	Initial Costs: Kiosks, communications system for aggregating and transmitting data feeds, data, and equipment maintenance



Building-Based Parking Solutions

Building managers are turning to new policies and technologies that reduce demand.

Unbundled Parking: Unbundling refers to billing parking as a separate item rather than automatically bundling parking into a unit's rent or sales price. For example, an apartment that rents for \$2,000 per month with two "free" parking spaces, would be offered as \$1700 per month for the apartment and \$150 a month for each parking space. If the tenant only uses one space, their rent is \$1,850.

Amenity Carshare: Amenity fleets are available for sharing among residents or tenants of an individual building or community. These fleets can replace a first or second car and may be attractive to part-time or seasonal residents. The carshare company Envoy recently added a fleet to the Icon in Fort Lauderdale. Likewise, Turo allows peer-to-peer car rental and operates in

Delray Beach. Platforms like Ridecell allow any entity the ability to build its own services (rideshare) and fleets (cars, scooters, mopeds).

Mobility-as-a-Service: Several companies are developing all-in-one programs that aggregate all mobility options into one travel planning and payment mobile app. A user can view and choose modes based on time, price, and other factors, with seamless payment across service providers that can include public transit, microtransit, carshare, ridehailing, taxi, airport shuttle, and micromobility (bikes, scooters, and mopeds). These apps present real time information on vehicle location, station and stop locations, and service alerts.

C. Public Parking Facility

This plan's scope is to recommend management options for optimizing existing parking assets due to the costs related to construction of any new parking structure. However, if a parking shortage exists after Delray Beach has fully implemented strategies to incentivize the utilization of periphery parking and other strategies (i.e. pricing, pedestrian infrastructure, and transportation options) then the City could explore constructing additional parking.

There are a few ways to structure a public-private partnership deal. Below is a summary of the most common financial structures.

Condominium Structure

A condominium structure allows separate ownership of a joint facility developed to serve a variety of users. Both the public and private entities would own and maintain their condominium interest in the parking structure. The municipality would continue to be tax exempt for its portion of the property and would be able to control future management of its portion. The developer can be responsible for the construction of the project. The City can agree to purchase the garage which gives the developer a financing tool to obtain financing. The garage can be designed to serve as a mobility hub, offering the developer additional on-site amenities, and reducing the number of private spaces needed.

Lease-Leaseback Structure

A lease-leaseback structure is where the municipality sets up a ground lease arrangement (typically 30-years) with the developer, after which the garage is leased back to the municipality to use and manage. The developer is responsible for constructing and financing the project. The lease amount for the garage should cover debt service, operating expenses, and reserves for maintaining the facility over the term of the lease (e.g., 30 years). The facility can either be operated by the City, the developer, or a third-party operator, which would be defined as part of the lease agreement. Once the lease term is complete and all debt obligations have been met, the parking facility would become the property of the municipality for a small fee (typically \$1).

Long-Term Lease

The City can lease the land to the selected developer for an extended period of time (i.e. 90+ years) and sell the development rights for the site. The developer would construct the project with public parking included in accordance with the terms of the agreement. A long-term lease of 99 years or longer would implicate realty transfer tax considerations

and require a pass through of operating costs. The private entity will operate and maintain the asset and collect parking revenues from the facility throughout the term of the lease.

A successful public-private partnership deal will require interdepartmental coordination between the Office of Economic Development and the Parking Division. A request for proposals (RFP) should be issued for a defined site (i.e. Gladiola Lot) that specifies the stipulation for a shared parking agreement with the City. The City should place preference on proposed developments that include land use(s) that offer ideal shared parking opportunities (i.e. office). The agreement should define how the parking will be managed regarding enforcement, parking access/revenue control equipment, staffing, hours of operation, and the parking rate structure. The design requirements of the parking facility and revenue sharing, if any, should be defined.

The City could consider entering into a public-private partnership which would include an above or below ground development with on-site public parking. The Gladiola Lot, shown in Image 7, is the only City-owned public parking facility in the Downtown Core area with adequate dimensions to support a parking structure. A parking feasibility study of the Gladiola Lot was conducted in 2013 that showed a zoning-compliant parking facility with ground floor retail (6,200 SF) on Federal Highway would add 226 spaces and cost approximately \$30,000 per space (\$6.5 million total). Since there are currently 74 spaces in the Gladiola Lot, this is a net increase of approximately 150 spaces. The City's building height restrictions make it difficult for a public-private partnership with substantial parking and leasable space to work.

The City could also seek space outside the Atlantic Avenue Limited Height Area (AALHA) where developments can be four or five stories compared to the three-story height limit in the AALHA. It is suggested that a complementary land use is included as part of the development, such as small office space. Office space is well utilized during weekday business hours but is available during the weekday evenings and weekends for visitors.



Image 7: Potential Site of Future Garage

Financing Methods

Given the cost of constructing a new parking structure, the City needs to take early steps for project design and financing. In addition to developing a public private partnership deal to fund a future parking facility, there are numerous methods of public sector involvement in the financing of parking facilities. In addition to the more traditional methods of selling general obligation or parking revenue bonds, other methods include special assessment or benefit districts, tax incremental financing, and bond anticipation notes.

General Obligation Bonds

Delray Beach can issue general obligation bonds based on the full faith and credit of the city. This typically allows for favorable loan terms but decreases the City's borrowing power on future, potentially more important, capital projects.

Revenue Bonds

Through the development of a public benefit district, non-profit corporation, or authority, revenue bonds may be obtained to finance a future parking facility. Parking revenues and potential leasing revenues for a mixed-use project could be used to meet the annual operating costs and debt service payments. Revenue bonds could be issued through the Delray Beach CRA. As an alternative to the creation of a separate agency to issue revenue bonds, the City may create a parking fund that would be applied for the support of its parking facilities. A comprehensive financial analysis (i.e. pro forma) will be needed to determine the feasibility of the proposed project to qualify for the bonds. If revenues were not adequate to cover debt service costs, the City would have to subsidize the parking fund from other sources such as the general fund.

Special Assessment Districts

Special Assessment Districts have been established in many municipalities across the country. Primarily, a zone of "benefit" is established for a particular parking facility or cluster of on-street spaces. The primary criteria for establishing the boundaries of the district are based upon an acceptable walking distance from the proposed facility. In some instances, a gradation of contribution into two or more radial zones can be devised. Several formulas exist for the determination of the rate of payment or subsidy for a specific facility or facilities based on land use type, building/space area, and/or street frontage. Regardless of the basis for contribution, an equitable arrangement that requires those benefited by parking to pay their ad valorem share of needed subsidies may be appropriate.

Tax Increment Financing

In the most simplistic terms, Tax Incremental Financing (TIF) can be described as created residual property tax. Districts are typically chosen in areas slated for new medium and high-density development. Once an area of influence can be identified, the current tax base and associated revenue stream for that area are verified and frozen at their present levels. Over time, all new or incremental tax revenues are invested in the TIF District to provide infrastructure to support or encourage the new development. The Delray Beach Community Redevelopment Association (CRA) has an established TIF which could potentially be applied to fund a parking facility.

Bond Anticipation Notes

In the event that a bond issue is used to finance the facility, serious consideration should be given by the City to issue bond anticipation notes as a method of interim financing during the construction period. These notes would be of a short-term duration, issued only after the longer-term bonds have been approved and validated. The advantage of bond anticipation notes is a lower short-term rate.



Problems Additional Parking Capacity Can Address

- Severe parking shortages that exist once all other options have been fully implemented



Target Actions

- Maximize strategies to better use existing parking assets

Parking Supply Opportunities

PUBLIC PARKING FACILITY RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Use strategies in this Parking and Curbside Master Plan to maximize existing parking assets as an alternative to facility construction	Refer to monitoring metrics and methods for recommendations in this Master Plan	Pros: Makes best use of existing assets at costs that are lower than a new facility; the net additional spaces at the Gladiola Lot may not justify investment Considerations: Pressure to build additional capacity	Initial Costs: Installing monitoring systems for tracking parking occupancy (\$\$) On-going Costs: Monitoring, analysis, and reporting
2. In the case that all efforts to maximize existing parking are exhausted, pursue garage option	Refer to monitoring metrics and methods for recommendations in this Master Plan	Pros: Added public parking capacity in Downtown Considerations: Where to construct and how to finance	Initial Costs: Constructing a parking facility (\$\$\$) On-going Costs: Maintenance and operation of facility (\$\$\$)

D. Fee-In-Lieu of Parking

Another funding method is a fee-in-lieu of parking, which is a policy currently in place. This technique is not an inducement to development but rather a method to provide parking in growth areas within cities. This program allows a developer to pay a fee into a fund rather than build the amount of parking required by code.

The City's current fee-in-lieu of parking program is organized and managed across five (5) areas, as shown in Image 8. Each area has a different fee amount per parking space, with Area 1 (\$23,000) being substantially than Area 2 (\$18,400). Parking in-lieu fees can be applied for parking or pedestrian/bicycle infrastructure improvements. The use of the funds should be expanded to include funding for multimodal improvements (i.e. microtransit, micromobility). Transparency should be provided regarding how these funds are applied.

The fee-in-lieu of parking program does not apply to residential development. Under the Delray Beach code, a maximum reduction of 30% of eligible required parking is allowed. This stipulation does not apply to conversions, for which there is no maximum reduction limit. In addition to in-lieu fees, a developer must construct additional on-street parking where adequate right-of-way exists adjacent to the proposed development. To continue the fee-in-lieu program, parking minimum requirements should remain. Since the program's implementation in 1998, most of the parking fees-in-lieu of paid to the City were between 2001 and 2009. Only two developments utilizing fees-in-lieu of were approved in 2017, showing there has been a decline in the utilization of the program.

Fee-in-lieu of pricing should be set high enough to pay for public parking, but low enough to attract developer interest. The fees should reflect the land costs and the average cost per space to construct other parking facilities in the area. The City's current fees reflect the cost of land and demand for development in each area. In less developed areas, the fees should be low, and in highly developed areas the fees should be higher, which is the City's current practice. As areas become more developed, the fees should be increased and if an area is less developed the fee may need to be lowered. The fee-in-lieu of pricing should also be continually increased in-line with an index of construction costs.

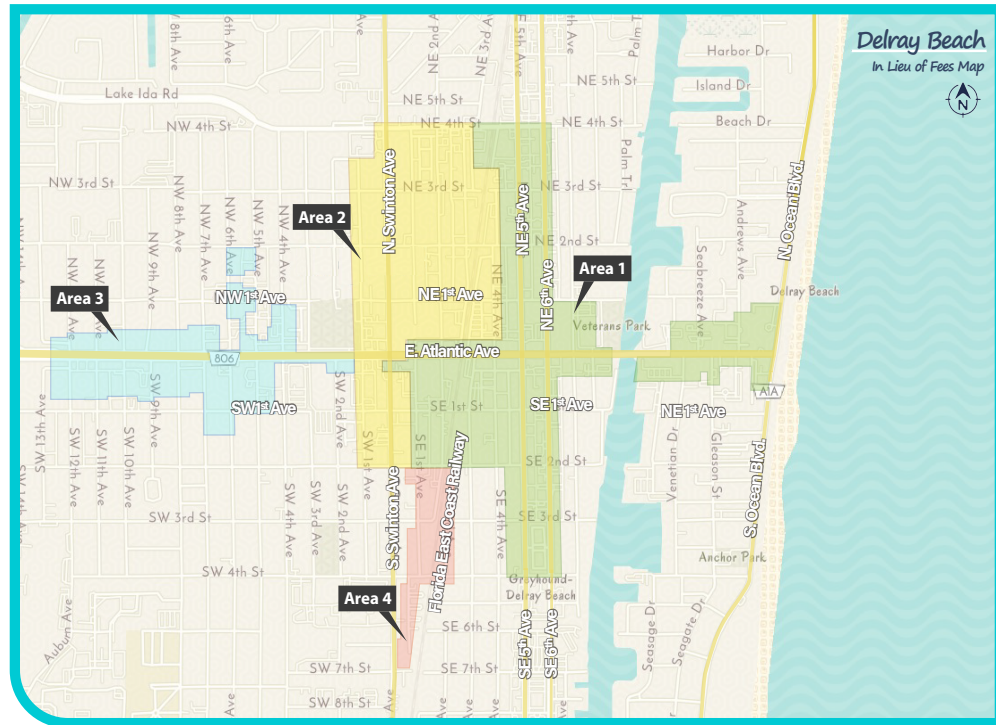


Image 8: Fee-In-Lieu of Parking Area Map



Problems Fee-In-Lieu of Programs Can Address

- Severe parking shortages that exist once all other options have been fully implemented



Target Actions

- Maximize strategies to better use existing parking assets

Parking Supply Opportunities

FEE-IN-LIEU OF PARKING RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Monitor and adjust in-lieu of fees	Amount of funds raised and number of developers that participate in program	<p>Pros: Rates properly reflect recent changes in real estate values, location variations, and construction costs</p> <p>Considerations: The program is limited to non-residential properties and is not heavily used</p>	<p>Initial Cost: Costs associated with monitoring and adjusting new rates</p>



E. Neighborhood Electric Vehicles (Golf Cart) Parking

Golf cart on-street parking is provided at three (3) locations along East Atlantic Avenue between Swinton Avenue and the Intracoastal. One of the locations is shared with short-term (5 minute) loading parking. There are four free on-street golf cart parking spaces along Atlantic Avenue and there are seven spaces in the North Railroad Lot. Golf cart drivers who park in an automobile space are required to pay the metered rate.

Golf carts allow for more efficient use of on-street parking compared to a typical vehicle, though pose several issues:

- Parking at the beach has damaged turf near beach access points.
- Unsanctioned beach parking also causes line of sight challenges at the beach access crosswalks.
- Though smaller in size, carts still occupy space subject to this Parking Master Plan's focus on curbside management and demand-based pricing.

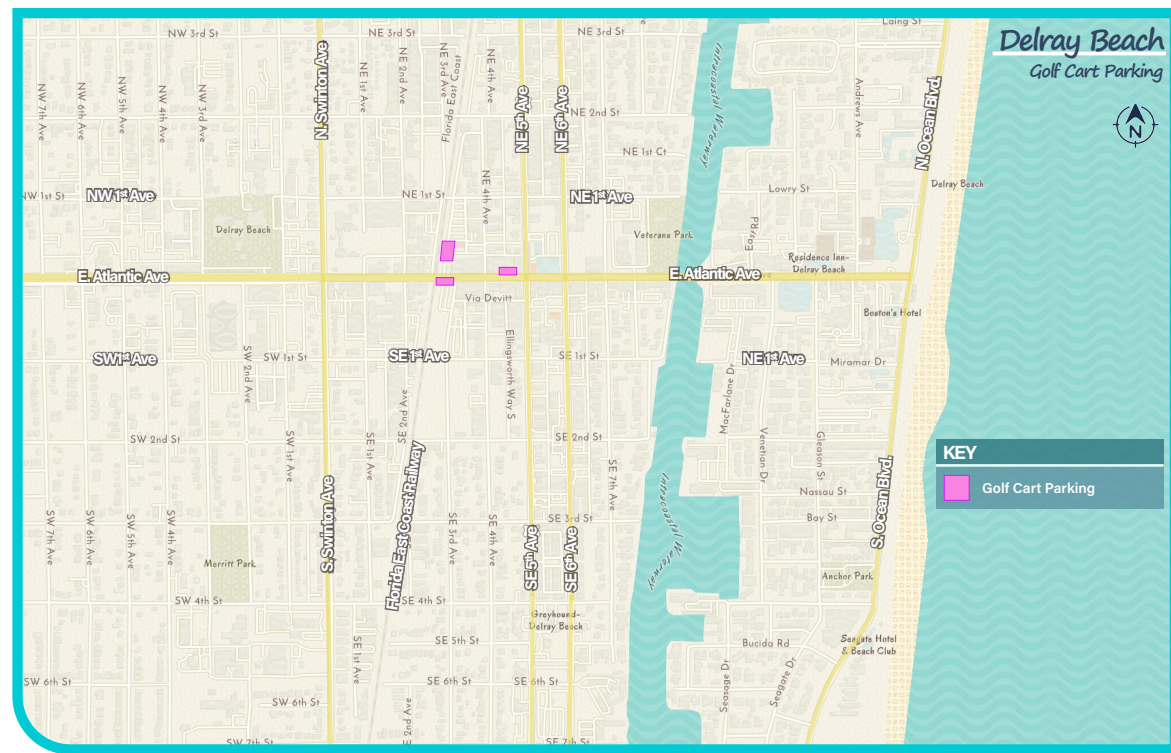


Image 9: ADD Map for Golf Cart Parking



Problems Expanded Golf Cart Parking Can Address

- Landscape damage
- Inefficiency in golf carts using full-size parking spaces



Target Actions

- Determine how/whether to install regulated parking spaces at beach access points
- Determine whether/when a golf cart permitting system is warranted to manage demand for downtown parking spaces

Parking Supply Opportunities

NEIGHBORHOOD ELECTRIC VEHICLES (GOLF CART) PARKING RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Address parking issues related to golf carts: parking on turf and golf cart parking rates. Develop golf cart parking permit	<p>Number of golf cart citations (list infractions)</p> <p>Golf cart space occupancy</p> <p>Creation of golf cart permit</p>	<p>Pros: Address issues related to increase in golf cart parking in town and at the beach</p> <p>Cons: Pushback from golf cart owners; aesthetics of replacing turf with hardscape to provide beach parking</p>	<p>Initial Costs: Assessment for new regulations; creation of new permit (staff time); installation of permeable pavers for golf cart parking (\$-\$\$)</p> <p>On-going Costs: For the beach areas, new signage, and enforcement (\$-\$\$)</p>

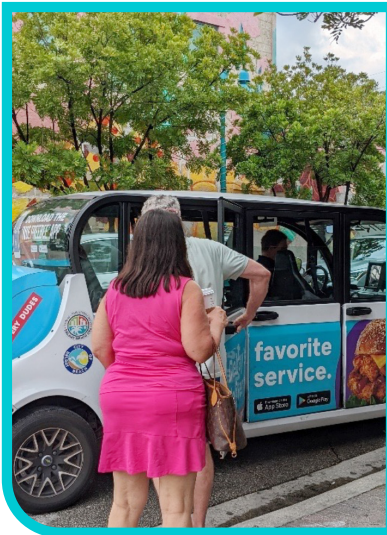


Mobility Options

A major key to incentivize the use of periphery parking that promotes a “park once” environment is providing mobility options to transport people between periphery parking facilities, Downtown, neighborhoods, and the beach. The current mobility options are the FreeBee microtransit service, PalmTran busses, ridehailing services (e.g. Uber, Lyft), and privately-owned micromobility (e.g. bicycles, e-bikes, e-scooters). Even if the City of Delray Beach does not allow shared micromobility, the rise in ownership translates to the need for supportive infrastructure (e.g. bike lanes) and parking. These mobility options can help connect adjacent neighborhoods and regions to the downtown CBD.

A. Microtransit

Microtransit refers to new shared shuttles that can be hailed using a mobile app. FreeBee is a popular microtransit service offering free rides within the Downtown district and adjacent communities. Users can use the Freebie app to summon a ride or hail a driver on the street. This service is free to riders and is funded by the Delray Beach CRA. This service uses electric 6–8-seater carts that provide service Sunday through Wednesday between 11:00 AM and 9:00 PM and Thursday through Saturday between 11:00 AM and 11:00 PM. As shown above, the FreeBee service area extends north and south of the Downtown, though a ride must begin or end in the Downtown Core Area as shown in Image 10. Service does not include access to the Tri-Rail station because the vehicles are not suitable for travel on Congress Avenue.



Visitors hailing a Freebee at East Atlantic and NE 2nd Avenue

Service area extends north and south of the Downtown, though a ride must begin or end in the Downtown Core Area as shown in Image 10. Service does not include access to the Tri-Rail station because the vehicles are not suitable for travel on Congress Avenue.

Another drawback is that service hours are limited and not available for employees who work late in Downtown bars and restaurants. Successfully shifting employee parking from central surface lots to periphery parking will require safety measures that include a late-night shuttle.



Image 10: FreeBee Service Area

local residents, at around 70%. On average, the time to pick-up a requested ride takes approximately twelve minutes. It is suggested that additional vehicles be added during peak periods (e.g. weekend afternoon and evenings) to reduce the average wait time to less than 10 minutes, which is generally regarded by transit studies to be the longest acceptable wait time. The FreeBee service is well utilized, but there is an opportunity to improve ridership through better marketing. It is suggested that marketing of the FreeBee service and app is posted at each public parking facility adjacent to the payment signage and pay-stations. The CRA and City should also work with the local businesses to market the service to their employees and guests.

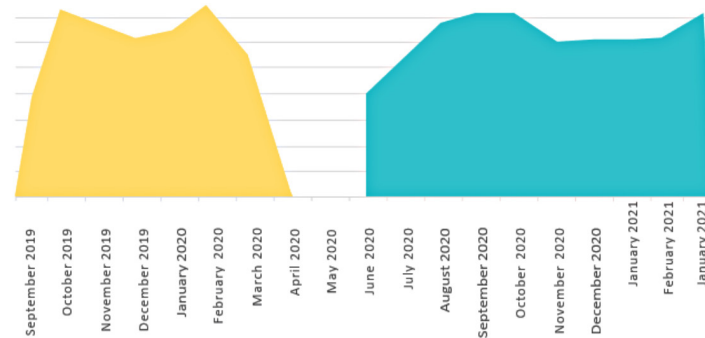


Image 11 FreeBee Ridership





Problems Microtransit Can Address

- The need for a low-cost and agile circulator system
- Access to periphery employee parking areas
- The need to connect the Tri-Rail station and periphery parking
- The need for a “park-once” strategy and provide a connection between the CBD and the Beach



Target Actions

- Expand microtransit services
- Expand outreach and promotion of mobility services and education on how to use microtransit service

Mobility Options

MICROTRANSIT RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Through the Downtown Connect program, create a pilot for extending microtransit service until 3:00 AM	Establish target ridership numbers (e.g., number of riders between 11:00 PM and 3:00 AM)	<p>Pros: A pilot allows the City and CRA to test demand and service parameters</p> <p>Considerations: Requires dedicated funding for the pilot and if successful, permanent service; requires outreach to employers and employees</p>	Initial Costs: Labor and operational costs for pilot, depending on how many nights per week feature late service (\$\$\$)
2. If the 3:00 AM microtransit pilot is successful, then make pilot permanent and increase fleet numbers if ridership targets are met	<p>Number of riders between 11:00 PM and 3:00 AM</p> <p>Number of rider occupancy/vehicle counts</p>	<p>Pros: Provides a reliable late-night service</p> <p>Considerations: Costs for extended services and additional vehicles/drivers</p>	Initial and On-going Costs: Labor, vehicles (\$\$\$)
3. Expand marketing and outreach for transit and microtransit (signage, marketing, incentives)	Survey riders on their experience and non-riders on level of knowledge of microtransit services	<p>Pros: Increased awareness and ridership</p> <p>Considerations: Requires resources for surveys, program development, and operations</p>	Initial Costs: material development and distribution; events; signage (\$-\$\$)
4. Incorporate Phase 1 survey results into marketing materials and adjust as needed	<p>Ridership</p> <p>Number of repeat riders</p>	<p>Pros: Increased effectiveness of marketing materials, higher ridership</p> <p>Considerations: May need to launch a series of surveys to get a full range of viewpoints and experiences</p>	Initial Costs: survey development and execution; labor to incorporate survey results into marketing materials (\$)

Delray Beach Circulator Transit Service

The City previously offered fixed-route trolley service with three routes that provided free rides around Downtown; routes 1A, 2, and 3. Routes 1A and 3 ran up and down Atlantic Avenue with access to the Delray Tri-Rail Station. Route 2 ran along A1A. Service along A1A (Route 2) was eliminated and service operation times along Atlantic Avenue were reduced. Most recently, the trolley service ran east-west along Atlantic Avenue with 23 stops from the Tri-Rail Station to the Beach with operation from 6:00 AM to 7:00 PM on weekdays and from 8:00 AM to 6:00 PM on weekends. Because ridership was low and the service was costly to operate, the trolley was discontinued in 2019. However, during its life, the service was well utilized by employees parking at the Tri-Rail station.

If more free or discounted periphery parking options were made available outside the Downtown Core, people would be more likely to use a free transit service with short headways (i.e. 10-15 minutes) that travels between the Tri-Rail Station and the Beach. It is suggested that a similar fixed-route, east-west service along Atlantic Avenue is reintroduced that uses smaller, less-costly vehicles (i.e. shuttles) and maintains a 15-minute headway (or less). If Atlantic Avenue traffic disrupts the ability to achieve a short headway, it is suggested that the shuttle use the streets one block north and south of Atlantic east of Swinton Avenue, similar to PalmTran transit service in the area.

Image 12 shows an example of the suggested shuttle bus type, which is currently used in Hallandale Beach for their local Minibus service. To reduce vehicle emissions and noise, electric shuttle bus options are available, but would require an investment in electric vehicle charging station infrastructure.

To provide a high level of convenience, promote utilization, and reduce frustration, it is suggested that the circulator busses include real-time GPS tracking on each vehicle and a mobile app that shows the time of arrival at each stop.



Image 12: Hallandale Beach Shuttle

B. PalmTran

In addition to local mobility options, PalmTran offers regional transit service to Delray Beach, as shown in Image 12.

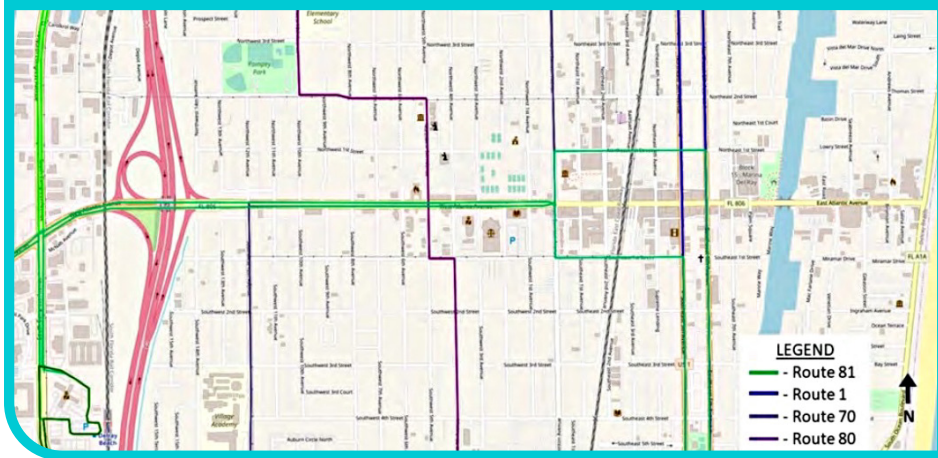


Image 13: PalmTran Routes

PalmTran Route 81 is an east-west bus line along Atlantic Avenue with a 1-hour headway that circulates between Hagen Ranch Library and SE 6th Avenue/SE 2nd Street. Operating hours are between 6:05 AM and 6:55 PM, Monday through Friday, 7:30 AM to 5:55 PM on Saturday, and no service on Sunday.

The main issues with PalmTran Route 81 service are the cost per ride (\$2.00), long headways (1-hour), no late evening service, and lack of beach access. However, it does provide service to the Delray Beach Tri-Rail Station. The other PalmTran bus routes that provide access to Downtown Delray Beach include:

Route 1: North-south route along NE/SE 5th and 6th Avenues with approximately 20-minute headways that ends operation at approximately 11:00 PM on weekdays, 10:00 PM on Saturday, and 7:30 PM on Sunday. This route provides extensive north-south service along US-1 between Boca Raton and North Palm Beach (The Gardens Mall).

Route 70: East-west and north-south route along Atlantic Avenue and Swinton Avenue with a connection to the Delray Beach Tri-Rail Station with approximately a 40-minute headway that ends operation at approximately 8:00 PM on weekdays, 7:00 PM on Saturday, and 6:00 PM on Sunday. This route primarily runs north-south with service between the Delray Beach Tri-Rail Station and Lantana (Lantana – Lake Worth Health Center).

Route 80: East-west and north-south route along Lake Ida Road to West 5th and 4th Avenue with an approximately 1-hour headway that ends operation at approximately 7:25 PM on weekdays, 6:25 PM on Saturday, and 4:25 PM on Sunday. This route primarily services west neighborhoods and access between the commercial centers of Delray Square, Marketplace Delray, and The Plaza at Delray.

As part of the Palm Beach Transportation Planning Agency (TPA) [US-1 Multimodal Corridor Study](#), it was suggested for PalmTran Express (PTX) to provide premium transit service along US-1 to supplement the existing Route 1 with modified headways and replace the current limited stop service (The Bolt). This would enhance rider amenities and improve service frequency. Initially, the TPA is expecting 10-minute headways between Boynton Beach and Riviera Beach, with an improved stop in Delray Beach near the intersection of A1A and East Atlantic Avenue.

Delray Beach does not have direct control over PalmTran routes and schedules. However, the City can advocate for important service improvements. The following recommendations are suggested for PalmTran service:

- Reduce headways to 15-minutes;
- Extend service to A1A (Beach); and
- Continue to improve amenities (e.g., bus stops, mobile app features).



Problems PalmTran Service Can Address

- Lack of high frequency circulator services in and around downtown
- Lack of regional links, including to the Tri-Rail station



Target Actions

- Make the case for improved services to PalmTran
- Focus on key service improvements for visitors along Atlantic Avenue, from the Tri-Rail station to the beach (note this could also be expanded westward with the City's new planning efforts along Atlantic Avenue west of I-95)

Mobility Options

PALMTRAN RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Advocate for transit improvements	<p>Coordination with PalmTran representatives (including Delray Beach appointees to transit service boards)</p> <p>Monitor opportunities to provide testimony and comment</p>	<p>Pros: Increases the number and types of transit modes for moving people to and from Atlantic Avenue; improved employee options</p> <p>Considerations: Improvements are largely out of Delray Beach's control</p>	<p>Initial Costs: Meeting with PalmTran staff and proposing improvements (\$)</p>
2. Reimplement shuttles (city or public transit) to provide rides to the TriRail station	<p>Number of total passengers between 11:00 PM and 3:00 AM</p>	<p>Pros: Better access to TriRail (as opposed to low-speed electric shuttles); coincides with Delray Beach's new contract for fixed/flexible shuttle service</p> <p>Considerations: Costs; unclear if ridership would materialize</p>	<p>Initial and On-going Costs: Start-up service costs, labor, vehicles (\$\$\$)</p>

C. Micromobility - Shared Services

Per Chapter 73 of the City of Delray Beach Code of Ordinances, micromobility devices (i.e. shared bicycles and scooters) are not permitted for rent by a private company within city limits. Micromobility shared services have many pros and pose several safety hazards, namely unsafe riding conditions and sidewalk clutter. However, micromobility devices are popular and there are various examples from other cities of success factors for avoiding common problems related to parking and safety. **The major benefits are that micromobility can help reduce vehicle trips, support first-mile/last-mile travel, connect neighborhoods, and promote a “park once” strategy.**

The two major types of micromobility services include bicycles and scooters, which can either be docked (whereby bicycles are checked out and returned to stations) or undocked. With a docked solution, vehicles must be parked properly at stations before the ride is terminated. Undocked systems can lead to sidewalk clutter but offer greater flexibility since a rider can travel point to point. Cities with undocked system have experimented with painted corrals

defining a parking area. Micromobility devices can be geofenced to limit the travel areas, top speeds, and to direct riders to proper parking areas.

Apart from choosing the most fitting micromobility device(s) and policies, the other elements to a successful micromobility program include:

- Supportive bike/scooter lane infrastructure
- Docked systems with built-in recharging
- Information regarding the service coverage area, cost, and safety guidelines
- Effective tracking of ridership
- Customer service program to support issues

Miami recently reinstated the use of shared scooters with new safety requirements. Since the initial 2018 pilot, the City has [collected \\$2.5 million in fees, dedicating \\$1M to improved bicycle infrastructure](#). Locally, Brightline is sponsoring an electric bike share program, Brightbike, in West Palm Beach.



Problems Shared Micromobility Can Address

- The high share of trips between 1-3 miles that are car trips due to lack of lower impact options
- Lack of options for circulation within the downtown district



Target Actions

- Monitor evolving service models for shared micromobility
- Provide infrastructure that supports micromobility (e.g. bike lanes and parking/docking areas)

Mobility Options

MICROMOBILITY - SHARED SERVICES RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Develop a list of shared micromobility professionals in peer/ proximate cities and track how they develop and adjust shared-use mobility policies and programs	Companies: Swiftmile Micromobility Programs: St. Petersburg, West Palm Beach DDA, Miami, Miami Dade County, Sarasota	Pros: Delray Beach can avoid common problems by investigating “lessons learned” and state of the art practice in peer cities Considerations: Growth in owned micromobility will exert pressure to supply more supportive infrastructure	Initial Costs: Research and interviews(\$), implementation of bike infrastructure to support micromobility (\$\$\$)

D. Micromobility-Owned

Even though micromobility shared services are not permitted in Delray Beach, the sales of privately-owned bicycles, electric bicycles, scooters, and other micromobility devices are on the rise. Tracking pre-pandemic (March 2019) to recent (March 2021) activity, [bicycle sales rose 140% in the United States](#). Electric bike sales are growing even faster in the US. The sales tracking firm NPD reported a growth rate for electric bicycle sales of 240% between July 2020 and July 2021. Further, in 2021, sales of [electric bicycles outpaced sales of electric cars](#) in the United States according to the Light Electric Vehicle Association. Given the Spring 2022 surge in gasoline prices, low speed, electric mobility is likely to become even more popular.

With this rising trend of smaller vehicles comes the need for smaller footprint parking. It is suggested that designated micromobility parking is provided along the curb space on the north side of East Atlantic Avenue between SE 1st Avenue and NE 2nd Avenue and on the south side of the street between SE 5th Avenue and Federal Highway. Providing on-street parking areas for micromobility vehicles helps reduce sidewalk clutter and encourages space-efficient modes. This parking would also be available to delivery drivers who use bicycles and mopeds.

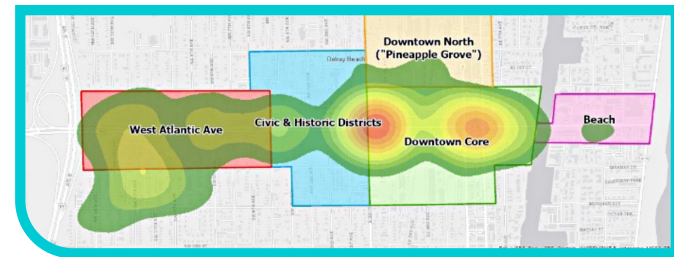


Image 14: Pedestrian Heat Map

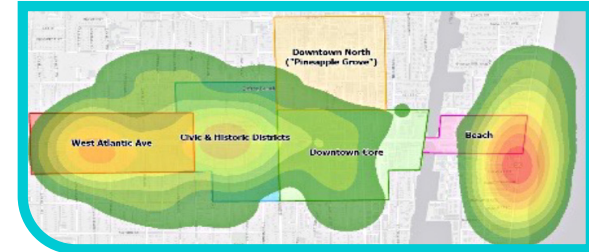


Image 15: Bicycle Heat Map



Problems Micromobility Options Can Address

- Reduce the number of automobiles accessing downtown (and therefore parking)
- Inefficient use of parking and roadway space that could be addresses with more space efficient travel modes
- Affordable transportation for workers, students, and tourists



Target Actions

- Expand use of non-automobile modes (transit, microtransit, micromobility, walking)
- Upgrade mobility infrastructure
- Improve wayfinding

Mobility Options

MICROMOBILITY- PRIVATELY-OWNED RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Reallocate parking to provide space for micromobility, loading, delivery, and pick-up/drop-off zones (may be conducted as a pilot project and may or may not be located on Atlantic Avenue)	<p>% occupancy of micromobility (bike, scooter, moped) parking facilities</p> <p>Congestion on block face with micromobility spaces</p>	<p>Pros: More efficient use of curb space, support all user types, and reduced parking demand</p> <p>Considerations: Complaints from competing for curbside users and loss of some parking revenue</p>	<p>Initial Costs: If designing a pilot, resources for plans and permits; stakeholder outreach (\$-\$\$)</p> <p>On-going Costs: Monitoring and reporting; maintenance and cleaning (\$)</p>

Mobility Infrastructure



Image 16: Designated golf cart parking on West Atlantic Avenue

There are 56 on-street parking spaces located between Swinton Avenue and NE 5th Avenue on Atlantic Avenue, with many of these spaces repurposed for valet parking during the evenings. This is a small amount of parking compared to the 525 spaces in the Old School Square Garage alone.

On-street parking is not necessarily the highest and best use of curb space along Atlantic Avenue when compared to other uses:

- Extended sidewalks used for dining, retail, and pedestrian activity
- Short-term loading for delivery vehicles (i.e., Delivery Dudes)
- Parking for small vehicles (i.e., micromobility and bicycle parking)
- Outdoor dining
- Pick-up/drop-off stops for transit and ridehailing services

The City should continue to look for opportunities where non-parking uses, whether temporary, intermittent, or permanent, can add value to the CBD.

Downtown Delray beach has a network of infrastructure that serves multiple modes of transportation including:

On-Street Parking: Autos, emergency responders, transit, microtransit, golf carts, micromobility

Handicapped Access: There are four existing on-street handicapped parking spaces on Atlantic Avenue

Curbside Uses: Vehicle parking (autos, motorcycles, golf carts, bicycles, mopeds), reserved areas for law enforcement, pick-up/drop-off for valets and passengers, and loading/deliveries

Sidewalk Uses: Pedestrians, deliveries, valet stands, signage and wayfinding

Alleys: Loading/deliveries, garbage collection, parking, emergency responders, and pick-up/drop-off zones.

There are 56 on-street parking spaces located between

A. Cycling and Pedestrian Network

Delray Beach is currently developing a Bicycle and Pedestrian Master Plan, which includes the length of Atlantic Avenue from the Beach westward to Military Trail. The first step is a comprehensive citywide needs assessment. The final plan is slated for release in November of 2022.

The purpose of the citywide Bicycle and Pedestrian Master Plan is to create a collaborative and inclusive planning process for the development of multi-modal infrastructure that reflects the needs and desires of the community. An overarching project goal is to integrate bicycle and pedestrian modes as part of the City's overall mobility strategy.

There are several goals common to both the Bicycle and Pedestrian Master Plan and this Parking Master Plan:

- The need to make non-automotive modes as convenient as (if not more than) traveling in a single occupancy vehicle in order to lower parking demand
- The need for affordable and convenient employee travel options
- The need for micromobility parking and electric charging stations
- A focus on comfort and safety for pedestrians and cyclists
- A connected network in and around the Central Business District

Increasingly, transportation planners are examining networks rather than isolated segments or corridors. While the focus of the Parking and Curbside Master Plan focuses on Atlantic Avenue and its side streets, building out the cycling network has the potential to expand the bike-shed and further reduce the need for automobile parking.



Problems a Cycling and Pedestrian Network Can Address

- Poor non-automobile travel options to access downtown (and therefore increased parking demand)
- Inconvenient pedestrian and cycling connections
- Inefficient use of parking and roadway space that could be addresses with more space efficient travel modes



Target Actions

- Upgrade mobility infrastructure for cyclists and pedestrians
- Improve wayfinding

Mobility Infrastructure

CYCLING AND PEDESTRIAN NETWORK RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Coordinate with the Delray Beach Bicycle and Pedestrian Master Plan	Early coordination on list of pedestrians, bike and micromobility recommendations	<p>Pros: This coordination will add support to recommendations on multi-modal parking and Complete Streets</p> <p>Considerations: Look for recommendations that appear in both plans</p>	<p>Initial Cost: Time for consultation and coordination (\$)</p>
<p>2. Conduct a walk and wayfinding audit in and around target periphery facilities to identify priorities and associated metrics</p> <p>If and where the walk and wayfinding audit identifies gaps, convene stakeholders to discuss priorities for improvements to signage and infrastructure gaps</p>	<p>Development of audit tools</p> <p>Number of stakeholders involved in walk audit</p>	<p>Pros: Provides a detailed, qualitative and quantitative report on infrastructure; can be used as a public involvement event</p> <p>Considerations: There may be requests to extend the audit to other parts of the city; examine walk and roll (wheelchairs, strollers), parking and linkages; Coordinate with the City's wayfinding update</p>	<p>Initial Costs: Development of audit sheets (can be done in conjunction with the Bicycle and Pedestrian Master Plan); staff time for conducting the walk audit (\$)</p>
3. Monitor pedestrian safety metrics (e.g., near misses, collisions in vicinity of periphery parking). Continue monitoring	<p>Number of incidents involving pedestrians in downtown</p> <p>Number of near misses</p>	<p>Pros: Establish pedestrian safety as a top performance objective</p> <p>Considerations: Measuring near misses can be difficult. Would need to determine responsible Department (e.g., police, DDA)</p>	<p>Initial Costs: Establishing pedestrian safety monitoring program, pedestrian counters</p> <p>On-going Costs: Data collection and analysis (\$)</p>

B. Alleys

Alleys and some designated on-street spaces along East Atlantic Avenue are currently reserved for delivery services such as Delivery Dudes and Uber Eats. According to surveys, delivery service providers prefer alleys and short-term parking spaces located in high activity areas along Atlantic Avenue.

These on-street spaces allow 5-minute parking for delivery services. Based on observations made during occupancy counts, short-term loading activity from food delivery and other services was high. It is suggested that alleys and on-street spaces along East Atlantic Avenue continue to be used for short-term parking for delivery services.



Problems Alley Improvements Can Address

- Delivery-related congestion on Atlantic Avenue
- Increase efficiency of delivery order processing
- Lay the groundwork for digital infrastructure for curbside and parking management



Target Actions

- Maintain and improve alleyway functions

Mobility Infrastructure

ALLEYS RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Continue to use alleys and on-street short term parking spaces to facilitate food deliveries; monitor activity to assess when additional management or design measures are needed	<p>Parking/loading enforcement citations in alleys</p> <p>Number or percent of deliveries that are processed in alleys (can be obtained through delivery driver)</p>	<p>Pros: Facilitate delivery fulfillment off Atlantic Avenue; Provide delivery services options in meeting order fulfillment needs</p> <p>Considerations: There is growing competition for space (current competition and pressure to convert alley spaces to other uses)</p>	<p>Initial Cost: Monitoring costs</p>
2. Launch a Pilot to digitally map and collect data on blocks with high parking demand and activity (alleys, curbsides) (also in Curbside Management)	<p>Pilot metrics can include:</p> <p>Number of parking, curbside, and alley activities quantified Program metrics can include: percent of parking and curbside digitized; number and location of parking & loading congestion hotspots addressed; number of new or revised policies and/or operating improvements undertaken based on the program's data and analysis</p>	<p>Pros: Some technology companies underwrite the costs of a pilot; Data can also be used to support economic development and traffic management processes</p> <p>Considerations: Need to have vendors agree to install cameras to collect data and operate the program</p>	<p>Initial Costs: Depends on vendor, but at minimum includes staff time for initiating and developing a pilot project for digital mapping (\$)</p> <p>On-going Costs: If pilot is successful, then costs of developing a program, data management, data integration, and training (\$\$)</p>

C. Sidewalks

The primary purpose of sidewalks is pedestrian movement. However, during peak periods, pedestrian passage can be impeded due to on-street dining, signage, street furniture, utilities, and high pedestrian activity. In response, cities are finding ways to accommodate the variety of uses with simple design solutions. One such approach, the pedlet, is a relocation of the pedestrian walkway from the sidewalk to on-street parking spaces, typically using separators. This allows for expanded outdoor dining and retail uses on the sidewalk while retaining safe pedestrian passageways.

In 2019, the City updated the ordinance governing sidewalk cafes, specifying permit and design requirements. (Article 6.3). In December of 2020, the City instituted [rules allowing temporary outdoor uses to help businesses](#) remain operational during COVID. The temporary permitting program, which was expanded past the original May 2021 expiration date, also allows retail establishments to set up outdoor displays. Expanded outdoor dining is [popular with restaurants](#) who can increase their dining capacity and potentially the success of their business.

COVID helped reveal the comparative cost of expanded outdoor dining versus parking. The hypothetical example below shows the potential revenue of street parking at \$1.50 per hour compared to three, 4-seat dining tables. There is a tradeoff in this example, since Delray Beach collects the parking revenues, but the state and Palm Beach County collect the meals sales tax, a portion of which is remitted back to Delray Beach.

It is suggested that the sidewalk along East Atlantic Avenue between NE 2nd Avenue and the railroad tracks is extended on one or both sides of the street by reallocating on-street parking spaces. The extension of the sidewalks could initially be implemented as a pilot program during peak periods using interlocking metal blockades, as shown in Image 18. This would create safer and more comfortable walking conditions for pedestrians and can be readily moved when other uses take precedence. Extending the sidewalks along Atlantic Avenue will also allow for the implementation of more outdoor dining areas.

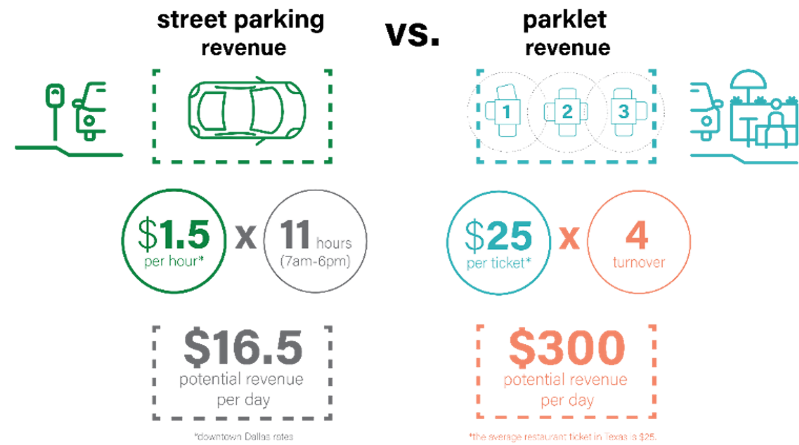


Image 17: Comparison of revenue between on-street parking and parklet

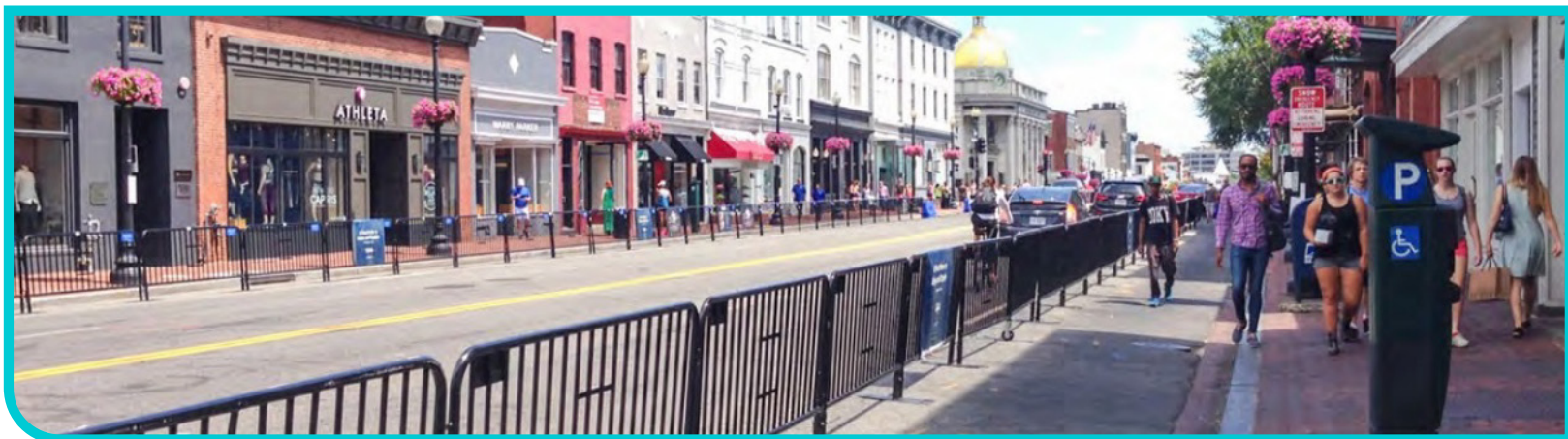


Image 18: A pedlet deployed during weekends along Georgetown's M Street N.W. in Washington, D.C.



Problems Sidewalk Improvements Can Address

- Observed and reported sidewalk safety issues
- Competition for space among uses and users
- Unoptimized economic activity related to sidewalk space



Target Actions

- Document sidewalk congestion and safety issues in the downtown core and sidewalks linking the downtown core with periphery parking
- Pilot a pedlet extension on East Atlantic Avenue between NE 2nd Avenue and the railroad tracks

Mobility Infrastructure

SIDEWALKS RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Document sidewalk issues and fold into updates for downtown design standards to address the City's outdoor dining regulations, sidewalk clutter, congestion points, curbside management, and safety	List of top issues and assign metrics	<p>Pros: Opportunity to update older standards that did not incorporate growing competition for sidewalk and curb space</p> <p>Considerations: References are scattered among numerous documents</p>	<p>Initial Costs: Staff time to conduct sidewalk assessments, review documents; resources to conduct analysis and develop new designs and policies. (\$-\$\$)</p>
2. Create a pedlet pilot to test expanded sidewalk space on Atlantic Avenue between NE 2nd Avenue and the railroad tracks	<p>For existing conditions, measure the following through field observations;</p> <p>Number of pedestrians forced to walk in traffic (on Atlantic Ave between NE 2nd Avenue and the railroad tracks)</p> <p>Length and location of sidewalk clear space < 3 feet</p> <p>Survey results: need, safety issues, concerns over converting parking</p>	<p>Pros: Would relieve pedestrian congestion and address safety issues with pedestrians being forced to walk in the street</p> <p>Considerations: Would require displacement of parking spaces and possibly valet/delivery space. Some of the space pressure is from dining tables intruding into the sidewalk and violating ADA requirements. Stakeholders need to determine who owns and maintains the pedlet, and if modular, who has the responsibility of storing, setting up and breaking down equipment</p>	<p>On-going Costs: The City will need to obtain liability insurance (between \$500K and \$1M)</p>



Image 19: The Miami-based company Reef Technologies is piloting services in urban areas for both food and package delivery (Reef Technologies)



Image 20: Uber and Lyft Pick up/Drop Off Locations

D. Side Streets

One of the best ways to manage traffic and congestion on Atlantic Avenue is the strategic use of side streets. Delray Beach has successfully moved ridehailing activity (e.g., Uber and Lyft) off Atlantic Avenue, particularly during peak hours of bar and restaurant activity. Relocating other uses such as deliveries can further enhance the safety and convenience to support Atlantic Avenue's primary role as a place for people.

Using side streets can also facilitate efficient deliveries. In Seattle, [researchers found cruising for parking by delivery drivers accounted for 28% of total trip time](#). One of the most powerful policies to reduce circling in search of parking is establishing designated drop off areas. However, mapping applications (e.g., Google maps) typically send drivers to locations directly on Atlantic Avenue. As such, signage would be essential for redirecting large delivery vehicles to side streets.

Smaller Food Deliveries: Through interviews, food delivery personnel provided information on how their business is affected by current, and potential, policy changes. Speed is paramount for delivery personnel to meet customer expectations on delivery time and freshness. In interviews with Delivery Dudes personnel, drivers listed several key points about time and access:

- Delivery personnel prefer quick parking spots that are out of the way of other drivers and pedestrians. As such, pick-up spaces on Atlantic Avenue may not be the most preferential given the competition for space.
- During COVID, Delivery Dudes used the City-designated pick-up spots and negotiated for space from valet stands. These strategies worked well for them.
- Alleyways are preferred, except during lunch hours when food and business delivery trucks make their rounds in alleyways.
- The average time when occupying the curb is seven minutes per order.
- Delivery companies are working with restaurants to reduce the amount of time parked, including deploying centralized lockers for pickup and faster credit card transactions.
- Delivery Dudes uses a traditional dispatch system while larger firms (e.g. Uber Eats) use algorithms.



Image 21: Autonomous grocery delivery vehicle (Nuro)

Technology companies are developing notification systems to guide drivers (deliveries and pick-up) to the closest open parking space. Cities are monitoring pilots involving autonomous delivery vehicles such as produced by Starship and Nuro.

Large Commercial Deliveries: Atlantic Avenue shops, restaurants, and businesses host a constant flow of deliveries and service calls. As noted above, commercial delivery firms report that navigation apps (e.g., Waze) tend to direct them to Atlantic Avenue. Delivery loading spaces will also need to be located in consideration of access to ramps and absence of clutter to reach delivery entrances.



Problems Mobility Infrastructure Can Address

- Unsafe conditions facing pedestrians and drivers of various modes of transportation
- Reduced numbers of travelers opting for low impact modes due to inadequate and unsafe infrastructure
- Inconvenient and/or inadequate routing options for low impact travel modes
- Congestion on Atlantic Ave with better use of side streets and alleys



Target Actions

- Expand non-auto modes (transit, microtransit, micromobility, walking)
- Upgrade mobility infrastructure
- Improve wayfinding directing deliveries to side streets

Mobility Infrastructure

SIDE STREETS RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Conduct a walk and sign audit in and around side streets to document signage and infrastructure	Walk and sign audit results	<p>Pros: Reduced congestion and traffic on Atlantic Avenue; Improved use of side streets</p> <p>Considerations: The potential that increased activity would begin to cause side street congestion; There are on-going discussions on wayfinding in Delray Beach – will need to integrate this recommendation into those efforts</p>	<p>Initial Costs: Walk and sign audit; new signage; outreach to delivery companies and establishments (\$)</p>
2. Reallocate parking to provide space for micromobility, loading, delivery, and pick-up/drop-off zones (may be conducted as a pilot project and may or may not be located on Atlantic Avenue) (Also presented for on-street parking)	<p>Percent occupancy of micromobility (bike, scooter, moped) parking facilities</p> <p>Congestion on block face with micromobility spaces</p>	<p>Pros: Higher curb productivity by variety of users; loss of some parking revenue</p> <p>Considerations: Complaints from competing curbside users</p>	<p>Initial Costs: If designing a pilot, resources for plans and permits; stakeholder outreach (\$-\$\$)</p> <p>On-going Costs: Monitoring and reporting; maintenance and cleaning (\$)</p>
3. Expand existing commercial vehicle restrictions: Increase fines for unlawful loading/unloading Ban deliveries during peak hours Set aside spaces/times for larger trucks Ban larger trucks altogether Require side street/alley deliveries	<p>Number of delivery-related curbside and parking violations</p> <p>Curbside congestion metrics (field observations)</p>	<p>Pros: Addresses truck congestion and double parking on Atlantic Ave.</p> <p>Considerations: Note most navigational apps (e.g. Waze) send delivery drivers to Atlantic Ave.</p>	<p>Initial Costs: Costs related to expanding existing commercial vehicle restrictions; Signage diverting delivery trucks to side streets</p> <p>On-going Costs: Enforcement</p>
4. Add signage diverting delivery trucks to side streets	Before and after truck congestion on Atlantic Avenue	<p>Pros: Directs delivery drivers to side streets</p> <p>Considerations: May contribute to sign clutter; may not be effective to counter navigational app directions</p>	<p>Initial Cost: Signage (\$)</p> <p>On-going Costs: Enforcement (\$)</p>
5. Incorporate pick-up/drop-off points into the wayfinding plan to effectively communicate designated areas to drivers and passengers	Inclusion of pick-up/drop-off locations in wayfinding plan	<p>Pros: Coordinated wayfinding</p> <p>Considerations: None</p>	<p>Initial Cost: staff coordination (\$)</p>

Technology Highlights

Delivery Reservation Pilot

Washington, D.C. is working on a delivery parking reservation system with the company Curbflow. During a three-month pilot in 2019, the reservation system reduced double parking by 64%. In 2020, the company expanded services with a focus on deliveries during COVID.

Reservation systems could also be more effective in managing parking along side streets as well as Atlantic Avenue. In Seattle, researchers conducted a study on the City's commercial and passenger loading zone pilot program. They found that both commercial (delivery and service) and passenger (Uber and Lyft) vehicles used designated commercial and passenger activity zones interchangeably.

It's also worth noting that service vehicles, such as those used by repair and maintenance companies, are also in the parking mix. While the study showed that most delivery vehicles were parked for 30 minutes or less, service vehicle drivers require a wide range of parking times. A service vehicle may need to park proximate to a business to access parts and tools, and the parking duration can depend on the extent of repairs.

ParkMobile, which is used in Delray Beach, is planning to add reservations systems to its mobile app. This could become a readily available option for a curb reservation system downtown.

Curb Mapping

Several companies are creating mapping standards for mapping curbside assets. This activity, which can cover an entire district or be directed to priority blocks, creates a digital inventory of assets along curbsides and on sidewalks. The non-profit organization CurbLR is creating an open-source data standard for recording curb and sidewalk assets. The aim is to provide a common language for mapping, data collection, and analysis so that government agencies, software developers, planners, and transportation services can build interoperable applications.

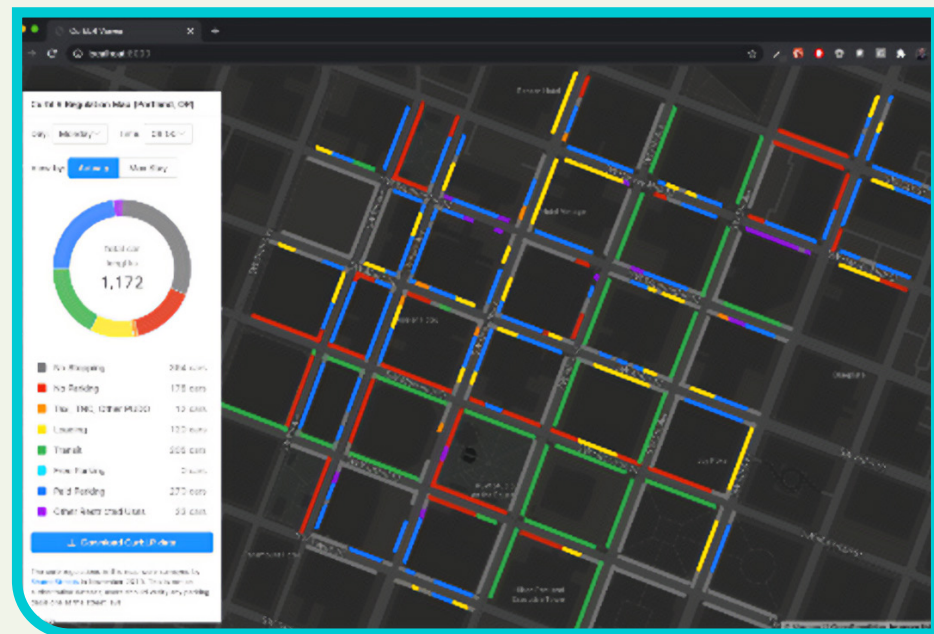


Image 22: Example of curb mapping technology (Coord)

E. Vehicle Charging Infrastructure

Until recently, electric charging facilities in Delray Beach have been installed incrementally in public and private facilities. Public parking garages housed some of the first public charging kiosks and will likely be targeted for additional capacity. A full assessment of electric charging is outside the scope of this plan, however there are several parking and curbside-related topics:

- Placing on-street charging stations in high traffic areas is not recommended given the space needed for charging equipment.
- The increased use of electric microtransit will require convenient recharging space. The Freebee currently uses space on the third floor of the IPIC facility, but may need additional, distributed facilities if the service area grows as recommended in this plan.
- Safe parking and recharging for micromobility (e-bikes, mopeds, e-skateboards) is a growing need.
- The City Zoning Code should require new parking facilities to provide charging stations or the necessary electrical infrastructure (EV ready) for at least 10% of the spaces.

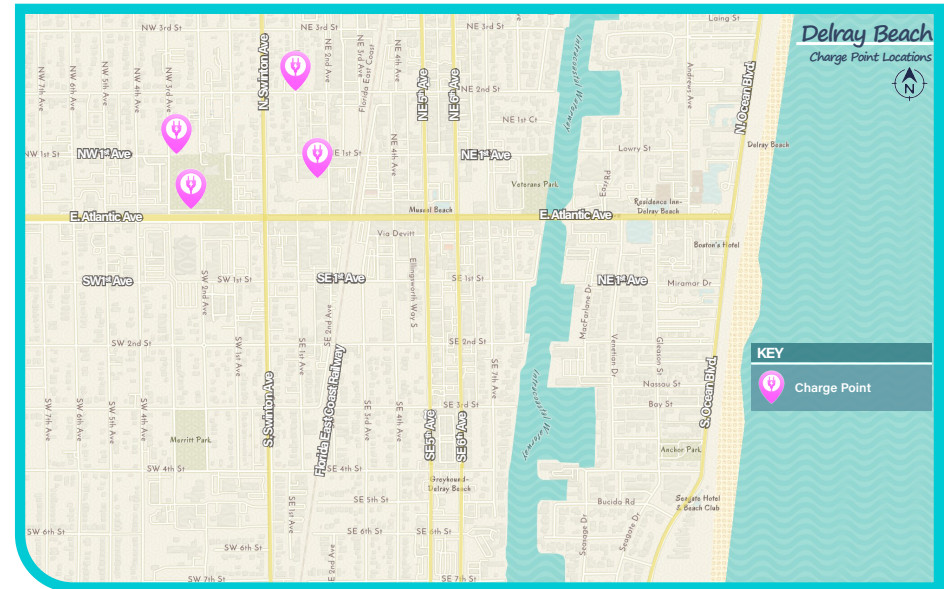


Image 23: Map of Public Charging Stations



Image 24: Microtransit recharging facilities housed in the IPIC garage



Problems Electric Vehicle Charging Infrastructure Can Address

- Lack of safe and convenient recharging infrastructure for vehicles (including scooters and bicycles)
- The difficulty in providing vehicle charging in multi-family residential developments
- Meeting the expected and rapid rise in electric vehicle adoption



Target Actions

- Develop a citywide Electric Charging Plan

Mobility Infrastructure

VEHICLE CHARGING INFRASTRUCTURE RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Develop a plan, policies, and preferred locations for provision of electric vehicle charging for public fleets and in buildings via the zoning code	Number of publicly available electric charging stations in downtown district (public and privately supplied) and locations	<p>Pros: Growing demand for electric vehicles and locations for charging; having a plan can better position the City for grants</p> <p>Considerations: Electric charging plans are relatively</p>	Initial Costs: Plan development (\$)



Multi-Use Space

Historically, streets have been considered a fixed asset with firmly established uses and regulations. Those uses have traditionally focused on the movement and storage of automobiles. As entertainment districts like the Delray Beach's Central Business District have grown and evolved, this paradigm has shifted, with greater emphasis on places for people. More recently, the popularity of outdoor activity space for dining and recreation spurred by COVID-19 continues, with calls for permanent expansion. Technology is another factor affecting how cities view the role of streets. Mobility and smart city entrepreneurs continue to produce new vehicle types, hardware, and software that translate into increased competition for curb space.

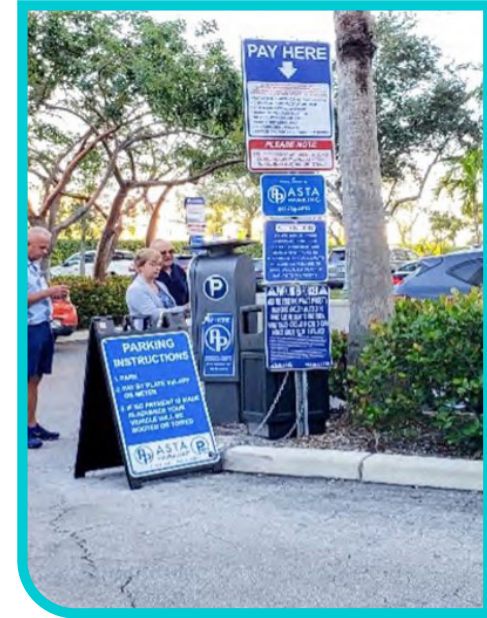
As pressure on street and sidewalk space has grown, cities are seeking new approaches to optimizing a district's highest and best uses while also balancing flows of people and goods. To meet the growing list of needs, cities are transitioning fixed infrastructure into flexible assets. This allows for multi-use spaces that host multiple uses over the course of the day.

In considering parking a multi-use asset, planners have developed two new variations of transportation and infrastructure planning: curbside management and programmable streets.

A. Curbside Management

An efficient curbside management plan for Atlantic Avenue is necessary to ensure that all users are being effectively supported, while reducing conflict points, confusion, and improving safety. The curb space along Atlantic Avenue currently supports parking, valet operations, deliveries, parking for an array of vehicle types, and ridesharing pick-up/drop-off activity. During several meetings and workshops, stakeholders raised common problems related to the utilization of curb space, which led to a discussion of how the curb should be managed within the district.

When thinking about curbside management, it is essential to consider a hierarchy of users and uses by time of day and year. The recommended allocation of curb space along Atlantic Avenue is not static and should be adjusted based on needs and the highest and best use of the space.



Freight Loading or Unloading Permit

Orlando requires freight operators in the downtown areas to obtain permits. The requirement applies to operators with vehicles that have a gross weight of 5,000 pounds or more or vehicle widths exceeding 80 inches. Annual permits (valid October 1 to September 30) cost \$74.55 plus tax for the first vehicle and \$31.95 for each additional vehicle. A permit covers a 30-minute window to load or unload deliveries and must take place in designated loading areas.

<https://www.orlando.gov/Parking-Transportation/Parking/Freight-Loading-and-Unloading-Permit>



Problems Curbside Management Can Address

- Congestion at the curbside from a variety of users (loading, pick-up/drop-off, valet, etc.)
- The complexities in shifting revenue from hourly on-street parking to rates that match other curbside activities (e.g., micropayments that recognize short delivery parking)



Target Actions

- Determine strategies for deliveries and loading
- Launch a “digital curb” pilot to assess new technologies for curb management

Multi-Use Space

CURBSIDE MANAGEMENT RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Launch a pilot to digitally map and collect data on blocks with high parking demand and activity (alleys, curbsides) (also in Mobility Infrastructure)	Pilot metrics can include: Number of parking and curbside activities quantified Number of new and revised policies/operating improvements undertaken based on pilot data and analysis Program metrics can include: percent of parking and curbside digitized; number and location of parking & loading congestion hotspots addressed Number of new or revised policies and/or operating improvements undertaken based on the program's data and analysis	Pros: Some technology companies underwrite the costs of a pilot; data can also be used to support economic development and traffic management processes Considerations: Depending on the method of data collection, may need to secure agreements to install cameras to collect data and operate the program	Initial Costs: Depends on vendor, but at minimum includes staff time for initiating and developing a pilot project for digital mapping (\$) On-going Costs: If pilot is successful, then costs of developing a program, data management, data integration, and training (\$\$)
2. Direct trucks to side streets and/or increase fines (or alternatively ban trucks altogether)	Number of citations for commercial loading violations	Pros: Eliminate congestion and traffic blockage due to large trucks Considerations: Reaction from delivery companies and drivers; an immediate ban would not give time for transition	Initial Costs: Signage, enforcement (\$)
3. Create and/or incorporate a sidewalk/curb committee within the Delray Beach Parking Management Advisory Board (PMAB) to meet regularly and review curb/sidewalk conditions, policy, and management	Incorporation of sidewalk/curb activity into new or expanded PMAB committee	Pros: Eliminate congestion and traffic blockage due to large trucks Considerations: Reaction from delivery companies and drivers; an immediate ban would not give time for transition	Initial Costs: Signage, enforcement (\$)
4. Install variable message signs for curbside use assignment	Pilot to initiate new signage	Pros: Would allow flexible curbside uses Considerations: Relatively few designs to choose from; would need to consult business owners and users to develop curb assignments and hours	Initial Costs: Initiation of a pilot and hardware/software costs On-going Costs: If adopted, the need to manage display information, resolve disputes, and maintain the system
5. Investigate a truck delivery reservation system similar to Washington, D.C. If desired, find products to build own system	Inclusion of pick-up/drop-off locations in wayfinding plan	Pros: Washington, D.C. has had luck in reducing commercial delivery-related congestion Considerations: New technology; feedback from delivery companies unaccustomed to scheduling deliveries	Initial Costs: Depends on whether vendors will provide hardware and reservation system for the pilot On-going Costs: Likely subscription model, enforcement

B. Programmable Street Initiatives and Modular Infrastructure

In the past, traffic management has been limited to signage and signals. The methods to regulate multiple uses within rights of way has been largely through signage and event permitting. Flexibility is limited to the number of signs that can be posted on a signage pole, which can lead to sign clutter and confusion.

The rising interest in reassigning streets, curbs, and sidewalks to other community and economic enhancing uses has resulted in new planning activities to quickly and affordably transform streets through “tactical urbanism” techniques. Using low-cost materials and paint, cities can create parklets and bike lanes. Companies are now producing modular equipment for more durable and attractive options.

Delray Beach already programs Atlantic Avenue for the many events and festivals held throughout the year. As such, the idea of using Atlantic Avenue for multiple uses is not new. What is new are the technologies and innovations in infrastructure and equipment that allow the city to manage Atlantic Avenue in real time for multiple uses and users.

Programming streets, curbs, and sidewalks can occur in three main ways:

Physically: Physical programming takes place with modular, movable infrastructure. Companies such as Dero and DeziLine offer modular bicycle infrastructure and parklets. DeziLine’s SteelGreen planters are forklift-ready and can be used as flexible bike lane or space separators. According to the company, planters are \$1,500-\$2,100 depending on the quantity ordered.

West Palm Beach uses retractable bollards to assign uses to on-street spaces based on local programming. The spaces are used for an antique market on weekends or to temporarily block parking for public use.

Digitally: Digital programming refers to using technology to manage streets, curbs, sidewalks, and parking in real time and can come in several forms.

Cities are digitizing curbs as the basis for management systems. This can be done through working with technology companies, or by building a system in-house. The first step is digitized asset mapping that gives every feature its own reference code. Next, a municipality needs to establish a data strategy that begins by answering the question: what do we need to measure and manage? This will drive decisions addressing management needs, vendor selection, metrics, data collection methods, technologies, and analytics. The practice of curbside management is relatively new, so many cities begin with a pilot program on a small scale.

The rise in smart city technology, combined with digital signage, increases the potential for new traffic signalization that adjusts in real time. Information from several digital feeds can be posted to dynamically adjust speed limits, right turn on red, lane assignments, parking directions, rerouting for construction, transit priority, and to provide wayfinding instructions. The image below from Cincinnati, Ohio shows how mast arm signage can replace street signs, thereby reducing clutter. Digital signs can also be mounted on poles, or on mobile units that can be used for events, construction, or other traffic management needs. The industry continues to experiment with new designs.



Image 25: DeziLine’s SteelGreen planters

Data Analytics for Parking: Occupancy

While sensors and cameras work well in garages, collecting occupancy data in surface lots is more difficult. The hardware is more exposed to the elements, which can cause electrical, mechanical, and physical damage. Fortunately, software companies are finding ways to replace sensors with collected data to report occupancy. A parking manager can combine LPR data and AI to discern parking patterns and the likelihood open spaces will be available. This information can be fed into digital maps and navigation/parking apps to show the likelihood parking is available.

This translates into two types of parking communications. Where there is an intricate network of sensors, signage and apps can show information on the precise location of open spaces. A second model using less equipment can relay approximate information. For example, a parking app may tell a driver there is a 90% chance of open spaces in a lot based on historic patterns. While some drivers prefer directions to an open parking space, others will be satisfied if they know there is likely to be parking in an approximate area.



Image 24: Microtransit recharging facilities housed in the IPIC garage

Financial Programming: Pricing is among the strongest methods for managing parking and curbside space in downtowns and entertainment districts. Price-setting is a delicate balance; setting a rate too low or too high can thwart a parking manager's ability to meet performance targets for optimizing parking for the various user types (e.g., employees, delivery drivers, visitors).

As such, cities are turning to technology to easily set variable rates. The City's main vendor, ParkMobile, is launching new tools to test and implement new rate structures. The data intelligence firm Smarking uses artificial intelligence to predict parking patterns.

The curbside technology company Coord is working with cities to develop dynamic curbside pricing programs through Smart Zone pilots. West Palm Beach was chosen as one of the cohort cities for the 2020 curbside management pilots. Even if Delray Beach uses another system, the early results of these pilots can inform a future program in Delray Beach. (www.coord.com/digital-curb-challenge). Another company, Curbflow, also provides technology to assess curb demand. They use computer vision models to define traffic and work with first-floor tenants to install cameras. www.curbflow.com/curbmap



Problems Programmable Streets Can Address

- Need for more tools to manage traffic issues (congestion, left-hand turns, queuing)
- Low curb and street productivity
- Inefficiencies related to managing streets and curb spaces as fixed and static assets



Target Actions

- Continue practices adopted during COVID into the future for multi-use street space
- Lay the groundwork for technology investments for programming parking facilities, curbs, and streets

Multi-Use Space

PROGRAMMABLE STREET INITIATIVES & MODULAR INFRASTRUCTURE RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Launch a Pilot to digitally map and collect data on blocks with high parking demand and activity (alleys, curbsides). (Also included under Curbside Management)	Pilot metrics can include: number of parking, curbside, and alley activities quantified Program metrics can include: percent of parking and curbside digitized; number and location of parking & loading congestion hotspots addressed; number of new or revised policies and/or operating improvements undertaken based on the program's data and analysis	Pros: Some technology companies underwrite the costs of a pilot; Data can also be used to support economic development and traffic management processes Considerations: Need to have vendors agree to install cameras to collect data and operate the program	Initial Costs: Depends on vendor, but at minimum includes staff time for initiating and developing a pilot project for digital mapping (\$) On-going Costs: If pilot is successful, then costs of developing a program, data management, data integration, and training (\$\$)
2. Install variable message signs for curbside use assignment and payments for all users (if pilot presented in previous section a success)	Number of blocks with variable message signs	Pros: Higher curb productivity Considerations: Resources needed for an actively managed curb program	Initial and On-going Costs: Depends on number of signs/blocks with variable messaging; costs associated with administration and data analytics (\$\$\$)
3. Create new zones in the ParkMobile app with rates calibrated to demand (Also included in On-Street Parking) Note this could also include an Entertainment Zone district encompassing the area with the highest consistent demand for street/curb space	On-street occupancy greater than or less than 85%	Pros: City already pursuing new zones; pricing is programmed to match supply & demand Considerations: Driver pushback	Initial Costs: Determining zones & rates; public outreach (\$-\$\$) On-going Costs: Interaction with ParkMobile (\$)
4. Investigate use of modular infrastructure for the pedestrian/ bicycle and pedlet recommendations.(Also included under Sidewalks)	Cost of modular infrastructure versus conventional engineered design for bike lanes, restricting parking spaces, intersection improvements. Number of reconfigurations Bicycle and pedestrian traffic	Pros: Modular infrastructure can be used to test new configurations; modular infrastructure is a durable intermediate step towards a robust pedestrian and bicycle network; modular infrastructure can be easily moved to allow constant reprogramming Considerations: Assigning who is responsible for storing, moving, and operating modular infrastructure	Initial Costs: According to manufacturers, modular options cost between \$10,000-\$35,000 depending on size and number of units. This does not include planning and permitting
5. Set aside right of way for vehicles with six or more wheels for 30 minutes or less (can be restricted by time of day)	Number of locations with large truck delivery-related congestion and/or safety issues	Pros: Better regulation of large truck deliveries Considerations: Many delivery drivers use Waze, which may not show the new locations set aside for 30-minute truck delivery	Initial Costs: Signage, stakeholder outreach On-going Costs: Enforcement



Legibility, Signage, & Wayfinding

Legibility refers to the ability to read and easily navigate space. For parking, legibility refers to an intuitive process for the end-to-end steps for parking: search, navigation, space selection, and payment. Improved information and wayfinding can reduce driver confusion and frustration, enhance revenue collection, and streamline enforcement. For pedestrians, wayfinding helps find the most direct routes and maps showing common destinations. This section includes information for improved legibility, signage, and wayfinding.

In the Parking Master Plan, improved legibility arises from three main factors: current signage, urban design, and technology (existing and emerging).

A. Current Signage & Communications

Delray Beach is planning to launch a new wayfinding initiative to update and coordinate signs and maps. The current wayfinding system has several shortcomings:

- There are several sign styles in the Downtown district and confusion when there are multiple (sometimes contradictory) instructions
- The valet signage is not uniform and the sandwich signs clutter sidewalks (and may not meet the sign code)
- There needs to be differentiation between public lots and private lots. Drivers who are towed or get ticketed in private lots often contact the City
- The by-pass sign at the intersection of Swinton and Atlantic Avenues is too small to be effective
- Delivery drivers use navigation apps that direct them to congested areas of Atlantic Avenue rather than side streets
- Routes to and from periphery parking lack adequate wayfinding signage

B. Left Turns

Left turns pose a challenge for traffic flow. Eastbound traffic on West Atlantic Avenue is currently not permitted to turn left onto NE 3rd Avenue due to queuing backing onto the railroad tracks. However, prohibiting left turns also limits access to the Railroad Lot, which is located on NE 3rd Avenue. To regulate left turns from Atlantic Avenue (eastbound), there are two options:

1. **Restrict left turns during peak hours:** It is suggested that eastbound vehicles are restricted from turning left during peak traffic periods at the intersection of East Atlantic Avenue and NE 2nd Avenue. This will force drivers to instead use Swinton Avenue to access the Old School Square Garage and reduce traffic on Atlantic Avenue. This would require the installation of signage and enforcement. A traffic control enforcement camera could also be implemented to help prevent left turns.
2. **New traffic signal:** Another option that would help reduce the backup of traffic on West Atlantic Avenue is implementing a left turn signal with a protected phase to allow traffic to turn north easily and safely on NE 2nd Avenue towards the Old School Square Garage in case they miss the turn at Swinton Avenue. Pedestrian cross signals should be coordinated with the left turn arrow across NE 2nd Avenue, to help reduce vehicle-pedestrian conflicts. This improvement would reduce the traffic backup to the west on Atlantic Avenue and vehicle-pedestrian conflicts but would not decrease traffic on Atlantic Avenue. The major issue with this recommendation is that the signal would need to be upgraded to meet current FDOT standards and it does not appear that there is the available space to allow this type of traffic signal improvement given the geometrics of the intersection. Additional analysis would be needed to assess the viability of this improvement.



Image 27: The City of Virginia Beach, Virginia uses the City logo to denote public, as opposed to private, parking (City of Virginia Beach, Virginia)



Image 28: Boulder Colorado uses a sectional sign design to display several types of parking information (City of Boulder Colorado)



Problems Coordinated Signage Actions Can Address

- Confusing collection of downtown sign and wayfinding assets
- Higher costs due to uncoordinated sign procurement
- Stalled integration of digital signage into the overall wayfinding, traffic, and technology plans within Delray Beach
- Poor user experience (public versus private parking lots, consolidated information, streamlined signage and digital communications)



Target Actions

- Coordination among City departments addressing wayfinding and signage to streamline wayfinding, communications, and signage
- Digital strategy for wayfinding

Legibility, Signage, & Wayfinding

CURRENT SIGNAGE & COMMUNICATIONS RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Integrate parking recommendations into wayfinding effort, including a digital sign strategy, (variable message signs, potential for information kiosks, communications with parking companies and mobile apps)	Number of parking sign recommendations incorporated into the wayfinding plan	Pros: Reduced costs and increased effectiveness of the wayfinding program Considerations: This Master Plan proposes increased use of digital signage and variable messaging not typically included in traditional sign plans and codes	Initial Costs: Time to develop and coordinate planning efforts (\$)
2. Within the wayfinding campaign, rebrand the parking sign for public lots with City logo or circle "P" parking sign	Before/after study results: number of complaints to the City regarding issues in private lots	Pros: Will help distinguish public lots from private lots Considerations: Need to ensure sign ideas are MUTCD compliant	Initial Costs: Time to research options for differentiating public and private lots (\$); replacement of parking lot signs (\$-\$)
3. Consolidate parking information onto one page (DDA redirect to City's parking page)	Before and after study results: number of website visits to parking page(s)	Pros: Reduces confusion of having two parking pages Considerations: Successful parking is integral to both parties' missions	Initial Costs: Time to convene both parties and determine how to integrate and maintain content (\$)
4. Conduct a traffic/feasibility study for new signage or signal for no left turns at West Atlantic Avenue and 2nd NE Avenue during peak traffic and pedestrian activity periods. (also included in Traffic Management section)	Congestion metrics number of cars waiting through >1 light cycle; number of left-turn crashes; number of near misses (pedestrians)	Pros: Reduced congestion related to left hand turns for cars cruising for parking Considerations: The signalized option for this intersection would require an investment in new mast arms	Initial Cost: Traffic and feasibility study
5. Based on the study results, implement new signage for restricting left hand turns onto NE 2nd Avenue from East Atlantic Avenue and possibly a traffic enforcement camera that monitors vehicles turning left and/or running a red light	Results of the traffic and feasibility study	Pros: Ability to address a congestion hotspot Consideration: Proposal was considered and not adopted in 2015	Initial Cost: If pole-mounted sign does not reduce left hand turns, then conduct preliminary engineering studies to upgrade mast arms for a signalized "No left turn" (\$\$) If cost-benefit analysis shows need for mast-arm mounted signal, then install upgraded mast arms for a signalized "No left turn" (\$\$\$)
6. Lay the groundwork for digital signage and wayfinding within the wayfinding plan	Initial policies	Pros: Given technology's growing role in traffic and parking management, cities need to proactively anticipate and address policy Considerations: The pace of innovation makes it difficult to precisely characterize policy and investment needs	Initial Cost: Resources needed to develop initial policies and plans (\$)
7. Final policies and design guidelines for digital wayfinding (e.g., signs, augmented & virtual reality, data standards)	Final policies	Pros: Plans and policies will help guide investment decisions. Adding design guidelines can align technology purchases with other design priorities. Considerations: Will need buy in across departments	Initial Cost: Final plan development (\$)

B. Urban Design

The urban design along Atlantic Avenue and immediate side streets is easy to navigate as it is a classic grid with short blocks. With respect to street network design, this Parking Master Plan expands treatment of Atlantic Avenue's functional boundaries, treating the Avenue less as a single street and more like a district. This is important because the popularity of Atlantic Avenue is spreading development demand to side streets, and in turn, the need for greater mobility and parking options. As such, this Plan includes upgrades to the urban form linking periphery parking to the downtown core.



Problems Urban Design Actions Can Address

- Unsafe linkages to and from new parking supply (periphery parking)
- The need to consider new mobility into infrastructure design and public parking facilities
- Poor traffic and pedestrian flows along Atlantic Avenue and the supporting network of side streets



Target Actions

- Improve landscaping, wayfinding, and infrastructure in areas linking periphery parking with the downtown core

In addition to recommendations presented under the Mobility Section, the following Urban Design improvements needed include:

Legibility, Signage, & Wayfinding

URBAN DESIGN RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Coordinate improvements with the Urban Core Mobility Concept Design (UCMCD) project	Information is coordinated within both plans	Pros: Reduces risk of contradictory recommendations between separate plans Considerations: Determine most viable recommendations	Initial Cost: Resources to compare and align the Parking and UCMCD plans
2. Upgrade lighting in and around periphery parking	Number of new lights Number of locations without adequate lighting (periphery parking and links to downtown)	Pros: Address safety concerns, particularly for late-night access to periphery parking Considerations: Align new lighting with lighting master plans and 2021 installation of LED lights	Initial Costs: Lighting planning and design (\$) Costs: Maintenance and operating costs(\$\$)
3. Install directional signs and maps	Number of new signs	Pros: Expanded signage to/from periphery garages; signage for mobility options Considerations: This may or may not be included in the on-going wayfinding effort (CRA-led)	Initial Costs: Planning (\$) On-going Costs: Depends on number of new signs and placement (\$-\$)
4. Landscaping that provides shading and lines of sight for safety to/from periphery and CBD parking and curb assets	From walk & sign audit, number of line-of-sight obstructions to/from parking and curb assets Survey results on perceived safety Gaps in shade/canopy	Pros: Increased safety and comfort related to periphery parking, which in turn reduces traffic and parking congestion in the CBD Considerations: Increased landscaping maintenance	Initial Costs: Mapping and surveys (\$) On-going Costs: Additional or replaced landscaping materials; maintenance (\$-\$-\$)
5. Create sidewalk networks to fill gaps, fix sidewalks in poor condition, and provide safety improvements at intersections. (Also included under Sidewalks)	Number of sidewalk network gaps (note- can be included in walk/sign audit) Number of intersections with safety concerns (e.g. near misses, crashes)	Pros: Enhanced pedestrian safety, convenience, and comfort Considerations: Competing project lists for infrastructure in other parts of the City	Initial Cost: Sidewalk gap analysis (\$);Capital improvements depending on extent of improvements in and around downtown (\$-\$)

C. Parking Availability and Dynamic Street Signage

One of the strongest methods for distributing parking demand is providing information to drivers early in their trip planning process. Advanced information on parking occupancy has the effect of reducing driver search time and increasing use of off-site or off-street facilities. The two main technologies available now are parking apps with information on availability and pricing, and digital signage.

The City currently has digital occupancy signs at the Old School Square Garage on the back side of the garage. This Parking Master Plan recommends a unified system for all public parking facilities that provides occupancy and availability information. Digital signage should be located to give drivers time to make or change decisions while driving and safely maneuver towards a chosen route (i.e., at locations leading to downtown). The location should be aligned with the chosen alternative in the Urban Core Mobility Concept Design (UCMCD) project. Ultimately the information would also feed into mobile apps, smart phone alerts, and through an automobile's in-dash screen.



Image 29: Examples of context-sensitive digital signage (Dysten)

Legibility, Signage, & Wayfinding

PARKING AVAILABILITY & DYNAMIC STREET SIGNAGE RECOMMENDATIONS	MONITORING METRICS	TRADEOFFS	COST FACTORS
1. Install occupancy counters at all garages	Number of occupancy counters installed Number of parking spaces without occupancy counting equipment	Pros: Real time occupancy counts for all public parking in lots and garages. Reduced cruising in search of parking, distributed parking demand Considerations: The counting technology would need to seamlessly integrate with real time parking maps and signage	Initial Cost: Depends on the type of real-time parking availability technology implemented between single-space sensors, cameras, loops, etc. (\$\$\$)
2. Install monument sign with displays outside each garage and lot (including occupancy/level)	Parking occupancy levels in facilities and traffic congestion on streets	Pros: Real time availability will help direct drivers to open spaces within garages or notify when parking is full Considerations: Cost for new signs and sensors	Initial Cost: Monument signs with level counts (between \$12,000 and \$20,000; the higher price reflects equipment needed to display availability by floor) On-going Costs: Personnel to manage and maintain signs and software (\$\$)
3. Install by-pass signage (variable messaging)	Congestion metrics between SW 2nd Avenue and West Atlantic Avenue Before and After: Parking occupancy in periphery parking Surveys: Driver feedback	Pros: Real time availability will help visitors with mode choice, or ability to drive directly to an open space; ability to combine commercial loading instructions Considerations: Cost; the need to ensure accurate information	Initial Costs: Signage software to aggregate parking availability for lots/garages (\$\$\$) On-going Costs: Personnel to manage and maintain signs and software (\$\$)
4. Create a real time parking application for the parking website and a mobile application (Assumes all lots and garages are collecting and transmitting occupancy data)	Number of views (web, app)	Pros: Extends real time parking availability to mobile phones Considerations: Many parking and navigation apps are beginning to provide same information; requires accurate information	Initial Costs: Integrating parking occupancy feeds into website; creation of mobile app (\$-\$) On-going Costs: Personnel to manage and maintain software and mobile app (\$\$)
5. Convene technology and parking stakeholders to develop a list of desired features and functionality for a networked parking availability system, a technology plan, and next steps	Completion: list of features, functionalities, technology plan	Pros: Coordination across departments; cost-effective list of technologies Considerations: Need to assemble a variety of departments	Initial Costs: Resources to develop a technology plan (\$)
6. Based on continuing enforcement controls, engage predictive analytics to forecast occupancy patterns for surface lots, traffic, & feed into real time parking map	Verification of LPR data collection process Driver feedback on utility of occupancy information on lots	Pros: Creates a system-wide information on parking occupancy Considerations: The City will need to develop its LPR or other monitoring system to collect continuous data on lot occupancy	Initial Costs: Research on systems and software costs On-going Costs: maintenance (hardware & software)

Section 4

Emerging Technologies



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Emerging Technologies

Additional smart city, mobility and vehicle technologies are on the horizon. While the exact timing and ramifications for traffic, mobility, and parking are unclear, it's reasonable to anticipate varying levels of impacts.

Robotic Garages

Also referred to as automated or mechanical garages, these systems reduce the amount of space per vehicle by eliminating drive aisles and ramps. Most systems use a racking system whereby a mechanical lift maneuvers a car in and out of a space. Most systems have a manual override or redundant systems in case of a mechanical or digital malfunction.

A robotic garage located on NE 3rd Avenue will begin service in late 2022. The facility is currently designed to hold 42 vehicles, though can add 30 more spaces in the future if needed. The construction cost per parking space is approximately \$20,000, though City regulations require an attendant to assist with parking and service disruptions, adding an additional operational cost. Requirements for robotic garages (or garages with mechanical lifts) are governed by Ordinance No.11-20 Section 3.

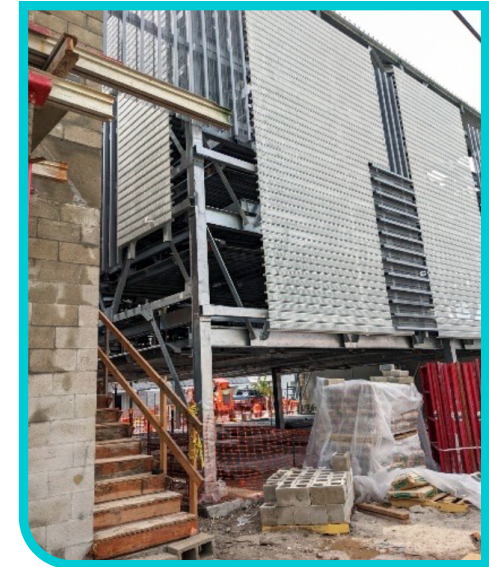


Image 30: Robotic garage under construction in Pineapple Grove

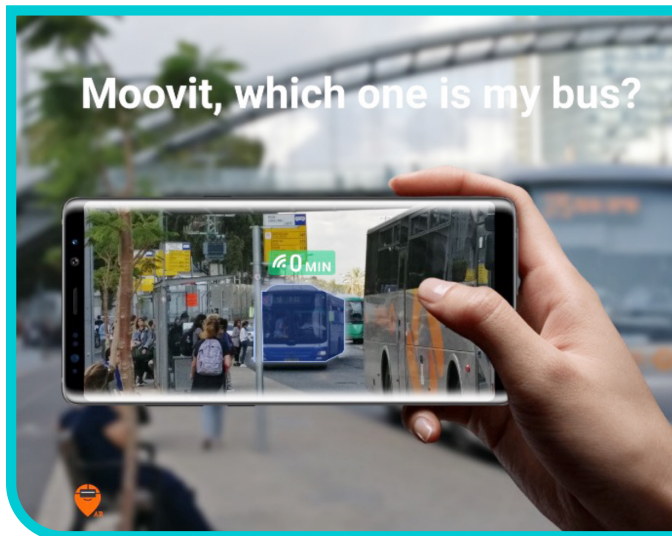


Image 31: The transit app Moovit is building augmented reality tools to improve step-by-step navigation (Moovit)

Augmented Reality

Just as ridehailing apps changed the nature of driving to and from entertainment districts, augmented reality apps could change the nature of transit. These apps can take the guesswork out of determining transit routes, stops, schedules, and step-by-step directions to a final destination.

The transit app Moovit is working on augmented reality apps showing riders which bus and stops to take in reaching a destination.

In March of 2021, Google announced AR navigation capabilities within its Maps mobile app for a limited number of airports and shopping malls. These types of features increase the ease of walking and using transit, circulators, and other forms of shared rides. While Delray Beach will have little control over personal mobile app usage, it's important to follow the evolution and resulting behavior changes with respect to mode choice to, from, and within the Atlantic Avenue entertainment district.

Smart Kiosks

Digital signage companies are expanding into Florida, offering smart kiosks with maps, wayfinding, transit schedules, events schedules, and other information such as parking availability. As such, these devices would be programmed to display digital feeds from parking garages and lots. Smart kiosks can be financially subsidized with advertising, which is often structured to share costs with the City. Delray Beach's wayfinding planning effort should include guidelines for digital wayfinding.



Image 32: Example of digital information kiosk

Self-Parking Technologies

Automobile companies are increasing self-driving and self-parking, capabilities within new car models. However, technology availability does not always translate to consumer acceptance. According to a survey from Carmax, only 14.5% of those surveyed ranked self-parking as a "must have" in future car purchases. This tracks with similar attitudes on self-driving vehicles; a [survey from the American Automobile Association \(AAA\)](#) found only 14% of the 1,000 respondents would trust riding in a driverless vehicle.

Over time, growth in market share and exposure typically leads to more trust and adoption. Because self-parking technology is technologically simpler than full self-driving capability, self-parking features in new cars may be adopted on a faster timeline.



Image 33: Illustration of self-parking vehicles

Self-Parking Technologies cont.

For parking managers, self-parking vehicles take less space for parking since the space needed for opening doors is not necessary. A [2018 study from the University of Toronto](#) found AV parking lots can decrease the amount of space needed by an average of 62%. The investment needed to convert a garage or lot involves restriping the painted lines and upgrading communications (5G) needed for the vehicles automated systems.

The transition to self-parking will not occur overnight. As such, parking managers will need a phasing plan to install communications technology and restripe floor plates to accommodate self-parking vehicles. Operators will also want contingency plans in case of a vehicle malfunction. Several companies offer auto-valets that lift the undercarriage of cars and transport them to a parking space or desired location. This type of system could be used to park cars without self-parking capabilities.



Image 34: Example of robotic valet (Stanley Robotics)

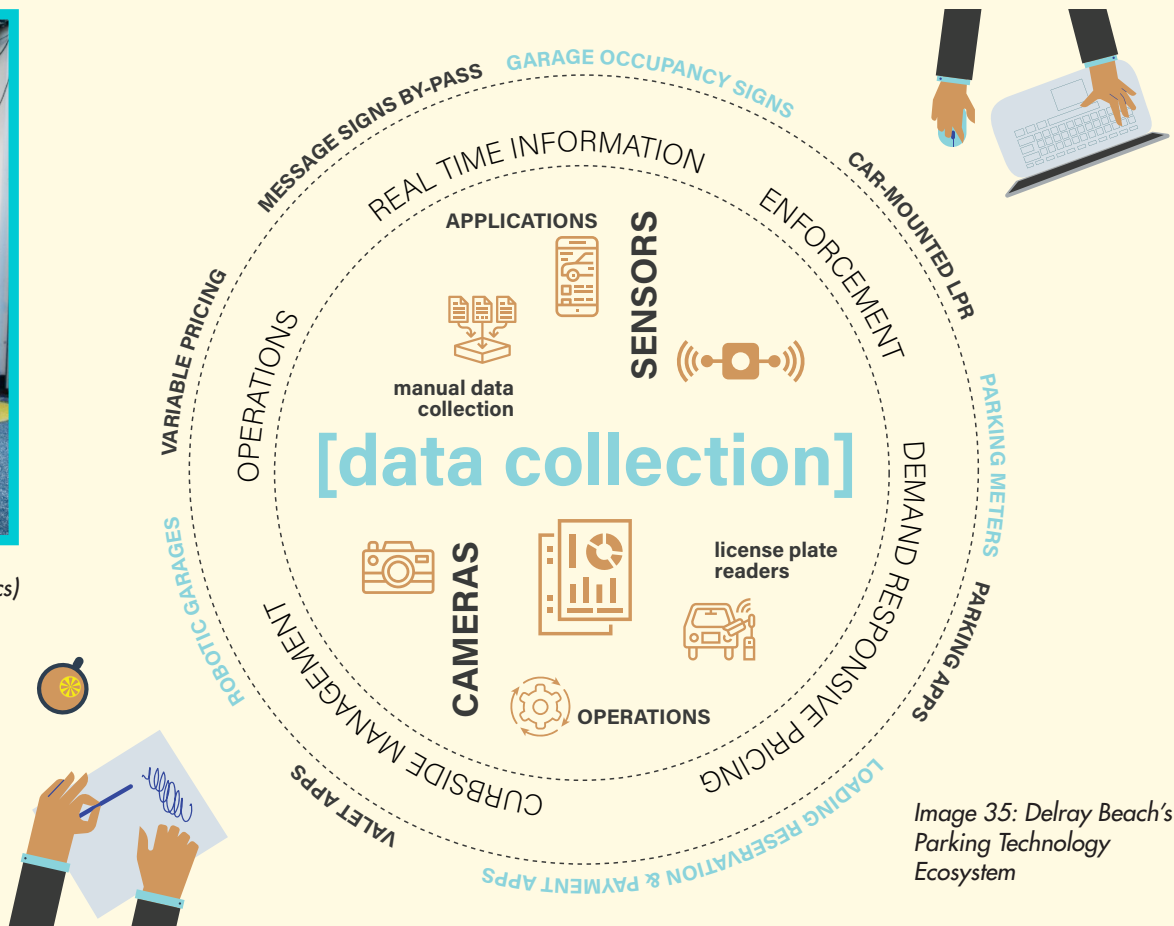


Image 35: Delray Beach's Parking Technology Ecosystem

Section 5

Prioritization Framework





Multi-Use Space

The Delray Beach Parking and Curbside Management Plan consist of phased recommendations and sample performance metrics the City can monitor over time to determine whether parking policies and meter rates are adequately meeting curbside and parking goals. **In this way, the City has the data needed to demonstrate success or validate when new policies and pricing are needed.**

Recommendations are presented in the following categories following the City's current parking programs: (1) On-street parking, (2) Off-street parking, (3) Mobility, (4) Valets, (5) Infrastructure, (6) Digitization and Technology, (7) Traffic Management, and (8) Programming.



Based on stakeholder feedback, this Parking Master Plan seeks measures to address the following parking factors:



Congestion:

Where (and how) can we address congestion related to parking?



Supply:

Where (and why) is parking constrained or underperforming?



Circulation:

How can we maintain a beneficial level of circulation without auto congestion?



Technology:

What new technologies or features can be deployed to address parking issues?



Operations:

What strategies and measures can be implemented to streamline operations?



Background for Evaluating Parking Strategies and Measures

This section is intended to help Delray Beach explore and prioritize parking management strategies to unlock parking capacity from current or adaptable assets. Before addressing individual strategies, it's helpful to review information from research and other resources on the relative effectiveness of parking strategies.

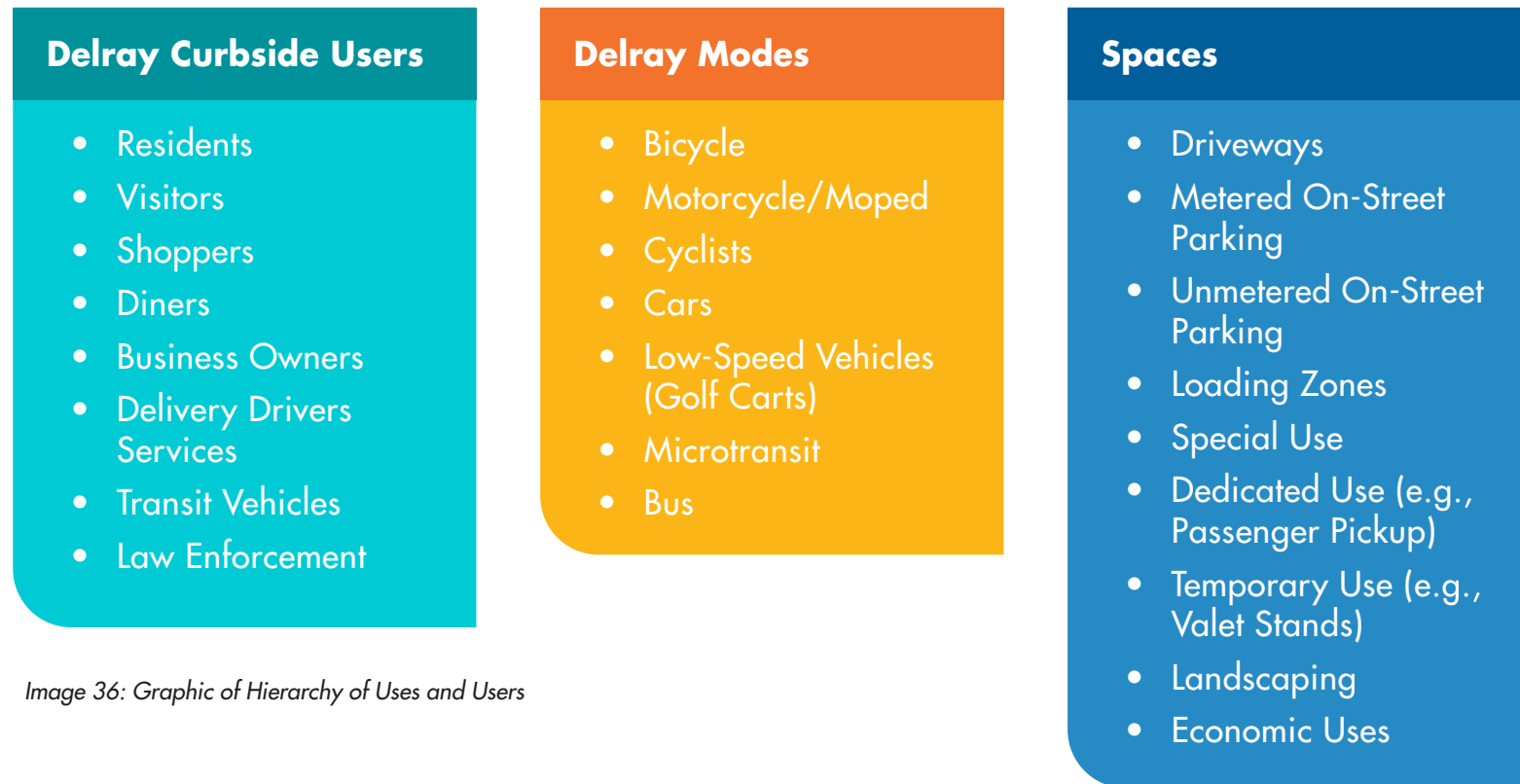


Image 36: Graphic of Hierarchy of Uses and Users



Relative Effectiveness of Parking Demand Strategies

The transportation research organization [Victoria Transportation Policy Institute \(VTPI\)](#) has estimated the general effectiveness of parking management measures on parking demand. The recommendations in this report align with the categories listed in Table 3.

STRATEGY	DESCRIPTION	IMPACT ON AUTO TRAFFIC REDUCTION
High Impact (parking demand reduction of 10-30%)		
Shared parking	Parking spaces that serve multiple users and destinations	No reduction, but may shift timing (e.g., need to coordinate shared office and residential uses)
Parking regulations	Regulations to manage time of day restrictions, maximum time limits, allowed or prohibited vehicle types, and reserved parking in order to optimize use	No reduction but may alter traffic patterns and the type of traffic (e.g., concentrated truck activity with time-restricted loading rules)
Flexible Standards and Regulations	Parking regulations that facilitate further flexibility to meet local parking priorities	No reduction, but may affect travel patterns and timing (e.g., drivers may shift arrival times by getting phone alerts on time-of-day restrictions)
Peripheral (or Remote) Parking	Off-site or urban fringe parking facilities	Yes - reduces traffic and congestion in the CBD
Guaranteed Ride Home Program	Employers offer rides for cyclists and transit users to respond to family emergency or inclement weather	Yes - among the most effective TDM measures that ensures transportation in the event of an emergency
Mobility Management	Measures to encourage efficient travel, including changes in mode, timing, destination, and vehicle trip frequency	Yes - management can prompt mode shifts and timing decisions that results in lower parking demand and congestion
Parking Pricing	Demand-based pricing (or reflective of the cost of providing parking)	Yes - pricing can prompt mode shifts and timing decisions that results in lower congestion
Medium-Low Impact (parking demand reduction of 5-15%)		
Walking and Cycling Improvements	Improved walking and cycling conditions to improve access to peripheral parking, or supports non-auto travel	Yes - by substituting automobile trips
Bicycle Facilities	Provide bicycle storage and changing facilities	Yes - by substituting automobile trips
Improve Information and Marketing	Provide convenient and accurate information on parking availability and price, using maps, signs, brochures, and mobile apps	Yes -can support use of low impact modes and reduce circling attributed to the search for parking

Table 3 : Relative Impact of Selected Parking Management Measures

For technologies, there are several types of guidance systems included in recommendations that improve parking and circulation:

Guidance Within Garages: Lighting systems like those used in the Old School Square Garage indicate available parking spaces (green lights). This assists drivers in finding open spots once the driver is circulating in the garage, which improves efficiency and reduces frustration.

Monument Signs: Monument signs are posted at or near a garage or lot entrance. For multi-level garages, information on occupancy per floor alerts drivers to the number and location of open spots. If a garage is full, the driver is informed and can make decisions on alternatives.

Periphery Signage: These signs are posted to inform drivers of parking availability as they approach a destination or downtown district.

Digital Maps: These web or mobile app-based systems are available in real-time to alert a traveler on parking and traffic conditions. At this early stage in trip-planning, a driver can opt for other mode choices or parking alternatives.

The body of research on the effectiveness of various technologies is still in its early stages and can be complicated given the rapid iteration that takes place as technology companies continuously test and refine their products, services, and software. Nonetheless, there is evidence related to the technology investments recommended in this Parking Master Plan.

For example, [recent research on the effectiveness](#) of parking guidance systems reveals several key points to consider:

- Parking guidance lowers congestion by reducing time spent in search of parking.
- Effectiveness from a driver's point of view depends on accurate and timely information. Parking managers need to maintain accurate information feeds or risk losing driver confidence in the system.
- For periphery and by-pass signs, the format needs to be clear and simple since drivers in motion have a limited amount of time to read and digest information.

In summary, when choosing and ranking strategies and measures, the team used the following criteria:

- Focus on strategies to address:
 - the best use of existing parking supply
 - parking-related congestion
 - circulation in and around the study areas
 - existing and anticipated technologies
 - investments needed for operations related to new systems and technologies
- Align parking recommendations with parallel planning efforts (e.g., Wayfinding Plan, Capital Improvement Plan (CIP))
- Assess the relative effectiveness of parking management measures on parking demand and traffic
- Establish performance-based measures and metrics to monitor progress and/or need for additional management measures in a cost-effective manner



Performance-Based Parking Planning

This Parking Master Plan expands and improves upon traditional parking plans that present recommendations by time frame (e.g., immediate, medium, and long terms). While timing is an important factor, many new practices and technologies are implemented through a series of tests designed around performance metrics. With iterative processes, it is difficult to predict timing, especially in cases where there are unexpected iterations and process changes needed.

Performance-based plans are founded on key metrics for monitoring the system and signaling when the City needs to take further action. The diagram below shows an outline of process (note there can be multiple phases monitored and adjusted over time).

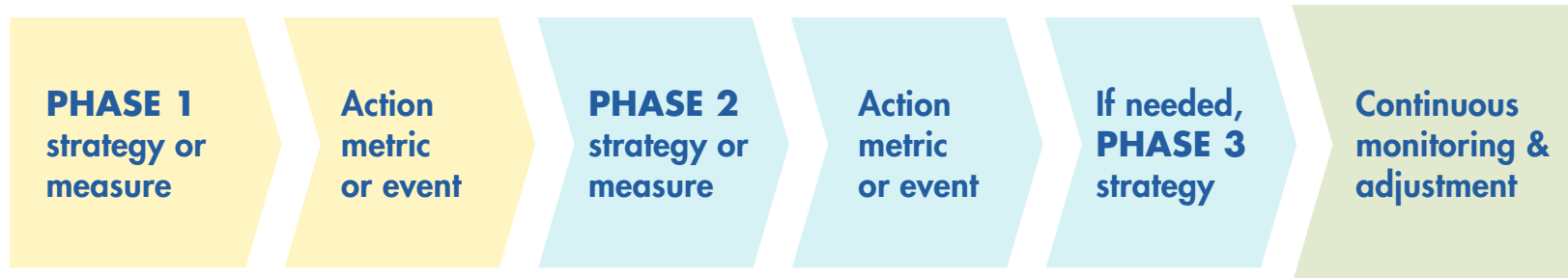


Image 37: Performance-Based Planning Approach

The benefits of this approach are:

- Structured implementation composed of sequenced actions to test, refine, and communicate a change in practice
- Greater buy-in from stakeholders who are more comfortable with an incremental approach to project and program design
- Quantified action triggers that signal when and where additional action is needed, supplying parking managers with the case for changing course

One of the biggest challenges is a shift to active management that continuously monitors parking and curbside use. In the past, enforcement and customer feedback were the main components for gauging performance. Technology now enables the addition of continuous monitoring and data analytics to improve efficiency.

The shift requires new investments in technology and management procedures that respond to continuous data feeds. This change is already underway in South Florida and Palm Beach County. The Palm Beach TPA and PalmTran are funding for advanced detection systems and real time information displays. In this Master Parking Plan, we recommend expansion of the City's LPR systems.



Parking Performance Measures

Traditionally, cities like Delray Beach have benchmarked year-to-year performance with enforcement data, meter revenue, and information derived from customer service communications. While these channels of information are still relevant, new technologies are providing insight on parking behavior, delivery patterns, and economic outputs. Technologies include advanced sensors, cameras, data mining, and license plate reader technology, as well as new features in mobile applications such as ParkMobile, which is already used in Delray Beach.

Parking performance measures can be developed for almost any strategy or measure, though it's often desirable to develop a focused set of metrics. Priority metrics that assess parking performance should:

- be linked to one or more system goals
- accurately and clearly describe performance
- be monitored, measured, and reported cost-effectively (ideally automated)
- lend themselves to target setting (e.g., backed by research, professional standards, and/or local conditions)
- represent one or more facets of performance fundamentals regarding the parking system

This last bullet refers to key performance metrics (KPIs). Parking professionals often turn to the common KPI of 85%-90% on-street occupancy per block or facility as the primary management metric. Typically, the 85% metric is for on-street parking while the 90% figure applies to lots and garages. These rates mean the parking asset is performing at an optimal capacity, with spaces open for new arrivals. As cities seek additional uses for public rights of way, performance descriptors are expanding to include metrics on economic development, sustainability, and community health.



Parking Metrics

All of the strategies and measures included in this Parking Master Plan have one or more metrics that describe parking performance, though the City is not bound to track each and every measure in every location in downtown Delray Beach.

For performance, the City can adopt the industry standard of 85% occupancy for on-street parking and 90% occupancy for lots and garages. Where desired, the City can combine occupancy with other metrics to assess how the parking and curbside management program meets several goals.

As for the scope and scale of monitoring, the City does not need to track every parking space. Instead, Delray Beach can choose focal areas first:

- high-demand blocks, lots, and/or garages
- a subarea consisting of several high-demand blocks and parking facilities
- elements of the parking system (e.g., valet parking, on-street parking)
- the overall parking system (e.g., operations, revenue)

Performance Based Planning

Example: Boulder, Colorado

Boulder, Colorado is using evaluation and action metrics to revise its Neighborhood Parking Program. Initially, the City is introducing new pricing, increasing permit costs annually by \$10 for residents and \$20 for commuters each year from 2021 through 2024. The City will evaluate performance by zone or neighborhood based on metrics for parking occupancy, trip generation and access to other modes of transportation. The evaluation results will determine a parking management and permitting strategy that is tailored to the specific context and needs of each zone or neighborhood. In addition, parking behavioral data will help determine whether existing zones' associated rates and strategies should be modified, or whether new zones should be added. See the City of Boulder Access Management and Parking Strategy (AMPS) at [this link](#).

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Section 6

Integrated Master Plan



Recommendations from the previous Section were developed based on the current parking program. Because parking, urban design, and infrastructure are intertwined, the recommendations have been regrouped according to implementation processes related to (1) systems, (2) elements, and (3) operations.

Outreach Strategies

Implementation Plan

Key Systems

- Formalize a Parking Benefit District
- Right Priced Parking
- Digitization and Technology Roadmap
- Mobility

Key Elements

- Periphery & Shared Parking
- Connected Garages & Atlantic Avenue By-Pass
- Infrastructure & Curbside Management
- Wayfinding

Operations

- Coordinated Valet Operations
- Employee Parking Programs
- Commercial Loading Zones
- Traffic Management & Enforcement



Outreach Strategies

The first and most important aspect of the Parking Master Plan is getting information out to stakeholders and the public and setting up systems for feedback. The price of parking is always a sensitive issue, and communications on the rationale, benefits, options, and phasing are critical.

Outreach Materials

As part of the plan, the City can develop materials defining the rationale and details of the plan. The most important materials will be:

- A one-pager (**Appendix 3** to be developed once the City gives approval on final draft)
- Updated website information, maps, and brochures
- Video with plan components and testimonials on the need for the plan
- Posters for garages
- Social media strategy
- Sample articles for newsletters
- Meter/kiosk stickers

(Continued on page 108)



Image 38: Community Outreach

MAKING THE CASE

Preparing drivers for increased parking rates begins with clarity on why new pricing is needed. Among the top reasons that apply to Delray Beach are:

Parking is not free. There are a host of costs associated with parking including the value of underlying real estate, costs related to traffic and congestion, environmental impacts, and opportunity costs lost to sedentary car storage.

New supply is expensive. The cost to build structured parking, not accounting for land costs, is approximately \$30,000 per space, if not more given increases in construction costs. Managing existing supply and reducing demand is more cost-beneficial.

Parking is real estate. Cities are increasingly treating parking as a real estate asset given growing competition for space and the benefits of activating parking for other uses (loading, outdoor dining, pick-up/drop-off).

A user-based pricing system is fair. Adequate pricing reflects the public's investment that is underwritten and maintained by taxpayers.

Pricing is the best method for optimizing parking resources. Fair pricing includes dynamic (or demand-responsive) pricing, discounts where appropriate (e.g., employee pricing) and reinvestment in the area where revenue is collected.

Downtown Delray Beach is a place for people. By increasing the supply of periphery space, the City opens up safe passageways and space for pedestrians, events, and economic activity along Atlantic Avenue.

Automobiles are still part of the downtown mobility system. This parking plan seeks to balance the parking demand and supply, while reducing congestion and maintaining Atlantic Avenue-friendly traffic flow.

Parking invites traffic and congestion. When parking is underpriced, drivers respond by increasing driving. Congestion occurs when drivers are circling in search of parking.

Pricing can distribute demand. With adequate signage and communications, drivers can choose lower-priced parking on the periphery, thereby lessening congestion and traffic associated with driving in search of parking.

Parking pricing benefits businesses. Pricing and time limits increase turnover, which increases the number of patrons visiting shops, services, and restaurants.

Parking rates are set based on maximizing performance, not revenue. In setting rates, the City is using the industry target of 85-90% occupancy per block or per facility.

Not all parking is created equal. On-street parking spaces in a downtown core are typically favored by drivers over peripheral, garage parking. As such, pricing should reflect a market-based approach for higher demand parking.

Try it before you buy it. Many new concepts are presented in this plan in the form of pilot projects. Deploying new policies or technologies on a limited scale serves as an early alert system for deciding which new approaches show promise, and which ones are not a good fit for Delray Beach. It also allows the City to tweak a practice or policy incrementally.

Options. This plan structures new parking management and pricing strategies in phases to provide a suite of parking and travel options at various price points.

Futureproofing. This Plan establishes a plan for monitoring, testing, and adopting a variety of technologies that will play a role in optimizing the City's parking program.

Outreach Methods *(Cont. from page 106)*

One of the most important aspects of any new plan is a well-crafted and targeted campaign to reach both general audiences and those stakeholders most affected.

In-person: Farmers' markets, events, open houses, pop-ups along Atlantic Avenue, door-to-door discussions with most affected stakeholders

General: Website, brochures, maps, temporary posters for parking facilities

Targeted: Media Day (with local press), employers, employees, valets (employees and operators), adjacent neighborhoods, transit and microtransit operators



Implementation Plan

Systems

Formalize a Parking Benefit District (PBD)

A Parking Benefit District establishes management boundaries for on- and off-street public parking within which parking revenue is reinvested (less costs for administration, maintenance, and enforcement). For downtown Delray Beach, we recommend the boundary included in this study, and if desired, extend to areas experiencing spillover parking. To obtain buy-in, target a range of stakeholders to assist in the project prioritization process.

In 2019, the City adopted the Central Core and Beach Sub-Districts Regulating Plan (ordinance 36-19), which includes the Atlantic Avenue Parking District. The official District runs one block north and one block south of Atlantic Avenue between Swinton Avenue and the Intracoastal Waterway.

Optional Entertainment District

Within the PBD, the City can also establish an Entertainment District that covers areas with highest parking demand and management needs. Likewise, Delray Beach can include the Pineapple Grove area within the Parking Benefit District as a pilot given its recent growth and parking needs. Under this option, the City can assess any spillover parking into residential areas and extend the PBD to those areas. In this manner, the City can use additional revenues for mitigation measures and/or to create a new residential parking permit program for on-street parking.

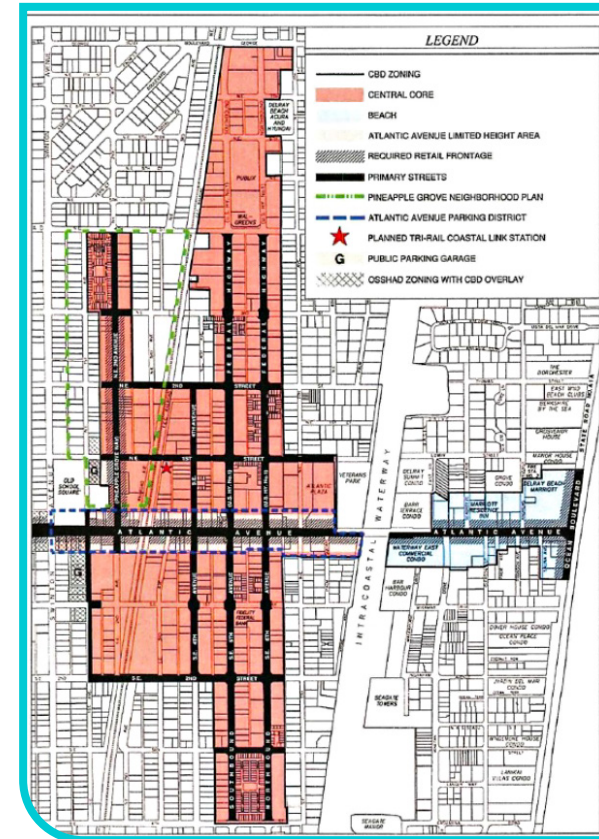


Image 39: Recommended Entertainment District boundaries

Why?

Within districts, public parking spaces do not operate independently and not all spaces are created equal. Rather, drivers prioritize parking location preferences based on pricing, location, access, duration, and other factors. Because Delray Beach is interested in spreading out parking demand within the downtown district, the City needs to manage spaces collectively.

The current pricing structure illustrates why districtwide coordination is needed. Areas of peak demand (i.e., the corridors one block north and south of East Atlantic Avenue from Swinton to NE 4th Avenue) charge the same rates as non-peak demand areas. **For customers willing to park further away on-street, there is no perceived value since the spaces furthest from the peak demand areas charge the same parking rates as the areas of peak demand.** As a result, customers cruise through the peak demand areas searching for vacant on-street spaces, and/or filling the garages and parking lots in closest proximity. A Parking Benefit District would allow the monitoring, data collection, and analysis needed to achieve the optimal spatial balance among parking areas.

An important aspect of PBDs is revenue allocation. Many PBDs are structured to require that 100% of revenues be invested within the boundaries from which they are collected, minus administrative costs. Currently, Delray Beach directs parking revenue to the General Fund, so any PBD could be viewed as a loss of citywide revenue.

Revenue reinvestment is often a selling point for raising rates. Stakeholders are more likely to support increased rates if they are beneficiaries of new funds. However, there are split-distribution options:

- Only additional revenues above a selected baseline year would accrue to the PBD
- A set fraction (e.g., 25-30%) is remitted back to the PBD (San Marcos, Texas) <https://www.sanmarcostx.gov/3009/Parking-Benefit-Districts>
- Only revenue from certain facilities/sources are reinvested (St. Armands Parking District, Sarasota, Florida) <https://www.sarasotafl.gov/our-city/parking-information/st-armands-parking-district#:~:text=In%20St.,exclude%20city%20holidays%20and%20Sundays.>

How?

Create a Parking Benefit District (PBD) (Recommendation Systems A1). In formalizing a PBD, the City can take the following steps:

1. Convene stakeholders to define need, scope, and outreach on the new zones. Prepare messaging on the benefits of new pricing and how funds will be invested.
2. Conduct a zoning code audit of several code sections: (1) Fee-In-Lieu of Parking, (2) Parking Minimum Requirements, (3) Shared Parking Requirements, (4) On- and Off-Street Parking Rate Regulations, (5) Employee Parking, (6) Residential Parking, and (7) Valet Parking.
3. Propose new ParkMobile zones and pricing for the Entertainment District (see recommendations below in “Right Pricing Parking”). Work with ParkMobile on establishing the new rates and providing new signs for kiosks in the new zone(s).
4. Approve the rate increases (City Commission).
5. Develop an ordinance that establishes (1) a Parking Benefit District, (2) boundaries, (3) organizational structure, and (4) revenue distribution (i.e., the amounts subtracted for administration). The ordinance may also specify allowable project types.
6. Form an oversight committee (or recognize an existing Committee for PBD oversight).
7. Prepare an analytics plan (through data and field data collection). Look for trends in occupancy, turnover, and commercial deliveries (parking and loading). Prepare interviews with business owners, residents, and valets.



Right Pricing Parking

The City should build a program that, over time, is demand-responsive and inclusive of all parking spaces (by block face and facility) in the downtown area. Managing all spaces in a district allows parking managers the ability to calibrate pricing across the system. Changes should be adopted incrementally to give the most affected drivers parking options and to test pricing, new time limits, and regulatory changes.

Why?

Current on-street and off-street parking rates are low (on-street: first 20 minutes free, \$1.50 to \$2.00/hour up to 3-hours; Off-street: free during the day with a \$5 flat evening rate when entering after 4 pm in the garages and free in the parking lots). With demand and occupancy so high, private parking lot owners are charging more (\$10-\$23 flat fee) than the City is for on- and off-street parking. **The high demand for valet parking shows there is a willingness from patrons to pay a premium for convenience and proximity.**

How?

Delray Beach should **implement new pricing in phases, beginning with highest-value, on-street parking spaces and surface lots.** The following steps are recommended:

On-street parking: Initially raise rates on premium parking spaces to \$3 per hour. Initiate technology pilots and expand LPR capabilities to build a demand-responsive curb and parking management system.

Garages: Eliminate the \$5 flat fee and “free before 4:00 PM” and replace with a \$1.50 per hour. Outfit garages with technology to create real time occupancy data that can be communicated in mobile app and on signs. Install or reconfigure meters that can adjust pricing by level to incentivize parking on the top level.

Lots: Initiate paid parking and lower time limits to 4 hours. Convert some parking in the North Railroad and Gladiola lots to employee only as an interim step. Over time, introduce progressive pricing (higher rates for longer stays) once employee parking in periphery parking is established.

Periphery Parking: As an immediate step, secure agreements, and upgrade infrastructure (sidewalk improvements, wayfinding lighting). Offer parking for free or heavily discounted rates. Station a safety officer at garages between 2:00 AM and 3:00 AM.

Spillover: Monitor spillover parking in neighborhoods near Pineapple Grove.

How to read the flow charts on the following pages:



Strategies within a solid red box are top priorities.

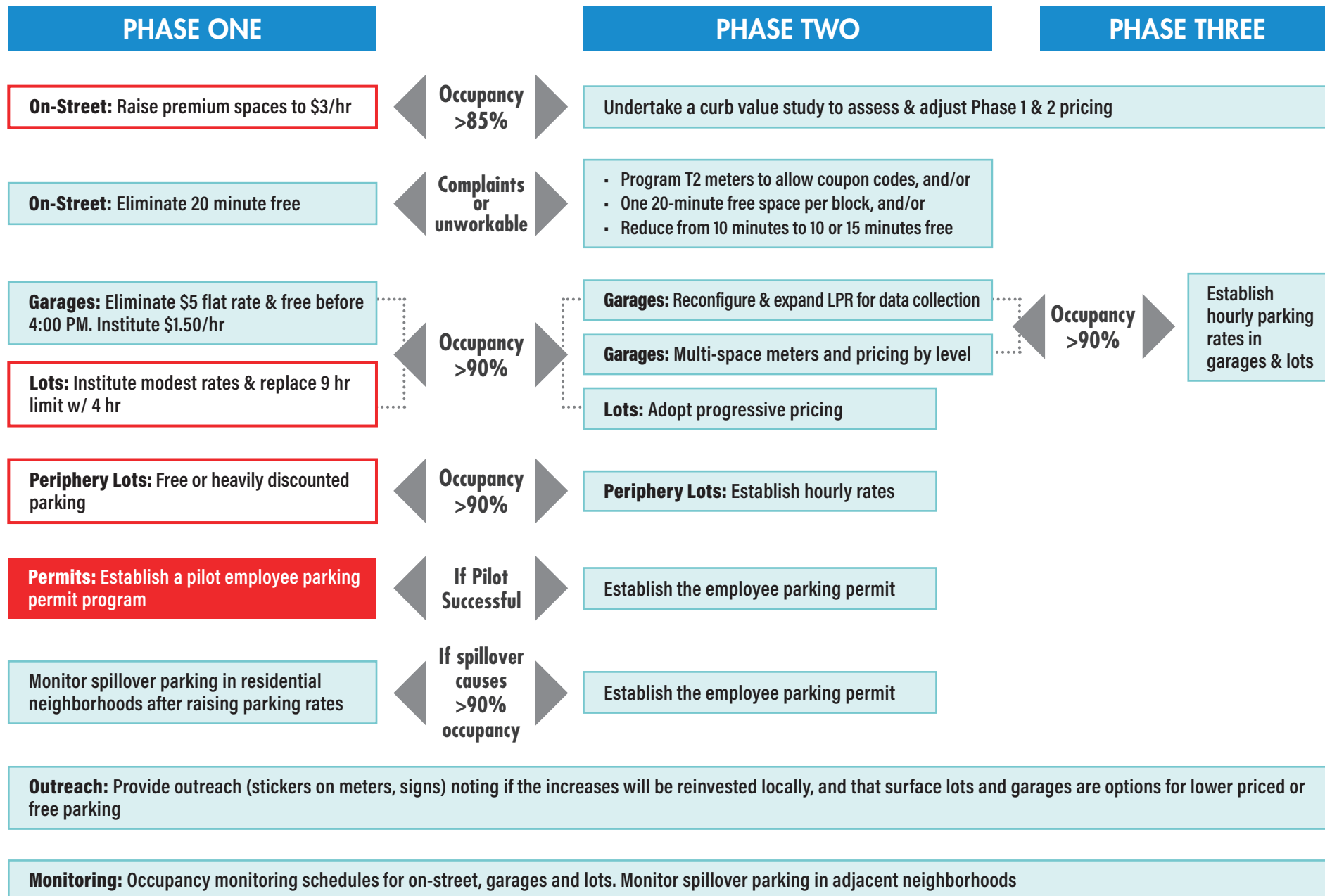


Strategies within a red outline box support the priority strategies.



Strategies within an aqua box are recommended.

Right Pricing Parking



Digitization and Technology Roadmap

One of the main differences between this plan and previous parking plans is the increased market maturation and availability of parking technologies. The goal of technology-related recommendations is to leverage existing technology investments while proactively preparing for technologies that support larger parking and traffic systems, including parking. Delray Beach already uses LPR technology for enforcement, parking guidance systems in the Old School Square Garage, and ParkMobile for app-based parking payments. The wider array of parking-related technologies, including those currently in use in Delray Beach, continue to evolve quickly, producing even more features for data collection, analysis, and decision support.

The significance for parking managers is a fundamental shift in planning, policies, and operation. With real time data, cities can regulate traffic and parking in real time to optimize system performance. With artificial intelligence, companies can employ predictive analytics. Networked communications can feed mobile apps, signs, and dashboards to monitor operations in real time. This is leading to a new era of parking management where systems can be performance-based, actively managed, and integrated into related operations such as traffic control and connected vehicles.

Cities around the country are holding technology visioning exercises to examine the likely evolution of various technologies. From this assessment, an entity can develop a technology roadmap to guide investments, new processes, and workforce development activities.

Operate or Subscribe?

Companies behind digital curbs and parking applications offer turnkey services to install technology, monitor and manage programs, typically through a subscription-based model. In the near term, this is sensible given the relative novelty of the technologies and complexities of data collection. However, other technology companies are developing hardware and software that provide entities (including Cities) the ability to create their own platforms. Technology-savvy parking managers can also assemble their own technology packages for a customized approach. For example, a city can procure a suite of data collection devices (e.g., cameras, sensors, LPR), data analytics packages, and program administration (e.g., billing, dynamic pricing). For smaller cities like Delray Beach with concentrated areas of high parking demand, this could be an attractive and cost-effective option.

Why?

Successful technology deployments rarely come from uncoordinated hardware and software purchases. Roadmapping is a technique often used to plan technology acquisitions. The main value comes from:

- establishing goals and needs
- assessing current technology portfolios
- forecasting how various technologies are likely to evolve
- determining the collection of technology purchases
- where needed, developing pilot projects that allow testing, monitoring, adjustment, and scale (or pilot cancellation where the technology is not a good fit)

How?

Phase 1: Create a technology roadmap that begins with an inventory of parking, mobility, and smart city technology. Some of the key considerations in mapping success include:

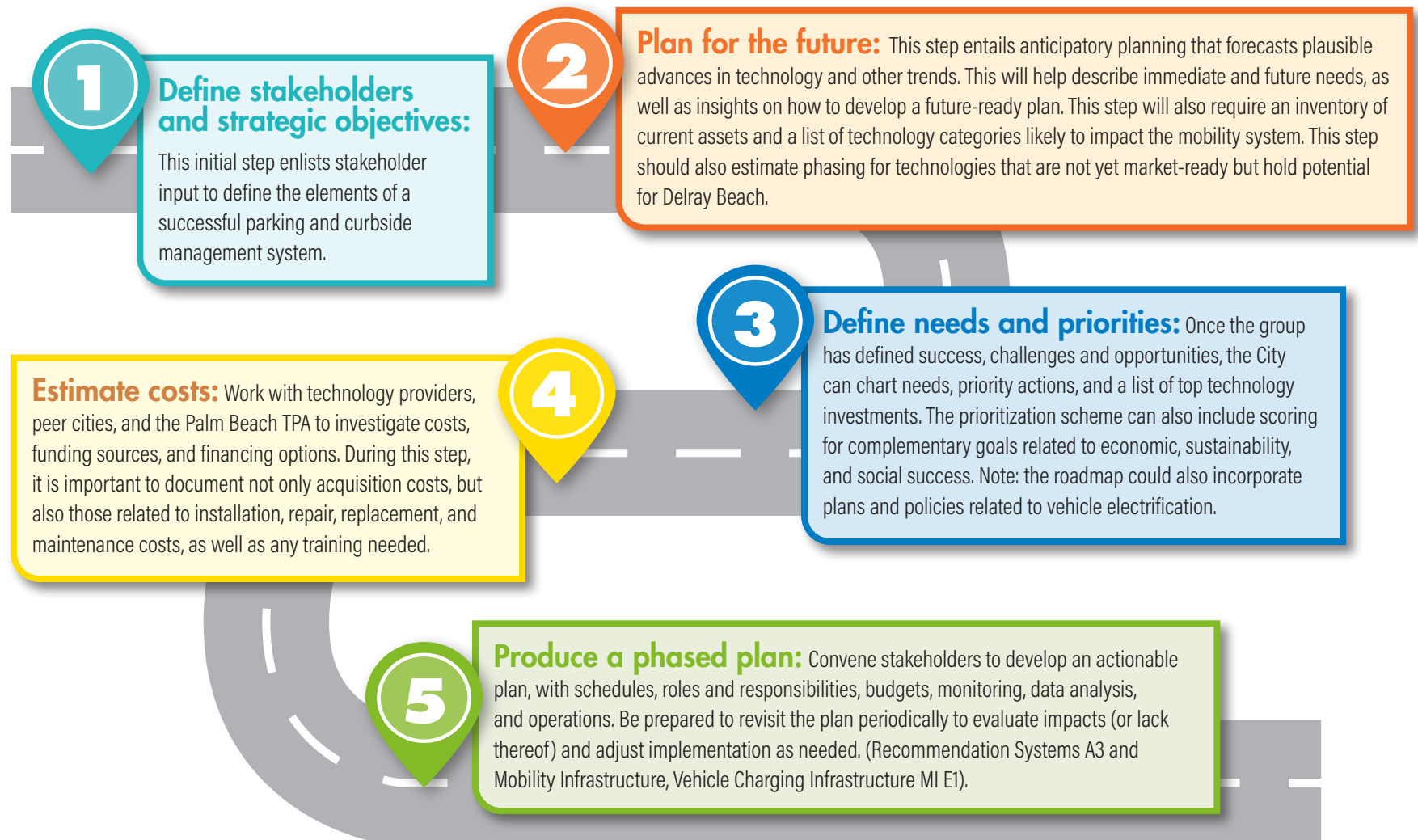
- **What is the scope of a technology roadmap?** Should Delray Beach focus solely on parking and curbside management or integrate with wider traffic management and smart city components? How can we envision eventual network buildout, and what are the incremental steps towards this wider system?
- **What is the user experience?** Who are the array of users (stakeholders) and how can we assess current and future needs as technology advances?
- **How can we leverage existing investments?** How can the City build on its current systems (ParkMobile, LPR) while exploring other options and advancements in technology?

- **Are pilot projects the answer to incremental steps towards a smart parking and curbside management system?** Does the City need to test the technology recommendations in this plan, or can the City begin the procurement process for digital signage and smart curbsides?
- **What are the best funding sources?** Would increased meter revenue cover the costs of technology investments? What are the most

promising grant programs and how does the City lay the groundwork to successfully compete for such grants?

- **Does the City procure a turnkey solution or build its own system?** What are the advantages and disadvantages of an “all-in-one” subscription service versus a wholly owned municipal parking and curbside management technology program?

Delray Beach can take the following steps to build the roadmap:



Mobility System

Reducing parking demand will require increasing mobility options. In addition to traditional biking and transit, technology-enabled options have grown, including shared-use mobility (Uber, Lyft, bikeshare), microtransit services, and small mobility devices (e.g., scooters, e-bikes). Mobility innovation will continue to improve existing options while creating new types of vehicles, transit systems, and travel planning apps.

Why?

One of the main issues is how to get people to and from the downtown core. This can include offering multi-modal access to/from downtown and providing periphery parking to reduce congestion along Atlantic Avenue. Another main issue involves how visitors circulate among destinations and attractions in the Downtown area. For this type of travel, mobility options facilitate a “park once” trip, and the ability to circulate downtown by walking, circulators, and transit.

How?

Delray Beach should **build on transit and microtransit for visitors traveling to and within the Downtown area**. Within the Downtown area, improve the ease of walking and biking to reduce auto use and resulting parking demand. The following steps are recommended:

- **Microtransit:** Monitor services once the new contract is signed and enhance marketing. Initiate a pilot to extend service until 3:00 AM
- **Transit:** Continue to advocate for improvements
- **Biking and Pedestrian Travel:** Coordinate with the Delray Beach Bicycle and Pedestrian Master Plan. Perform a walk and sign audit to identify gaps. Develop bike/pedestrian safety metrics (e.g., near misses, collisions in vicinity of periphery parking)

Mobility System

PHASE ONE

Microtransit: Create a pilot for extending FreeBee service until 2 am

Microtransit: Expand marketing and outreach

(New) Microtransit: Implement and track new contract for fixed & flexible microtransit services

Transit: Advocate for transit improvements

Rides/vehicle service hour;
awareness of the program;
non-employee riders

Survey results

PHASE TWO

Microtransit: If successful, make pilot permanent
If not – determine if adjustments can be made

Microtransit: Incorporate survey results into marketing materials

PHASE THREE

Ridership #’s

Increase fleet

Incorporate mobility services into existing and future mobile applications

Outreach: Focus on outreach for existing and planned microtransit changes. Conduct rider surveys to assess service levels

Monitoring: Monitor the pilot (and if adopted future service) for (1) rides/vehicle service hour; (2) awareness of the program; and /or (3) # non-employee riders

Key Elements

This section addresses four key elements within the Parking Master Plan: Periphery Parking, Connected Garages, and the Atlantic Avenue By-Pass, Infrastructure and Curbside Management, and Wayfinding.

Periphery & Shared Parking

Delray Beach's best supply will come from increased shared parking and periphery lots. The following recommendations should be phased in. Note that if the City fully implements the recommendations in this Master Parking Plan and parking shortages occur, then new supply (parking garage) is warranted.

Why?

The western edge of the downtown district includes City-owned parking facilities that are underutilized on weekday evenings and weekends. New mobility options (microtransit and micromobility) and infrastructure improvements will help provide safe and efficient access to these periphery parking locations.

How?

Delray Beach's best supply will come from increased shared parking and periphery lots. The following recommendations should be phased in. Note that if the City fully implements the recommendations in this Master Parking Plan and parking shortages occur, then new supply (parking garage) is warranted.

- **Periphery Lots:** Secure all agreements needed. Conduct a walk and sign audit to identify infrastructure upgrades in and around periphery parking (lighting, wayfinding, sidewalk improvements)
- **Shared Parking:** Negotiate shared parking agreements for new developments and increase number of publicly available private parking with private and public sector partners
- **Microtransit:** Increase marketing for microtransit and create a pilot for extending FreeBee service until 3:00 AM
- **Wayfinding:** Rebrand the City's parking assets to add clarity and visibility

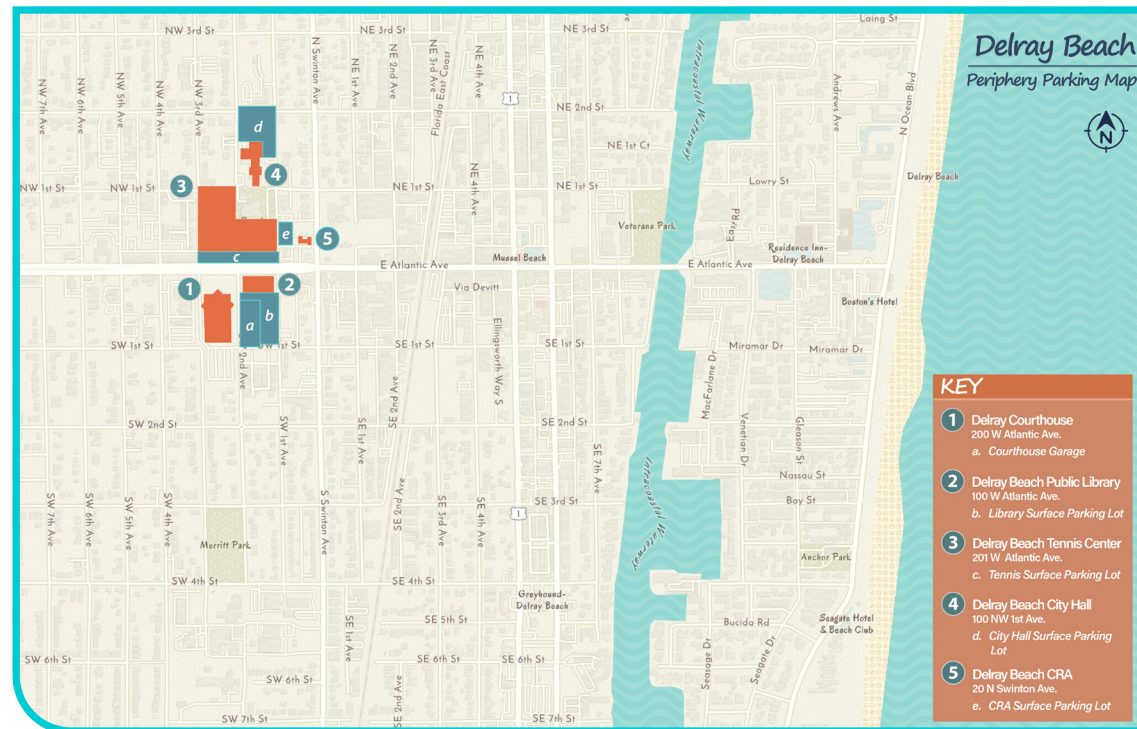


Image 40: Periphery parking map



Periphery & Shared Parking

PHASE ONE

Use strategies in this Parking and Curbside Master Plan to maximize existing parking assets

Negotiations: Secure all necessary agreements for use of periphery lots and garages

Periphery Lots: Free or heavily discounted parking

Conduct a walk and wayfinding audit in and around target periphery facilities to identify priorities

Negotiations: Negotiate shared parking agreements for new developments

Negotiations: Increase number of publicly available private parking

Microtransit: Create a pilot for extending FreeBee service until 2 am

Wayfinding: Rebrand the City's parking assets to add clarity and visibility

Occupancy
>90%
after
Phase 2

PHASE TWO

Investigate locations and design options for a new garage

Periphery Lots: Establish hourly rates

Wayfinding: Incorporate wayfinding for the periphery lots into the wayfinding plan

Negotiations: Determine feasibility of shared use licensing agreements

Negotiations: Monitor and adjust in-lieu of fees

Microtransit: If successful, make pilot permanent
If not – determine if adjustments can be made

rides/vehicle
service hour;
awareness of
the program;
non-employee
riders

PHASE THREE

In the case all efforts to maximize existing parking are exhausted, pursue garage option

Ridership
#’s

Increase fleet

Outreach: Focus on outreach for existing and planned microtransit changes. Conduct rider surveys to assess service levels. Coordinate with the Wayfinding effort on outreach for signage and periphery parking. Update parking information on new signs and sign types

Monitoring: Conduct periphery parking occupancy counts and patterns to track before and after activity. Continue occupancy counts in periphery garages and lots. Monitor the pilot (and if adopted future service) for (1) rides/vehicle service hour; (2) awareness of the program; and /or (3) # non-employee riders

Connected Garages & Atlantic Avenue By-Pass

Providing real-time parking availability information is a main focal point of this plan as the City seeks to:

- Direct drivers to underutilized periphery spaces (the Library Lot, Courthouse Garage, Tennis Center Lot, CRA Lot, and City Hall lot)
- Direct drivers to garages and lots that have available parking
- Divert beach-bound through traffic to streets that parallel Atlantic Avenue to the north and south

Why?

By-pass signage, coupled with demand-based parking pricing and mobility upgrades, provides incentives to use periphery parking.

How?

Achieving this improved traffic flow is based on digital systems that accurately monitor occupancy in real time and send data feeds to signs and mobile apps.

Data Collection: Delray Beach already uses technology with the capability of monitoring and reporting occupancy (parking guidance in Old School Square garage and LPR). It is recommended the City's parking stakeholders review existing technology for its utility under current and future conditions. This includes the future options of incorporating surface lot counts into occupancy reporting and demand-responsive pricing.

- **Sensors:** There are a variety of data capture technologies that can be applied including in-ground sensors, surface mount sensors, and overhead indicator sensors. These technologies can be applied at the access points (lots) or in positions that track occupancy of each space (garages).
- **Cameras:** Wall and vehicle-mounted cameras collect data that can be processed and mined for information on parking occupancy and patterns. Cameras tend to be more durable than sensors, though parking managers must make decisions on how to store and analyze large amounts of data.
- **Signage:** As new parking availability equipment is installed in parking facilities; signage should also be expanded in two areas:
 1. outside each garage
 2. at a by-pass location at or before the Swinton and Atlantic Avenue intersection.

Note: For each garage, an external monument sign with displays should be installed in locations to give drivers a chance to make decisions before entering the garage. In the future, the City may also consider whether to add sensors to individual parking lots. These data feeds would also be relayed to mobile apps, by-pass signage, a real time parking map and other displays.

Note: If the City wants to test parking availability for a by-pass sign on a faster schedule, consider installing a portable variable message sign. These signs can also be used to test locations for the final sign. Generally, [these signs cost between \\$12,000 and \\$20,000](#)

Real Time Parking Map: The City can develop a real time parking availability map once the public garages are outfitted with technology. Confer with peer cities (Asheville, NC) to get information on process, technology options, and "lessons learned" in developing real time parking availability feeds for signage, maps and mobile apps. <https://www.ashevillenc.gov/service/park-in-a-parking-garage/>



Image 41: Old School Square Garage parking availability sign



Connected Garages & Atlantic Avenue By-Pass

PHASE ONE

Coordinate improvements with the Urban Core Mobility Concept Design (UCMCD) project

Evaluate the City's existing technologies and create a Digital Roadmap

Conduct a traffic/feasibility study for new signage or signal for no left turns at Atlantic Ave & 2nd NE Ave

PHASE TWO

Determine best location for by-pass signage

Technology Inventory

Convene technology and parking stakeholders to develop a list of desired features and functionality for a networked parking availability system

Install occupancy counters in all garages including differential counters for each floor of each garage
AND
Install monument signs outside each garage

Feasibility study results

Signage is preferred option: install sign

New signal is preferred option: install signal

PHASE THREE

Install Bypass Signage

Develop a real time parking availability map

Determine feasibility/utility of adding occupancy sensors to surface lots

Once garage data feeds operational

Outreach: Identify and engage stakeholders needed to develop a Digital Roadmap for parking, traffic management, and any other related stakeholder or technology expert. Update parking information on new signs and sign types

Monitoring: Monitor the UCMCD study to determine by-pass signage location and other details. Conduct any monitoring necessary for the feasibility study to determine if signage or a signal is needed

Infrastructure & Curbside Management

Challenges related to sidewalks and curbs were once limited to managing on-street parking and pedestrian uses on sidewalks. Innovation, technology, and downtown revitalization are converging to generate increased competition and congestion in streets, along curbsides and into sidewalk spaces. The goal of this plan is to introduce infrastructure improvements that successfully support multiple users of public rights of way in downtown Delray Beach.

Why?

Over time, cities have begun to treat traditional infrastructure as less of a utility and more of an economic asset. In the 1980's, mayors sought ways to unlock economic value in struggling downtowns by creating sidewalk dining, enhancing landscaping, and improving wayfinding to link parking and destinations.

Fast forward to now, and placemaking efforts continue to bring not only economic success, but also demand for flexible infrastructure. As competition for space continues to grow, cities are seeking ways to find further value by programming infrastructure to meet shifting demands throughout the day. Much of this is enabled by new technologies and management strategies.

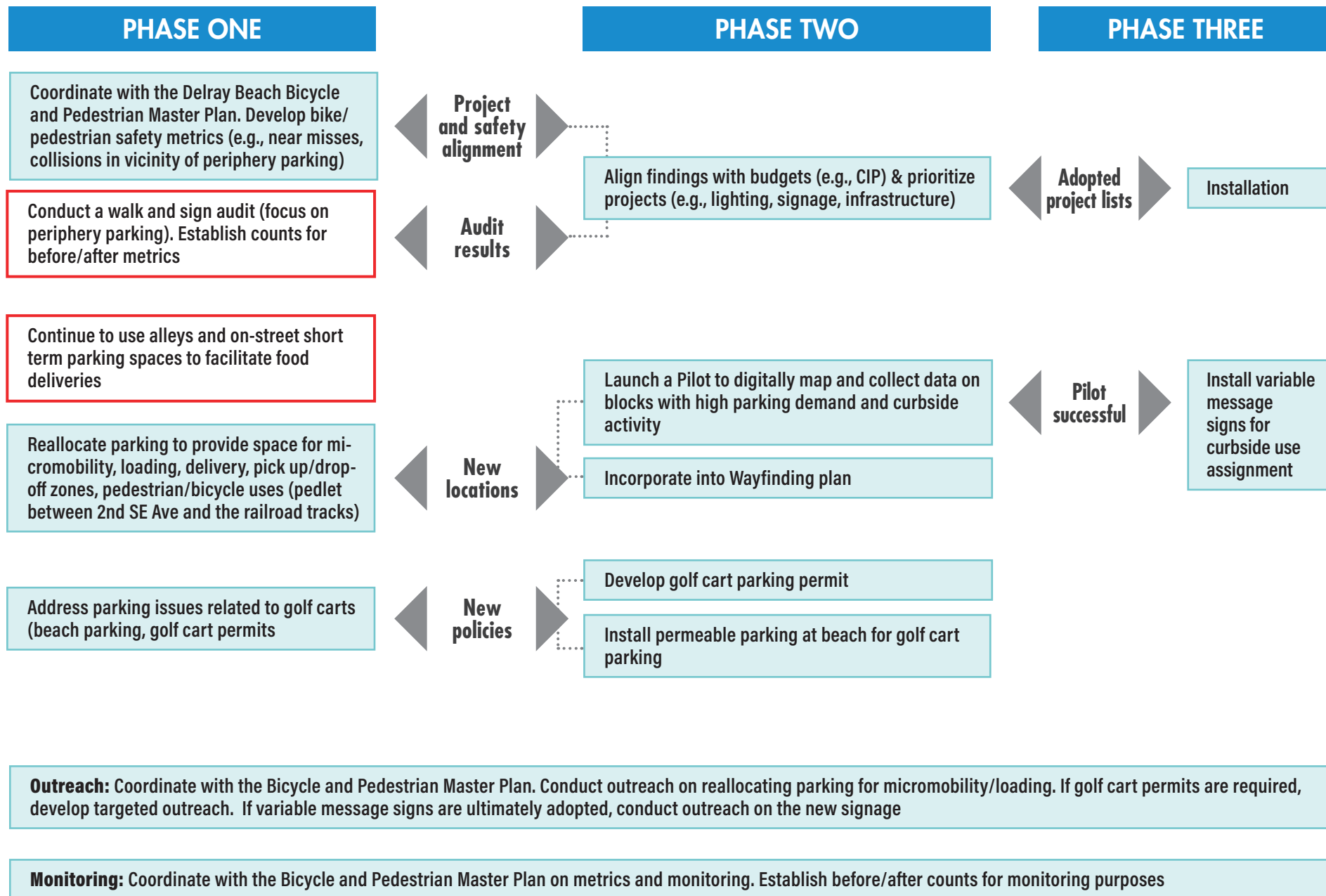
How?

Recommendations are structured to reform operations and create design options to manage growing competition for sidewalk, curb, alley, and street space.

- **Process:** Coordinate with the Delray Beach Bicycle and Pedestrian Master Plan and develop bike/pedestrian safety metrics (e.g., near misses, collisions in vicinity of periphery parking). Conduct a walk and sign audit (focus on periphery parking).
- **Dynamic Curbs:** Launch a Pilot to digitally map and collect data on blocks with high parking demand and curbside activity. If the pilot is successful, determine how to use data for curbside management, which can include variable message signs for curbside use assignment and payments for all users. In addition or as an alternative, the City can investigate a curbside management company as a pilot partner (see more under Commercial Loading Zones).
- **Alleys:** Continue to use alleys and on-street short term parking spaces to facilitate food deliveries.
- **Curbside Uses:** Reallocate parking to provide space for micromobility, loading, delivery, pick up/drop-off zones, pedestrian/bicycle uses (pedlet between 2nd SE Ave and the railroad tracks). Investigate use of modular infrastructure for the pedestrian, bicycle, and pedlet recommendations. Integrate new curb uses into maps and wayfinding.
- **Golf Carts:** Address parking issues related to golf cart parking.
- **EV Charging:** Develop a plan, policies, and preferred locations for EV charging infrastructure.



Infrastructure & Curbside Management



Wayfinding Signage

A signage and wayfinding plan is under current development in Delray Beach and should be aligned with recommendations in this Parking Master Plan. In addition, the City and DDA should consolidate parking web resources onto one page for a streamlined user experience.

Why?

New signage will help improve a visitor's experience in navigating the Downtown in search of activity centers and parking. One of the most important aspects of wayfinding and signage for the Parking Master Plan relates to directing people to and from periphery parking.

The City should also use the wayfinding plan to lay the groundwork for digital communications. The use of digital information kiosks is growing and will require accurate and clear data feeds on parking, events, alerts, and other information. In addition to kiosks, mobile app developers are creating augmented reality and turn-by-turn directions, which will make navigating downtown by walking and transit more convenient. While the City and PalmTran do not have control over technology innovation, it's important to follow consumer adoption and any resulting changes in travel behavior.

Where?

In addition to the parking signs proposed through the new wayfinding signage plan, additional signage should be considered, from west to east at:

- Wayfinding sign at southwest corner of SW 2nd Avenue and West Atlantic Avenue directing drivers to the Courthouse Garage and Library Lot
- Parking facility label signs on SW 2nd Avenue and SW 1st Avenue for the Courthouse Garage and Library Lot
- Wayfinding sign on East Atlantic Avenue at 1st Avenue directing eastbound drivers to turn left toward public parking
- Parking facility label signs on NW 1st Avenue for the Tennis Center Lot and City Hall Lot
- Parking wayfinding sign at the northeast corner of NW 1st Avenue and NW 1st Street directing drivers east toward public parking
- Parking wayfinding sign at the intersection of Swinton Avenue and Atlantic Avenue directing drivers to the north and south for public parking

How?

Wayfinding is critical for this Parking Master Plan to help drivers (1) find information on parking options, (2) find open parking spaces, and (3) navigate safely to and from periphery parking. The following recommendations should be considered to leverage the power of good wayfinding.

- **Websites:** Consolidate City & DDA parking information onto one website
- **Overall Wayfinding System:** Integrate parking recommendations into wayfinding effort: unified valet signage, digital signage guidelines, differentiated public/private parking signs. Add signage directing delivery trucks to side streets
- **Differentiation:** Install new parking signs that differentiate public and private parking to reduce confusion and parking lot ownership
- **Left turns:** Conduct a traffic/feasibility study for new signage or signal for no left turns at Atlantic Ave & 2nd NE Ave

Wayfinding

PHASE ONE

Consolidate City & DDA parking information onto one website

Concurrent with the Wayfinding Plan, create unified valet signage

Integrate parking recommendations into wayfinding effort

Lay the groundwork for digital signage and wayfinding within the wayfinding plan

Wayfinding: Rebrand the City's parking assets to add clarity and visibility

Add signage directing delivery trucks to side streets

PHASE TWO

In concert with the Delray Beach Wayfinding Plan, finalize wayfinding brand and sign locations

Adopt final policies and design guidelines for digital wayfinding (e.g., signs, augmented & virtual reality, data standards)

Install new parking signs that differentiate public and private parking

Conduct a traffic/feasibility study for new signage or signal for no left turns at Atlantic Ave & 2nd NE Ave

PHASE THREE

Signage is preferred option: install sign

New signal is preferred option: install signal

Initial policies

New sign design

Feasibility study results

Outreach: Coordinate with Wayfinding Plan stakeholders. Update parking information on new signs and sign types

Monitoring: Conduct any monitoring necessary for the feasibility study to determine if signage or a signal is needed

Operations

Coordinated Valet Operations

Several studies have recommended improved coordination among Delray Beach's independent valet operators. This section recommends phased activities that result in efficiencies and expanded valet services.

Why?

Currently, there is room for improvement to overcome the fractured nature of independent operators and valet-related congestion. Drivers use the underpriced, flat rate valet system for long term parking, which reduces turnover. Most vendors use paper-based systems, and valet terms and agreements are not streamlined.

How?

For modernization, the Master Parking Plan includes phased recommendations to ensure a smooth transition as the City tests valet technologies.

- **Valet Technology:** Initiate a valet interchange software pilot to align all vendors into one system
- **Program:** Audit all public revenues and City processes involved with the leasing of public right of way parking spaces for valet operations. As an initial move, convene valets to discuss challenges and opportunities related to operations, technology, and coordination
- **Operations:** There are several operational changes that can improve services for both valet operators and patrons, including new pricing structures and policies
- **Signage:** Concurrent with the Wayfinding Plan, create unified valet signage
- **Valet stand location:** Assess queuing and congestion metrics to determine whether/where new locations should be placed. Ideally, a centralized system would be instituted for optimal coordination



Image 42: The North Railroad Lot is popular with employees given the 9-hour time limit and free parking



Coordinated Valet Program

PHASE ONE

Audit all public revenues and City processes involved with the leasing of public right of way parking spaces for valet operations

Convene valets to discuss challenges and opportunities related to operations, technology, and coordination

Initiate a valet interchange software pilot to align all vendors into one system

List for Next Steps

PHASE TWO

Reset valet queue space leases to reflect demand and the vendor's leasing period

Raise the valet price cap to match private parking rates, or eliminate cap altogether

Update current agreements to require minimum levels of service and penalties

Examine and adjust rates for drivers using valet for longer term storage

Assessment results

Conduct a pilot to relocate/consolidate valet stands and queues to side streets

Determine feasibility to utilize entire block for queuing and eliminate segregation of block faces

PHASE THREE

Adjusted rates

If congestion is a problem in the future after enactment of other policies to reduce auto traffic on Atlantic Avenue, then consolidate and/or relocate valet stands to side streets

Outreach: Initial outreach to valet stakeholders

Monitoring: Monitor and track valet operations. Monitor any valet-related congestion or queuing challenges, Conduct customer service surveys

Employee Parking

Employee parking is currently a high-priority topic in the downtown district, particularly for late night restaurant and bar employees. However, employees and diners compete for the highest value parking in free lots with 9-hour time restrictions. To be successful, the plan needs to consider alternatives for affordable, accessible, and employee parking.

Why?

Employee parking is a common challenge for downtown districts, one that is heightened when employees compete with clients and customers for premium spaces close to shops and restaurants. Given today's tight job markets, employers want to make sure safe and affordable parking is available, as well as alternatives that are as easy, if not easier, than driving.

How?

This Parking Master Plan proposes changes that affect the employee parking options. The goal for employee parking is to simultaneously make access improvements to periphery parking while directing long-time parkers to these garages. To facilitate the new arrangement, the City can build on its existing permit system, adding a sixth category for employee permitting. With periphery parking, safety for late-night workers is paramount.

Another facet of a successful employee parking program is the use of Transportation Demand Management (TDM) strategies. Because the main beneficiaries of convenient and safe parking are both employees and employers, the DDA can play a critical role in co-creating and funding aspects of employee parking and TDM programs.

- **Process:** Convene parking stakeholders to discuss the development of an employee parking permit and program. Before new parking rates and time restrictions in lots are enacted, (1) monitor parking occupancy in the downtown lots and garages and (2) survey employers and employees on the parking experience and proposed alternatives.
- **Permit:** Establish a pilot employee parking permit allowing employees to use (1) the upper levels of the garage and (2) employee-only parking in lots for free through a permit system.
- **Lots:** Set aside employee-only parking in the North Railroad and Gladiola lots using the permit system. Make the remainder of parking paid parking with a 2-to-4-hour time limit. Make the pricing progressive (the longer they stay the higher the rate).
- **Periphery parking:** Use the permit system for free employee parking and/or parking on the top floors. Station a safety officer at garages between 2:00 AM and 3:00 AM.



Employee Parking

PHASE ONE

Establish a pilot employee parking permit allowing employees to use the upper levels of the garage for free through a permit system

Before new parking rates and time restrictions in lots are enacted, (1) monitor parking occupancy in the downtown lots and garages and (2) survey employers and employees on the parking experience and proposed alternatives

Convene parking stakeholders to discuss development of an employee parking permit and program

Pilot results

PHASE TWO

If the pilot is successful, develop an employee parking permit

If parking supply in lots and garages becomes constrained

Expand the Transportation Demand Management (TDM) program for new development and downtown employers

PHASE THREE

Institute "employee permit only" spaces on the top two floors for permit holders within the Old School Square and Robert Federspiel Garages

List Next Steps

Outreach: Initial outreach with employers and employees. Incorporate feedback into planning elements. Outreach to employees on permit, microtransit, and periphery parking

Monitoring: Monitor parking occupancy in the downtown lots and garages and (2) survey employers and employees on the parking experience and proposed alternatives. Monitor microtransit pilot with extended hours (until 2:00 AM)

Commercial Loading Zones

Challenges related to curbs were once limited to managing on-street parking and morning deliveries. COVID accelerated trends in online shopping and workplace shifts that create a “work-from-anywhere” environment likely to endure post-pandemic. The ripple effects for Delray Beach can be seen with the increase in e-commerce package and meal deliveries, as well as the emergence of Delray Beach as a global destination for live, work, and tourism.

Shipping companies are facing two, almost opposite demands. Increased shipping demand and a labor shortage are leading to consolidated loads in larger trucks. At the same time, the industry is seeking ways to reduce costs and climate impacts related to the “last mile” of deliveries, [which can be up to 40% of costs](#). This points to smaller, more agile methods for getting goods into customers’ hands.

Why?

Cities across the country are working with e-tailers and their logistics partners to develop new delivery models that bring distribution closer to urban centers in smaller formats. Likewise, shipping companies such as FedEx and UPS are using smaller delivery vehicles that maneuver with greater ease in urban traffic. Under this scenario, larger trucks would be replaced by a fleet of smaller vehicles and electric cargo bikes [like those being tested in Miami](#). The way this trend ultimately translates to downtown Delray Beach is unclear, though the City would likely benefit if larger trucks are replaced with fleets of smaller vehicles or if logistics hubs located near I-95 take in large loads and coordinate dispatch by smaller vehicles.

How?

Recommendations are structured to reform operations and create design options to manage growing competition for sidewalk, curb, alley, and street space.

- **Process:** Create and/or incorporate a sidewalk/curb committee with Parking Management Advisory Board (PMAB) to meet regularly and review curb/sidewalk conditions, policy, and management.
- **Data Collection:** First, document delivery-related congestion. Then launch a Pilot to digitally map and collect data on blocks with high parking demand and curbside activity (note this is also included under the Infrastructure element). Alternatively consider working with a curbside management company to conduct a truck delivery reservation system similar to Washington D.C.
- **Delivery System Improvements:** If the pilots are successful, initiate a digital system for reservations, curb assignment, and payment. IN the near term, the City can expand current restrictions(time, fines) or set aside right of way.

New Formats for Urban Deliveries

Seattle, Washington, home to Amazon, is on the cutting edge of research on urban logistics, including new vehicle and building types. Over the past five years, online retailers have developed urban warehouse prototypes to bring goods distribution closer to customers, including models that fit within parking garages and within micro fulfillment centers. Note, when considering future micrologistics facilities downtown, Delray Beach’s current zoning code allows storage and distribution only in the Railroad Corridor Sub-District.

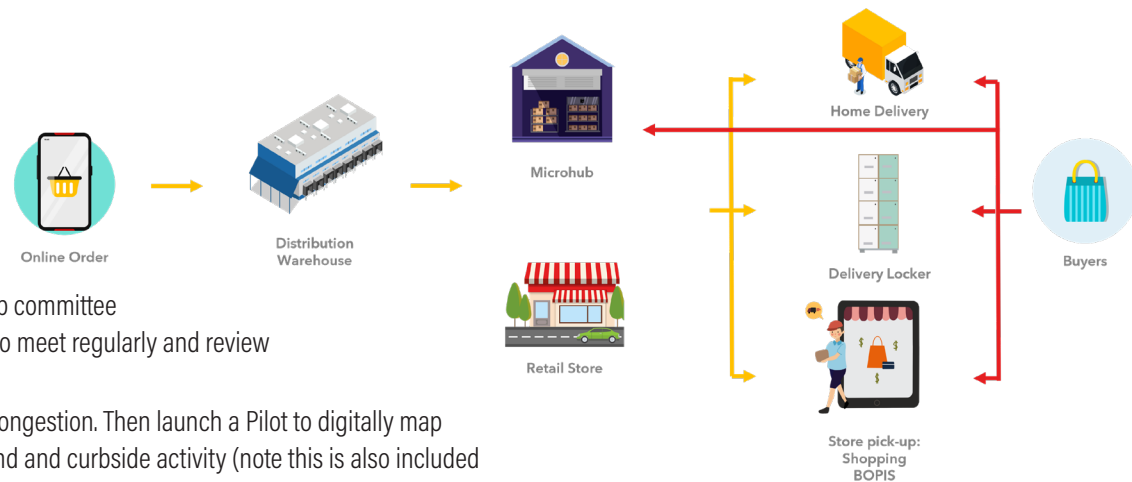


Image 43: Trends in distribution networks



Commercial Loading Zones

PHASE ONE

Launch a Pilot to digitally map and document current loading conditions along Atlantic Avenue, side streets and in alleys. Document congestion

Expand existing commercial vehicle restrictions. 8:00 AM to 4:00 PM

Create and/or incorporate a sidewalk/curb committee with PMAB to meet regularly and review curb/sidewalk conditions, policy, and management

PHASE TWO

Investigate a truck delivery reservation system similar to Washington D.C. If desired, find products to build a City-owned system

Increased fines for loading/unloading in restricted ROW (Recommendation)

Ban larger trucks altogether on Atlantic Avenue

Set aside right of way for vehicles with six or more wheels for up to 30 minutes

PHASE THREE

Install variable message signs for curbside use assignment

If appropriate, adopt new signs

Continued Congestion

List Next Steps

Outreach: Reach out to businesses and delivery companies. Create additional communications through the PMAB

Monitoring: Use the pilots (digital mapping and if chosen, the truck delivery pilot) to establish baseline numbers on congestion

Traffic Management & Enforcement



Image 44: Conceptual signage for the Swinton Avenue by-pass

The goal of traffic management recommendations is to institute measures that spread out traffic, improve safety, and reduce parking-related congestion. To a large degree, other measures in this Parking Master Plan address traffic by diverting cars at the Swinton and Atlantic Avenues By-pass, promoting, and incentivizing the use of periphery parking, and supporting multi-mobility.

Why?

Downtown Delray Beach's success is founded on the high level of activity that occurs year-round in the streets, along curbs, and on sidewalks. Traffic management seeks to reduce conflict points and congestion while facilitating the movement of goods, people, and services. Enforcement plays a role in deterring infractions and facilitating improved flow.

How?

Several recommendations, working in concert, are designed to reduce auto traffic and hence, related congestion and conflicts among uses and users.

- **Enforcement:** Change hours of enforcement to match peak-hour parking (morning & after 8 PM). Add training for enforcement personnel and parking ambassadors to assist visitors and drivers with new parking prices/rules and data collection.
- **LPR:** Investigate additional capabilities of the LPR system for traffic management and determine additional system needs.
- **Safety Officer:** Station a safety officer at garages between 2:00 AM and 3:00 PM.
- **Left Turns:** Conduct a traffic/feasibility study for new signage or signal for no left turns at Atlantic Ave & 2nd NE Ave. Conduct a feasibility study to determine whether to install new signs or a new signal.



Image 45: Example of context-sensitive variable message sign compatible with downtown urban design aesthetics (Dysten)



Traffic Management & Enforcement

PHASE ONE

Change hours of enforcement to match peak hour parking (morning)

Add training for enforcement personnel and parking ambassadors to assist visitors and drivers with new parking prices/rules

Investigate additional capabilities of LPR system (e.g., data for occupancy, turnover, parking patterns)

Determine additional system needs to grow the LPR/Park Assist capabilities

List of expanded uses

Create a head-in parking policy for all facilities

Collect and analyze LPR data for publicly accessible private lots to benchmark factors such as occupancy patterns & pricing

Leverage LPR for enforcement

PHASE TWO

Conduct a traffic/feasibility study for new signage or signal for no left turns at Atlantic Ave & 2nd NE Ave

Feasibility study results

Signage is preferred option: install sign

New signal is preferred option: install signal

PHASE THREE

Outreach: Update parking materials on enforcement changes with attention to signs for head-in parking. Add training materials

Monitoring: For LPR, test monitoring capabilities. Conduct any monitoring necessary for the feasibility study to determine if signage or a signal is needed

Section 7

Funding Strategies



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Funding Strategies

Revenue & Expenditures

The 2021-2022 Delray beach Annual Budget projected parking fee revenues of \$2.7 million (\$2.6 million in meter revenue) and expenditures of \$1.3 million for parking facilities. Parking ticket revenue in 2022 is budgeted at \$510,000. The city obtained a grant in 2021 of \$175,000 for shuttles. Because parking permits are lightly used, this program is not currently a revenue generator. This could change with new permit types and marketing.

Future Revenues

Parking revenue should initially be applied to maintain and operate the parking system. However, profits should be invested to support alternative modes of transportation through streetscape improvements and transit/micro-mobility services. Applying parking revenue funds towards mobility services was well received by the public as shown by the survey distributed at the public workshop. The city should also continue to apply CRA TIF funds to pay for mobility services Downtown. Other funding sources include:

- City of Delray Beach General Fund,
- Road impact fees and proportionate fair-share funding,
- Transportation Planning Organization (TPO) priority projects funding

One of the most direct programs for funding this Parking Master Plan is creation of a Parking Benefit District (PBD). As noted in Section 6, revenue reinvestment is often a selling point for raising rates because beneficiaries of new funds.

This approach does pose challenges, mainly because the City directs parking revenue to the General Fund. Redirecting funds could appear as a loss in for the General Fund. As noted, there are split-distribution options:

- Only additional revenues above a selected baseline year would accrue to the PBD
- A set fraction (e.g., 25-30%) is remitted back to the PBD
- Only revenue from certain facilities/sources are reinvested

Appendix 1

Data Collection Results



Outreach and Stakeholder Engagement



One Pager Outreach



Appendix 4

Curbside Valet Management and Operations Memo



