On-Street Parking and Curb Management Policy

MAY 2024

City of Dallas

ACKNOWLEDGEMENTS

This document is the product of a collaborative planning effort that involved city staff, neighborhood and regional representatives, business owners, and consultants from the Dallas Strategic Mobility Plan team. The following individuals and groups contributed significantly to this effort throughout the course of the process.

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OVERVIEW

The curb is a limited public resource and demand for access is growing. Essential to the economic vitality of various business districts across the city the curb use has traditionally been limited to customers and visitors through on-street parking and deliveries by providing areas to load and unload freight. In recent years, curbside pickup, dining, and e-commerce delivery has increased the need to allocate space at the curb in a sufficient and equitable manner. Managing the curb by addressing signage, markings, timing, usage, access, and cost is important to incentivize or disincentivize behavior at the curb to meet needs of all users.

On April 28, 2021, the Dallas City Council unanimously adopted the Dallas Strategic Mobility Plan. The plan represents a bold new way of thinking about the city's transportation challenges and creates a framework for investing and responding to problems in a way that best achieves the city's broader goals.

One of the policy recommendations contained in the plan is to "Proactively Manage the City's Curbside Assets." The purpose of this policy document is to further that recommendation and bring order to the city's parking management system, with the intended outcomes of:

- Supporting business districts by making it easier for customers to find an available parking space.

- Reducing congestion and conflicts in travel lanes by allocating adequate space and time for a wide range of users wanting access to the curb.

- Providing consistency in the application of curb lane management strategies.

This policy was prepared in close coordination with the Planning and Urban Design Department's effort to modernize the off-street parking minimums in Chapter 51A of the Dallas City Code. Competition for the curb will gradually increase as future developments construct less new off-street parking and plan for street side emergency vehicle access. Growth in autonomous vehicle (AV) activity could also increase demand for on-street loading and unloading. Given these rising demands, this policy is a significant step in helping city staff determine the highest and best uses of limited curb space based on the goals and objectives defined below.

Goals and Objectives

The City of Dallas On-Street Parking and Curb Management Policy supports the six Driving Principles in the Dallas Strategic Mobility Plan. The specific recommendations in this document are also intended to advance the more specific objectives outlined on the next page.

Driving Principles

Safety | Improve safety for all modes of transportation.

Environmental Sustainability | Reduce vehicle miles traveled and provide a variety of travel options.

Equity | Provide safe, affordable access to opportunities for all city residents.

Economic Vitality | Integrate transportation investments with land use and economic priorities.

Housing | Support the creation of affordable and varied housing options.

Innovation | Leverage technologies to meet 21st century challenges.

Objectives for On-Street Parking & Curb Management	Relevant Driving Principle(s)
1 Provide for the safe and efficient movement of people and goods by effectively managing the curb space in commercial and mixed-use districts, using data and goals to drive decision-making processes.	
2 Increase access to businesses in mixed-use and commercial districts by promoting adequate turnover of on-street parking stalls using time limits and parking meters.	
3 Accommodate increasing loading needs and proactively manage loading and on-street parking demand for developments in commercial and mixed-use districts.	
4 Promote equity and accessibility and provide for the changing needs for curb lane use as transportation technologies and modes evolve.	
5 Manage expectations and simplify the experience for all curb users by making curb use regulations predictable and easy to understand.	

Document Outline

The objectives are advanced through a more detailed set of policies, recommendations, and action items focused on the following areas:

- Prioritizing and allocating curb space (Chapter 2)
- Preparing local area parking and curb management plans (Chapter 3)
- Parking time limits (Chapter 4)
- Paid parking and rate setting (Chapter 5)
- Loading zones (Chapter 6)
- Parking for special users (i.e., employee parking, handicap parking, residential parking, and electric vehicles) (Chapter 7)
- Signs and pavement/ curb markings (Chapter 8)
- Communication (Chapter 9)

The topics that are covered in this document were identified as areas of interest during three workshops with stakeholders over the course of 2021. The recommendations and action items were informed by a review of the curb today that looked at existing regulations and practices compared to those of peer cities, and an inventory of curb uses on a representative sample of streets in four commercial and mixed-use districts in central Dallas.

The findings and recommended actions are intended to be broadly applicable both within central Dallas and in other areas of the city where commercial and mixed-use developments have created a high level of demand and competition for on-street parking spaces. Many community organizations and city staff contributed to the policy language to ensure that the recommendations and action items are achievable and fit within the context of the City of Dallas's many diverse and unique neighborhoods.

The organization of the document is based on the geographic scale that the recommendations apply to. It starts with recommendations that apply citywide (Prioritizing and Allocating Curb Uses) before moving to smaller geographic areas like neighborhoods and Local Paring and Curb Management Plans. From there, the topics zoom in to treatments for individual streets (Time Limits, Paid Parking, Loading Zones, Employee Parking, Residential Parking, Electric Vehicle Parking, and Handicap Parking), then to the specific signs and markings on those streets. Note: "parking meters," "paid parking," and "parking payment devices" will be used interchangeably throughout this document. The document concludes with a discussion of ways the city can improve communication pertaining to curb use, followed by a summary of all action items.

THE CURB TODAY

1

Curbs in commercial and mixed-used areas of Dallas currently serve a wide range of functions, ranging from traditional metered parking to valet services, commercial loading, bike racks, and parklets. Where these uses are located and how they are managed varies between neighborhoods and by individual block. To make informed decisions related to curb and metered parking management that are based on local data, a review of how the City of Dallas is currently regulating curb space was performed. Findings in this chapter include a detailed on-the-ground inventory of the various curb uses in sample locations throughout the city.

Existing Curb Use Inventory

A curb use inventory was conducted in the spring of 2021 along a representative sample of streets in four Dallas districts; three inside Paid (Metered) Parking Areas (MPA) and one outside of these areas. They included the Downtown Central Business District, Uptown, Deep Ellum, and Bishop Arts. The curb use inventory was conducted using GPS-enabled technology. A team walked along identified curbs in each district to identify the type of curb use (e.g., No Parking, Loading, Time Limit Parking, etc.), the length of each curb use, and the associated regulatory information (e.g., enforcement hours, time limits, etc.).

Figure 1.1 illustrates the location of each district included in this review. The districts and streets that were selected for the inventory were identified by the Department of Transportation staff as having the greatest conflicts, such as illegal parking, obstruction of travel lanes and pedestrian paths, and spillover parking into residential areas. They were also intended to represent the range of conditions that exist in areas with high demand for curb space. For example, Bishop Arts is intended to represent areas like Lower Greenville that have a mixture of restaurants, shops, and bars in a main street-type setting adjacent to residential neighborhoods. This document therefore illustrates how curb management could be implemented but is not prescriptive for a neighborhood. Districts highlighted in **Figure 1.1** are profiled in greater detail in this chapter.

Throughout the years, decisions about curb uses have been reactive, meaning changes have been made on a case-by-case basis to meet specific needs. This in part is why there are a variety of curb uses in each district. Due to the ad-hoc nature of curb management in the city to date, there are too many nuances in the curb uses to list all of them, so they have been consolidated into the categories listed below.

- **Travel Lane:** The lane next to the curb is actively used for vehicular or micromobility travel, serving as either a through lane or turn lane. This category also encompasses designated bus-only lanes and bus stops where buses make stops within the travel lane.

- **Free Parking:** Parking is permitted next to the curb and 1) payment is not required, and 2) there are no

time-of-day or time limit restrictions. Ways to tell whether a location is "Free" parking and not a travel lane include the absence of No Parking signs mid-block, the potential presence of No Parking signs around crosswalks, or the curb is indented.

- **Free - Time of Day Restricted:** Parking is only allowed next to the curb during certain hours of the day and payment is not required.

- **Free - Time Limits:** Parking is allowed next to the curb at all times of day, payment is not required, but there are time limits for how long a person can park in one spot.

- **Paid Parking:** Payment is required to park during a specified period of the day. Time-of-day and time limit restrictions may also be present.

- **Loading Zone:** Commercial/freight loading zone or passenger loading zone.

- **Permit Parking:** There are signs designating that a permit is required to park next to the curb.

- **Valet Parking:** Valet loading zone.

- **Other:** Miscellaneous (parklet/street seats, bike corrals, etc.).

- **No Parking - Restricted:** There are signs indicating that parking is prohibited This also includes certain parts of a blockface such as the space within 20 feet of crosswalks, within 15 feet of intersections, where there are bulb-outs, and within 15 feet of fire hydrants, etc.

- **No Parking - Driveway:** A driveway is present, making it impossible to park on-street at that location.

Figure 1.1. Study Area
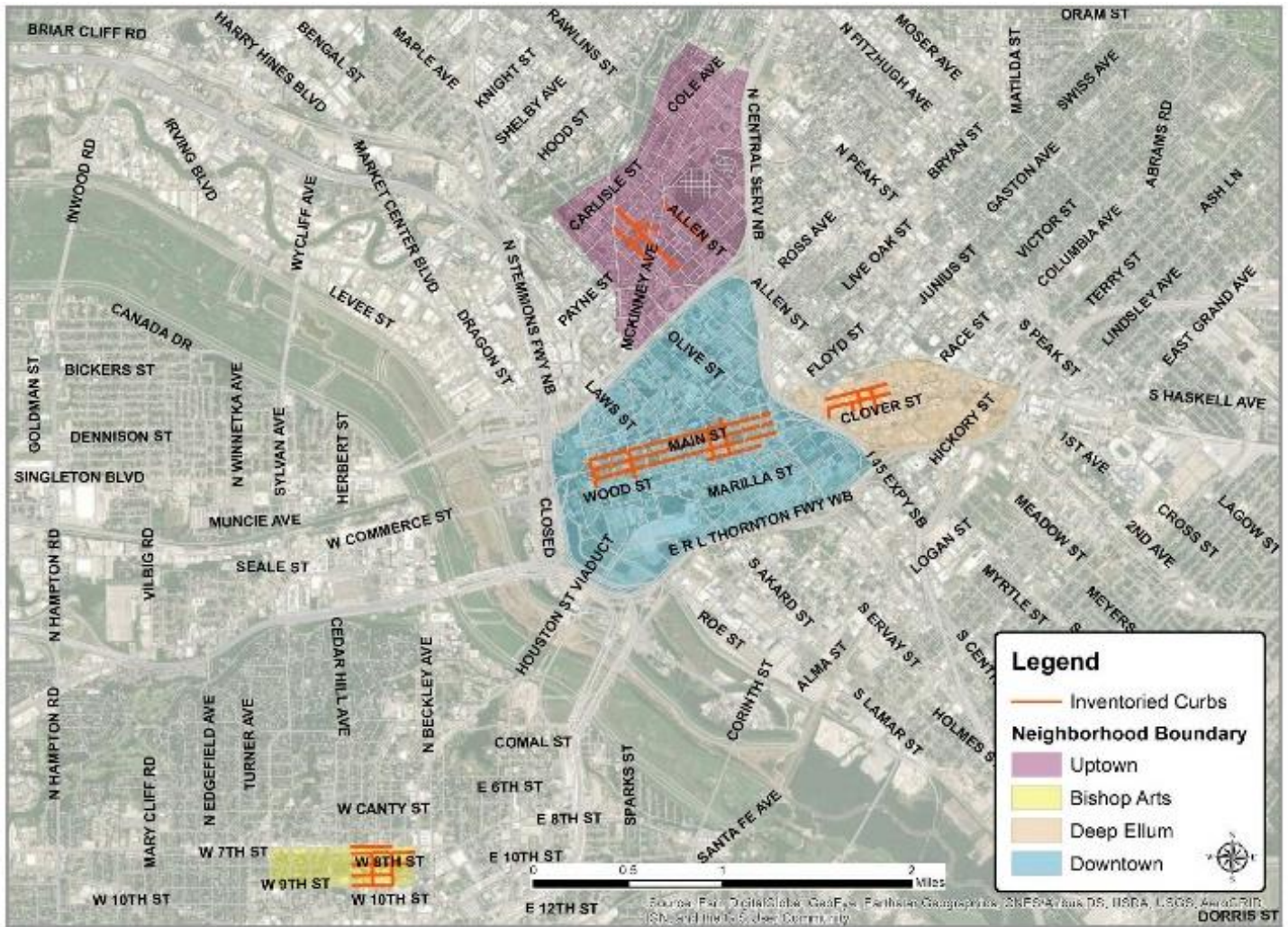
Figure 1.2 illustrates the result of the field collection and shows the variety and wide range of curb use patterns across the districts. Later in this section, the curb uses in each district will be reviewed individually. **Figure 1.3** demonstrates the total amount of curb space that does not allow parking, that is free, paid (either with a payment or a permit), used for loading, and is used for other purposes, including bike racks and restaurant eating areas, by district.

Figure 1.2. Map of Curb Uses by District
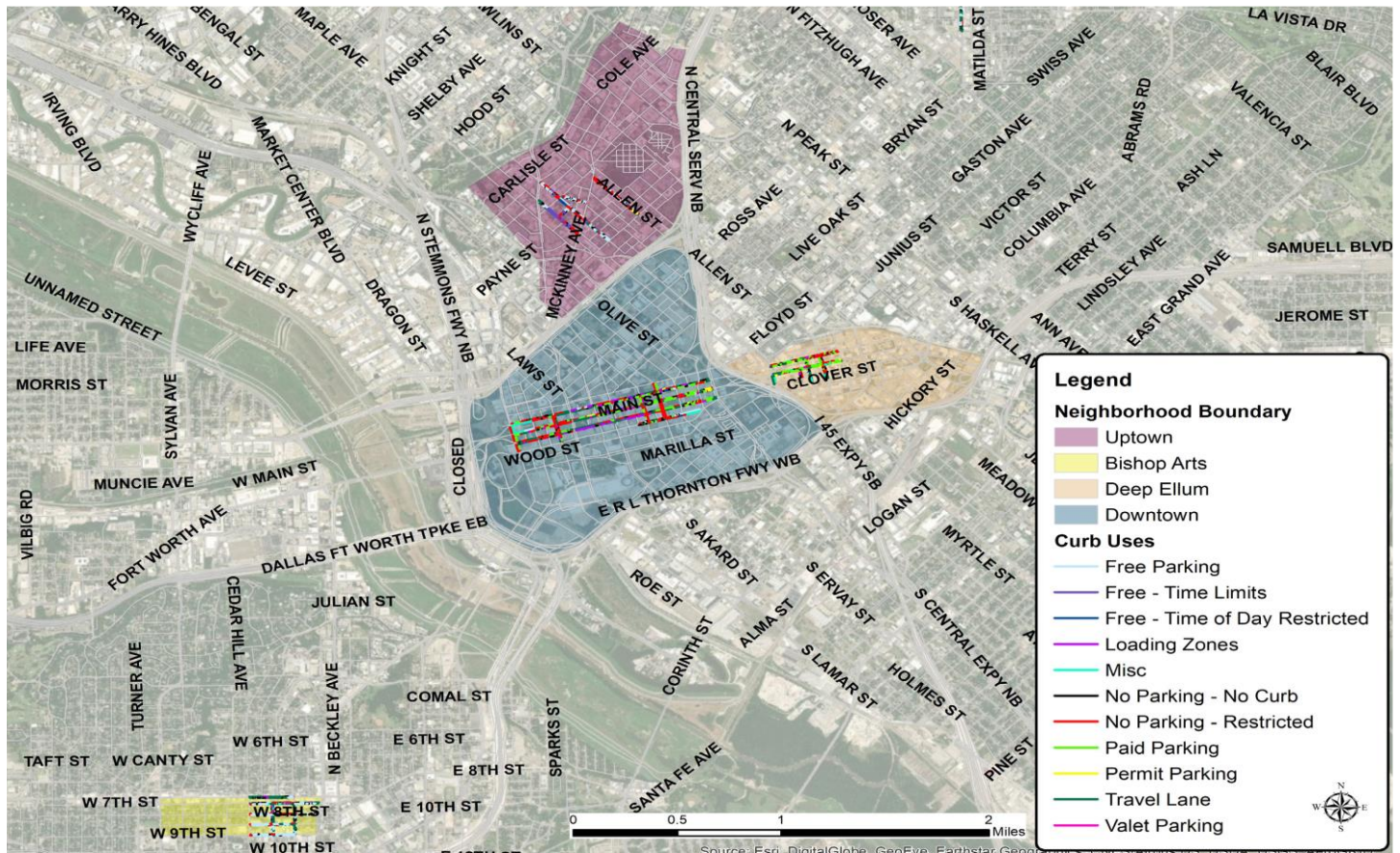
Figure 1.3. Aggregate of Curb Uses by District
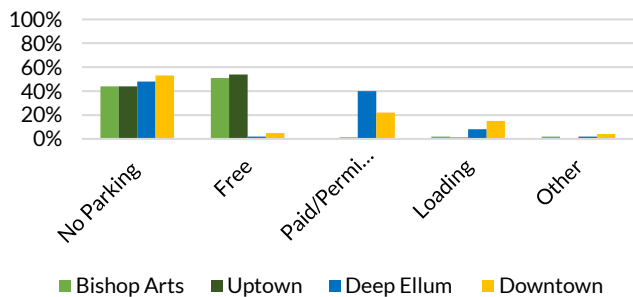
Note: No Parking includes areas posted with "No Parking" signs, where parking is prohibited because there is no physical curb or because the curb use is a travel lane

Throughout Dallas, most curbs are used for a single purpose. Of the uses indicated, No Parking is the most prevalent, due to necessary setbacks at driveways, curb cuts, fire hydrants, etc. Also, in the neighborhoods surveyed, the curb lane is often used as a travel lane especially on primary arterials. Within Downtown there are some areas that convert from parking to a travel lane at peak commute times, also referred to as rush hour parking restrictions.

The following sections examine the curb uses in sections of the Downtown, Uptown, Bishop Arts, and Deep Ellum districts that were sampled.

Downtown

Downtown Dallas is a vibrant mix of office, retail, government buildings, residents, restaurants, nightlife, and more. The most important curb functions in this area to support the various land uses are bus lanes and loading zones. Two main issues in the Downtown area are 1) unclear communication on how the curb can be used and when, and 2) the evolving definition for "loading zone." To this last point, loading zones are historically thought of as places for large freight vehicles to stand for a length of time to drop-off goods for the surrounding businesses. Today, loading also includes Transportation Network Companies (TNCs), food delivery, and an increase in small-scale deliveries, such as those from USPS or other delivery services.

The curb uses and their locations for the streets sampled in the Downtown area are shown in **Figure 1.4** on the following page. The map demonstrates that a lot of curb uses are present to serve the various needs in the Downtown area; however, they are not consistently located. The length and location of the curb uses is not consistent from block to block; and while there may be extenuating circumstances that make consistency challenging, there should be some consistency so that customers, delivery drivers, and other users know where to find loading zones, parking, and drop-off locations along any curb face regardless of the street they are on.

Viewing the same data in a different way, **Figure 1.5** summarizes the percentage of each use in relation to the total amount of curb length inventoried Downtown.

Figure 1.4. Downtown Curb Use Map

Figure 1.5. Downtown Curb Use Length Percentages
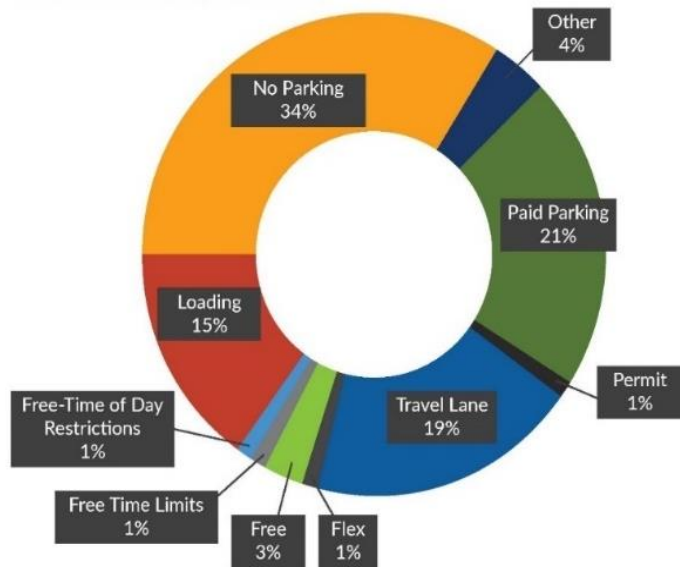
As shown in the map and the chart, the No Parking areas and travel lanes combined make up the majority of the curb uses, with the other large portion being dedicated to paid parking and loading zones. However, they are inconsistently located throughout, which can leave some areas feeling under-served and some users confused if they are not familiar with the area.

Another notable observation is that there are "flex" curb uses. These are areas where the curb is reserved for one use at one time of day (e.g., travel during rush hour) and another use for the remainder of the day (e.g., parking). In all flex uses observed, they were a combination of No Parking and another use. These areas establish a precedent to potentially expand the use of flex curb uses.

Uptown

Uptown Dallas is characterized by long blocks that have a mixture of residential and commercial uses. The district has seen an increase in competition for curb space, particularly among micromobility options, green space to combat heat island effects, loading, and bicycles. Similarly, as density increases and more people are brought to the area, demand for curb use also increases.

The map shown in **Figure 1.6** on the following page illustrates the various curb uses in a portion of Uptown. **Figure 1.7** summarizes the curb uses as a percentage in relation to the total amount of curb length inventoried. The primary curb use in Uptown is No Parking, closely followed by free parking. Only 1% of the observed curb length is dedicated to loading zones. This is a challenge for businesses and multi-family residential areas that rely on loading zones. Any loading in this district must occur on the street in undesignated areas.

Figure 1.6. Uptown Curb Use Map

Figure 1.7. Uptown Curb Use Length Percentages
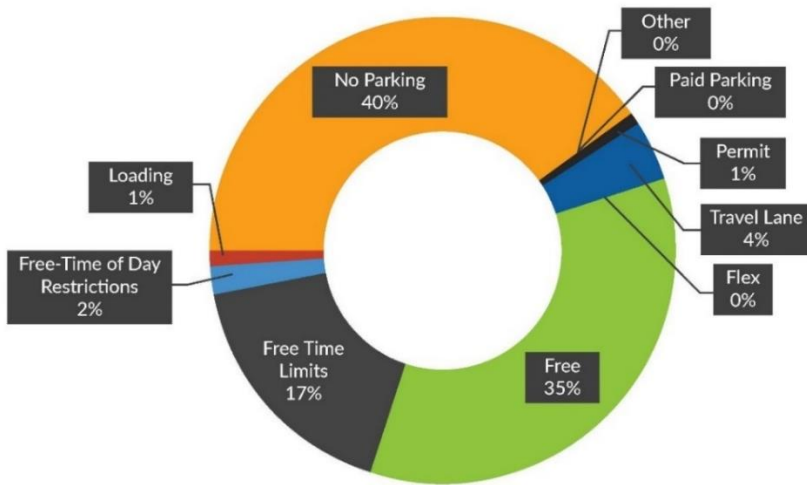
Bishop Arts

Similar to Uptown, Bishop Arts is also characterized by long city blocks and has commercial areas surrounded by residential areas. The mixture of residential and commercial uses competing for curb space creates a challenging dynamic in the district. As shown on the following page, all on-street parking is free and only 12% of the free parking has time limit restrictions (e.g., 2-hour parking).

The map in **Figure 1.8** demonstrates the inconsistency of the placement of curb uses as well as the disparity between the types of curb uses present. **Figure 1.9** summarizes the curb uses as a percentage in relation to the total amount of curb length inventoried.

As previously stated, there are only three primary curb uses in the portion of the district that was inventoried, two of which do not allow parking, stopping, or standing of any kind. As seen with Uptown, Bishop Arts also has a small amount of space dedicated to loading zones, which means loading likely occurs in undesignated areas like travel lanes. Loading zones not only allow freight deliveries but also accommodate TNCs, such as Uber and Lyft, or other drop-off/pick-up services.

Figure 1.8. Bishop Arts Curb Use Map
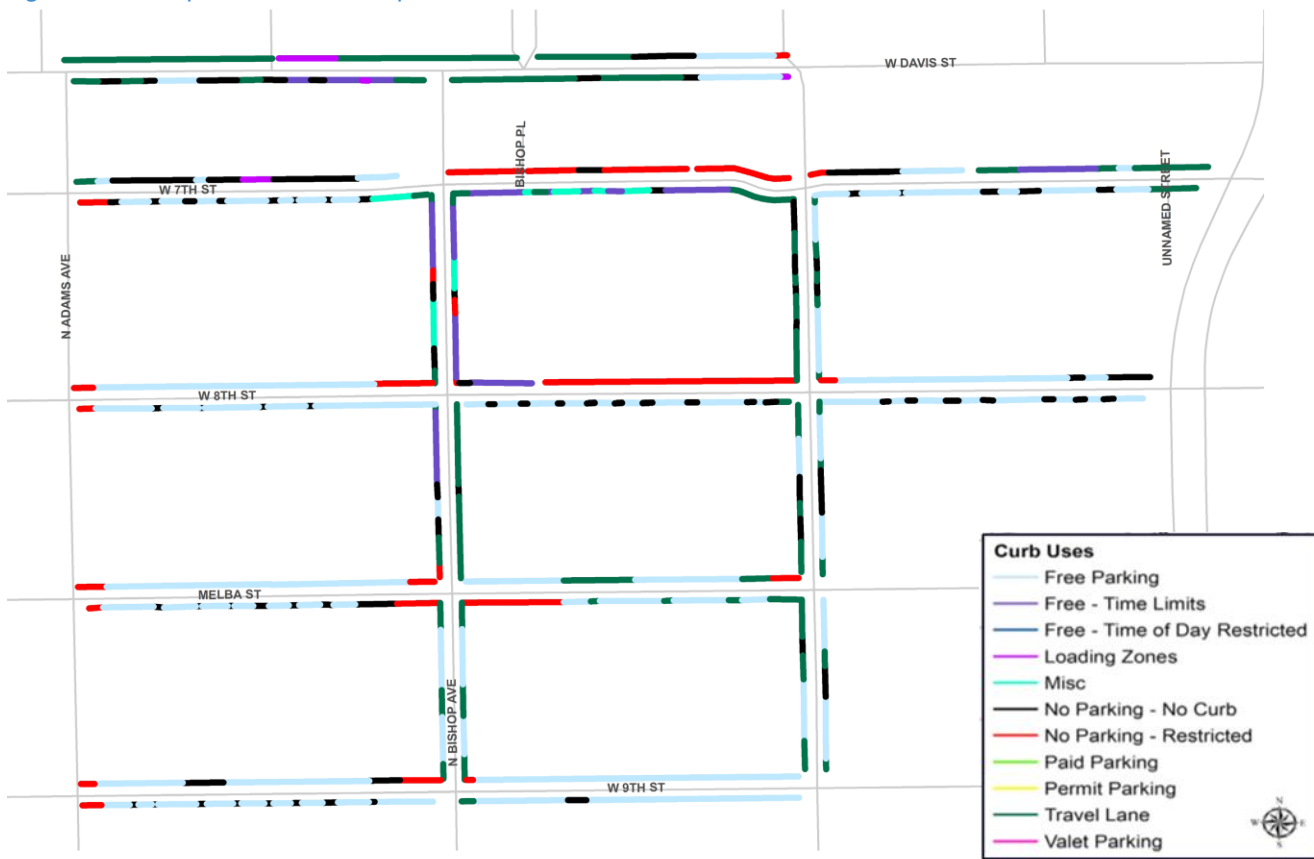
Figure 1.9. Bishop Arts Curb Use Length Percentages
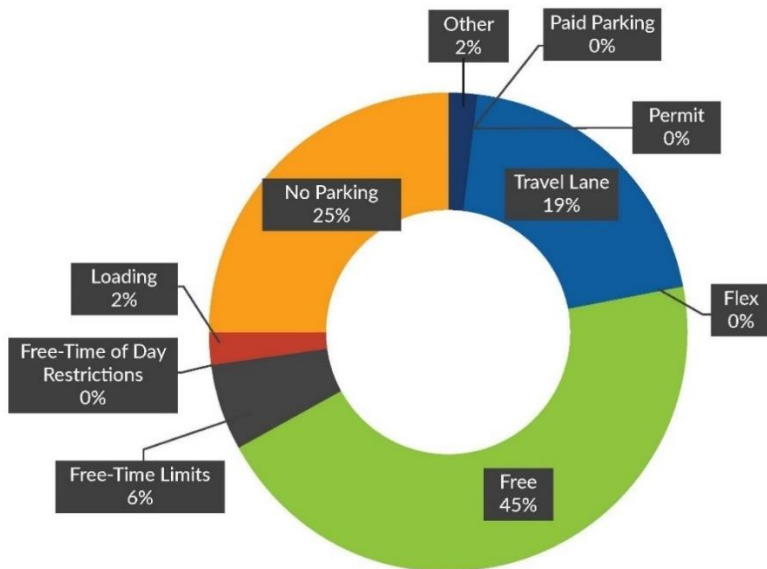
Deep Ellum

Deep Ellum is a mixed-used district with entertainment, commercial, warehouse, residential, business, and historical/cultural land uses. The vast mixture of uses creates a time-of-day characteristic which is unique to this district. It is busy throughout the entire day, where residential uses dominate in the mornings and evenings, business uses have peak operation during the day, and commercial and restaurant or other entertainment uses peak in the evenings. As such, there is a need to have the curbs be as fluid as the land uses and offer flexibility to support the changing needs.

Figure 1.10 illustrates the type and location of curb uses observed in a portion of Deep Ellum. The map reflects what is seen in the other districts, a disparity and mismatching of curb spaces, which can lead to inefficiencies in how the curbs are used. The chart shown in **Figure 1.11** summarizes the curb uses as a percentage in relation to the total amount of curb length inventoried.

Unlike the other districts observed, the main curb use observed in Deep Ellum is paid parking. This is a reflection of the high demand and the types of land uses found in this area. Similar to the other districts is the lack of loading options. Consistent placement of loading zones and allowing those zones to be flexible by time of day, could optimize curb use efficiency.

Figure 1.10. Deep Ellum Curb Use Map

Figure 1.11. Deep Ellum Curb Use Length Percentages
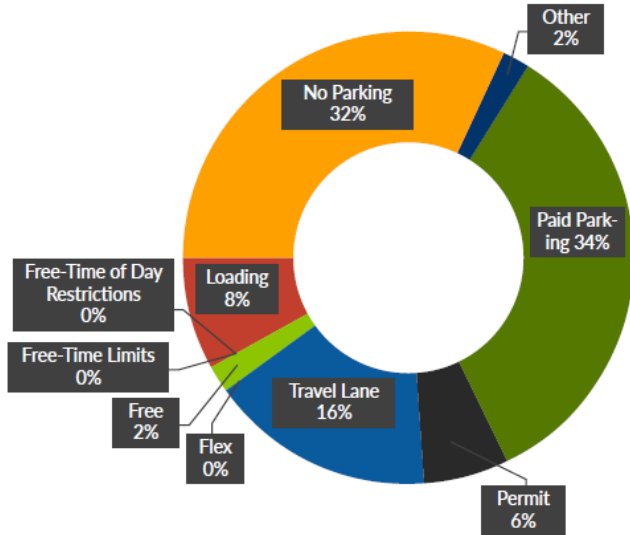
General Findings from Curb Use Inventory

During field review, three consistent challenges were identified that make curb use confusing for users, businesses, and city staff:

- **SIGNAGE** – there are a variety of signs throughout the city to convey the regulations for each curb use. At times, these may be confusing due to signs conflicting with curb use or due to the variety of curb uses and inconsistencies from block to block, street to street, or district to district.

- **PAYMENT OPTIONS** – passing through each district, a different payment option is presented for metered parking (credit card, coin, app, etc.). This can be confusing for users, including visitors, business patrons, employees, USPS, and freight delivery drivers, who travel between districts.

- **CONSISTENCY** – it is often encouraged to promote the unique characteristics of each district. However, consistency in terms of sign placement, curb coloring, etc. is an essential component of compliance assurance because users need to know what these various elements along the street mean. If elements along the curb are constantly shifting and changing from one area to another, the user will likely get confused on the element meanings in each area.

Additionally, there is a large disparity among the types of curb uses available. For example, in Bishop Arts, the sole sampled district that does not overlap with a MPA, 7-15% less curb space is designated No Parking than in the other three sampled districts. Downtown also stands out among the surveyed districts for its very high percentage of loading zone curb space, which takes up 7-14% more space than in the other districts. Although the sampled blocks are only a representation of the broader districts in which they lie, they nonetheless reveal that curb space allocation by use is highly inconsistent across Dallas.

PRIORITIZING & ALLOCATING CURB SPACE

2

> **OBJECTIVE:** Provide for the safe and efficient movement of people and goods by effectively managing the curb space in commercial and mixed-use districts, using data- and goals-driven decision-making processes.

Prioritizing and determining what curb uses to allow on a given street is the foundation of curb management. These decisions should be based on adopted city plans and priorities. This chapter will provide the framework for prioritizing the use of the curb space in various contexts throughout Dallas, based on adjacent land use and roadway type. Subsequent chapters will focus specifically on strategies for managing on-street parking in commercial and mixed-use areas with high demand and businesses that rely on it. However, the decision to allow on-street parking must first be made, and that is the focus of this chapter.

Types of Curb Uses

Many cities make curb use decisions on a case-by-case basis, typically in response to a request from a business, landowner, or other neighborhood stakeholder. However, efficient and effective curb management begins by understanding the underlying curb functions that each use serves, then making curb decisions that prioritize the functions that meet transportation and land use needs. Based on a review of peer city curb management programs, this report recommends that Dallas conceive of curb uses as serving five overall functions: access, activation, greening, mobility, and storage. **Figure 2.1** shows which uses are included under each function.

Some cities also include a sixth category, commerce. However, treating the needs of businesses as fundamentally separate from other stakeholders can contribute to a sense of competition among curb users. As **Figure 2.1** shows, curb uses that are important to businesses—like short-stay parking, loading/short-stay zones, or outdoor eating space—all serve multiple users and can be categorized under other functions.

Figure 2.1. Curb Functions and Associated Uses

FUNCTION	DEFINITION	USES	
Mobility	Supports efficient movement of people and goods as they travel through the area	• General purpose travel lanes • Sidewalks • Bikeways	• Multi-use paths • Crosswalks • Transit lanes
Access	Enables people and goods to make the connection between their mode of transportation and their trip origin/destination	• Loading/short-stay zones (including use by private vehicle, home delivery, curbside pickup, commercial vehicle, taxi, valet, shuttle, and TNC) • Short-term parking – two hours or less (including ADA accessible spaces) • Bicycle and micro-mobility parking	• Bus, light rail, and trolley stops and stations • Driveways • Carshare parking • Crossing improvements • Garbage & recycling collection
Activation	Transforms streets into inviting, enjoyable public spaces	• Food trucks • Sidewalk cafes • Parklets • Public art and lighting installations	• Public amenities (including trash cans, water fountains, street furniture, and other health and hygiene stations)
Greening	Adds environmental services to support aesthetics, health, and resiliency	• Planter boxes and planting strips • Trees and shrubs	• Art structures, information kiosks, ads, etc.
Storage	Provides extended-stay spaces for vehicles and equipment when they are not in use	• Long-term parking – more than two hours (including ADA accessible spaces) • Construction and equipment storage • Portable containers/storage pods	• Electric vehicle (EV) charging stations, as applicable • Reserved spaces for institutional users (including government officials and law enforcement)

MOBILITY

Mobility functions support the efficient movement of people and goods as they travel through the area. Mobility is the priority on most major arterials and throughout industrial areas and should be prioritized on streets that serve as main routes leading people into and through an area.

Prioritizing mobility on a transit street may mean dedicating a curb lane for transit use, while mobility on an industrial street will likely mean designing through lanes with freight vehicles in mind. Similarly, bicycle lanes improve mobility on designated bicycle routes but may be less important when not on a designated network of bikeways or low-stress shared streets.

Bikeways
Shared-Use Paths

BUS ONLY

Travel Lanes

BUS ONLY

Transit Lanes
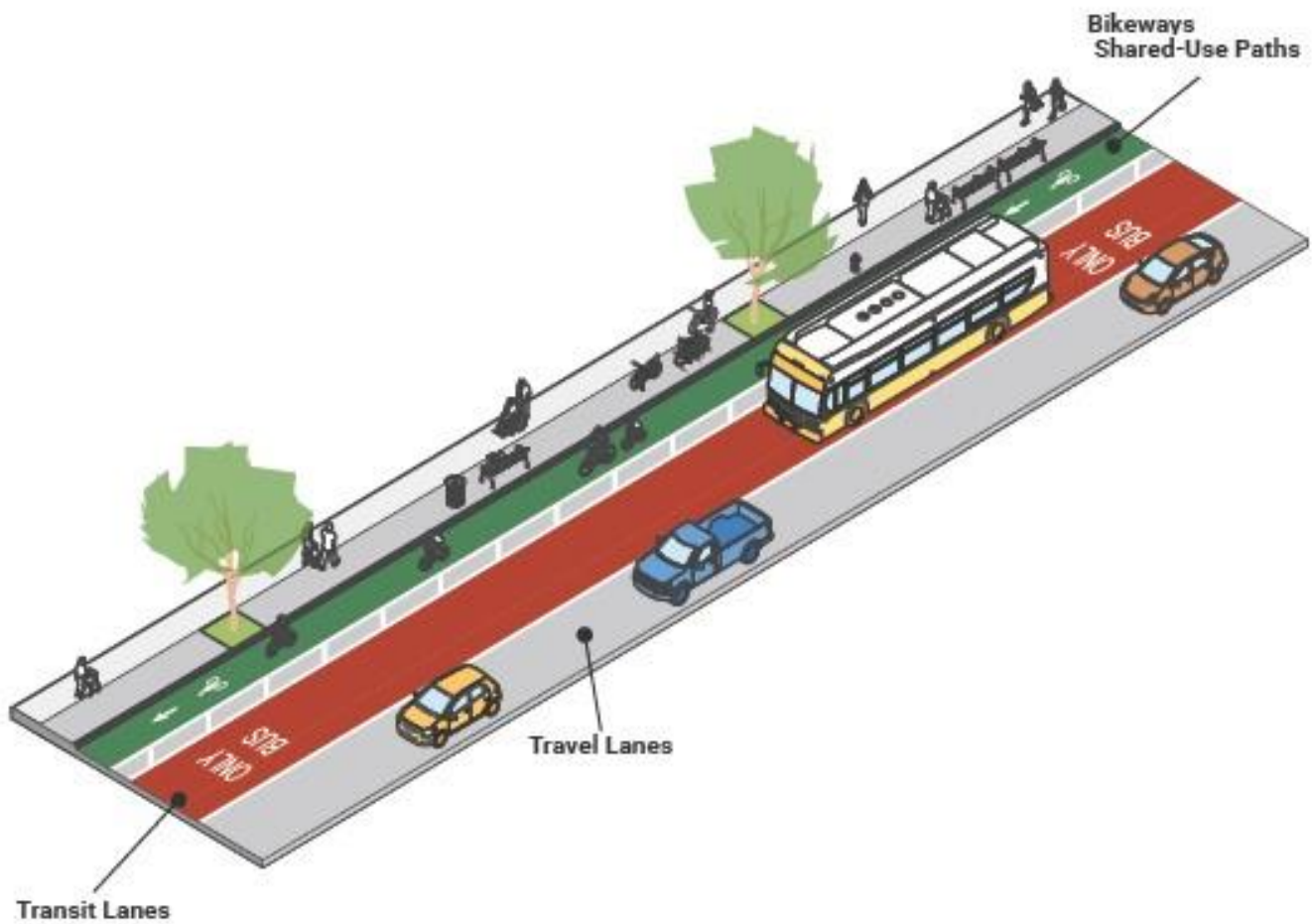
ACCESS

Access functions enable people and goods to make the connection between their mode of transportation and their trip origin/destination. They are about getting people to and from their destination, allowing them to get on or off their bike, into or out of a vehicle, and onto or off of transit. Prioritizing access is especially important on minor arterials or collectors, depending on land use. Land uses with many destinations together benefit from access functions the most.

Access functions are constantly changing with technology and are driven by demand. Multi-modal uses such as mobility hubs are more recent introductions to the public realm, as are the needs for on-demand delivery and TNCs, that increase demand for loading/short-stay curb uses. A future with fully autonomous vehicles will also see increased demand for drop-off and pick-up space. Specific access needs should be evaluated before deciding on what access function the curb space should serve.
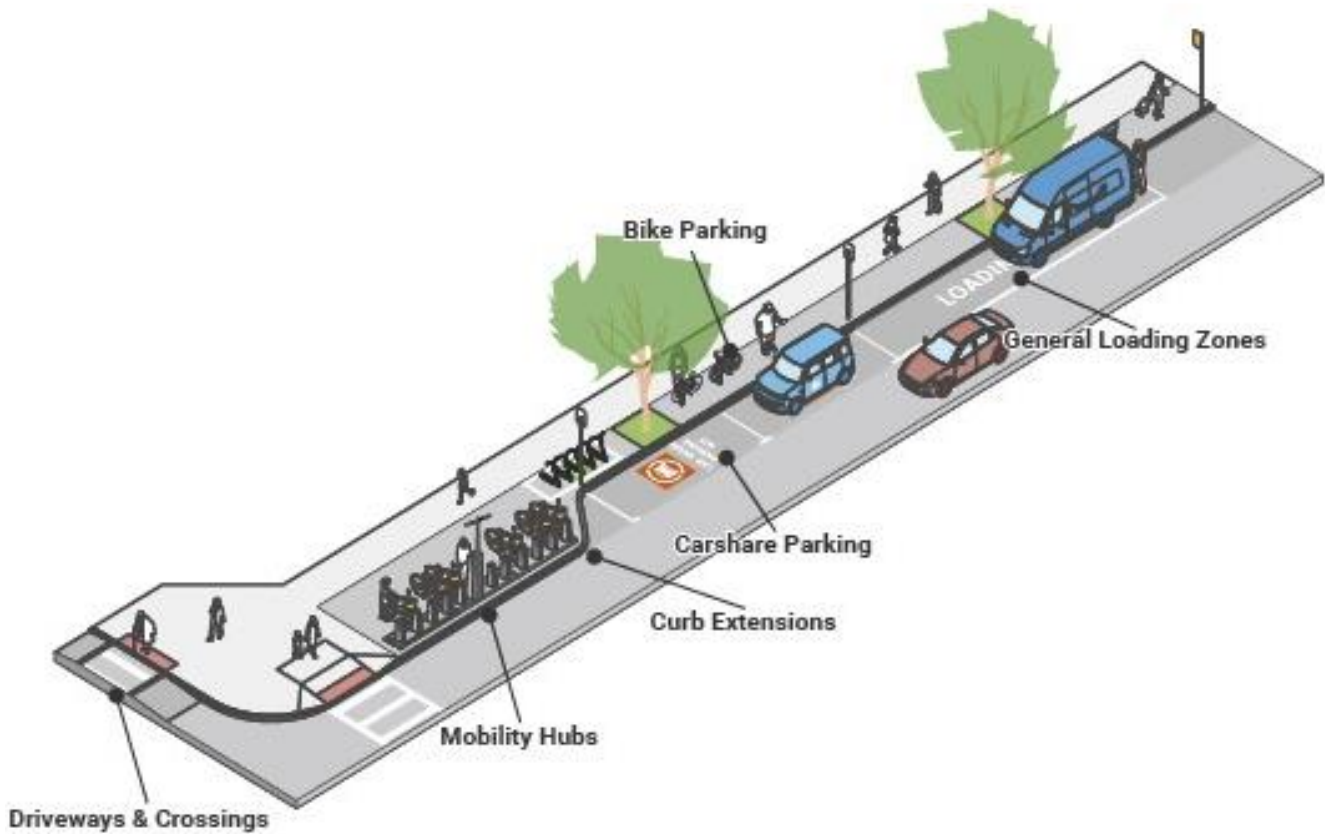
ACTIVATION

Activation functions transform streets into inviting, enjoyable public spaces. They are suited for minor arterials and collectors, which support active land uses with plenty of local foot traffic but are more comfortable places to linger due to their lower vehicle volumes and speeds.

Prioritizing activation on a street is about making space for people to stay, observe, and linger, whether it is to eat at a sidewalk cafe, take a break on a bench, or observe public art.

Outdoor Dining Spaces

Street Furniture

Food Trucks

Parklets
Active Public Spaces
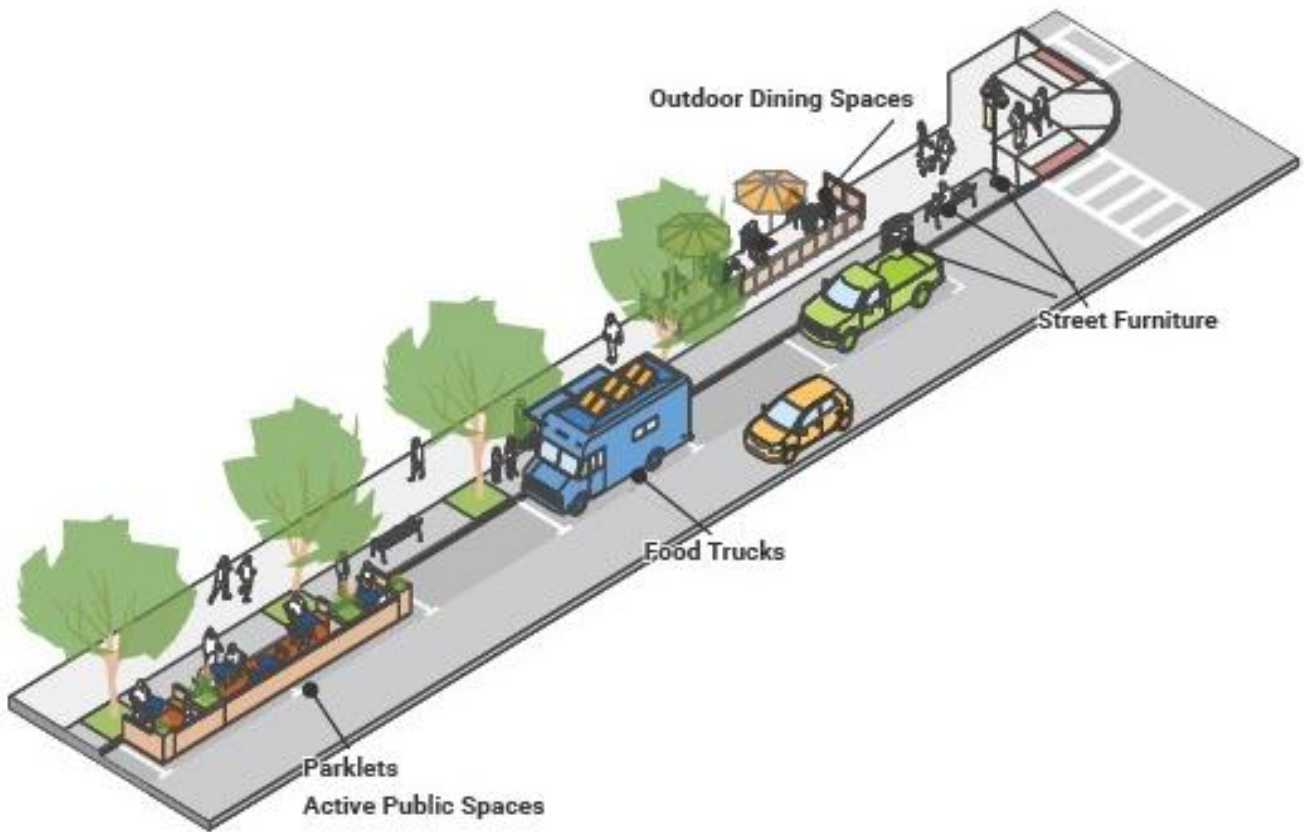
GREENING

Greening functions add environmental amenities to support aesthetics, health, and resiliency. Greening infrastructure provides separation from traffic on large streets, traffic calming, a pleasant pedestrian environment on smaller streets, and environmental amenities for any street.

Greening can come in a variety of forms depending on the street type, including planter boxes, planting strips, rain gardens, and street trees. The presence of greening element factors increases the desirability of a streetscape, improving aesthetics and providing shade to users, while also improving the environmental function of the street.
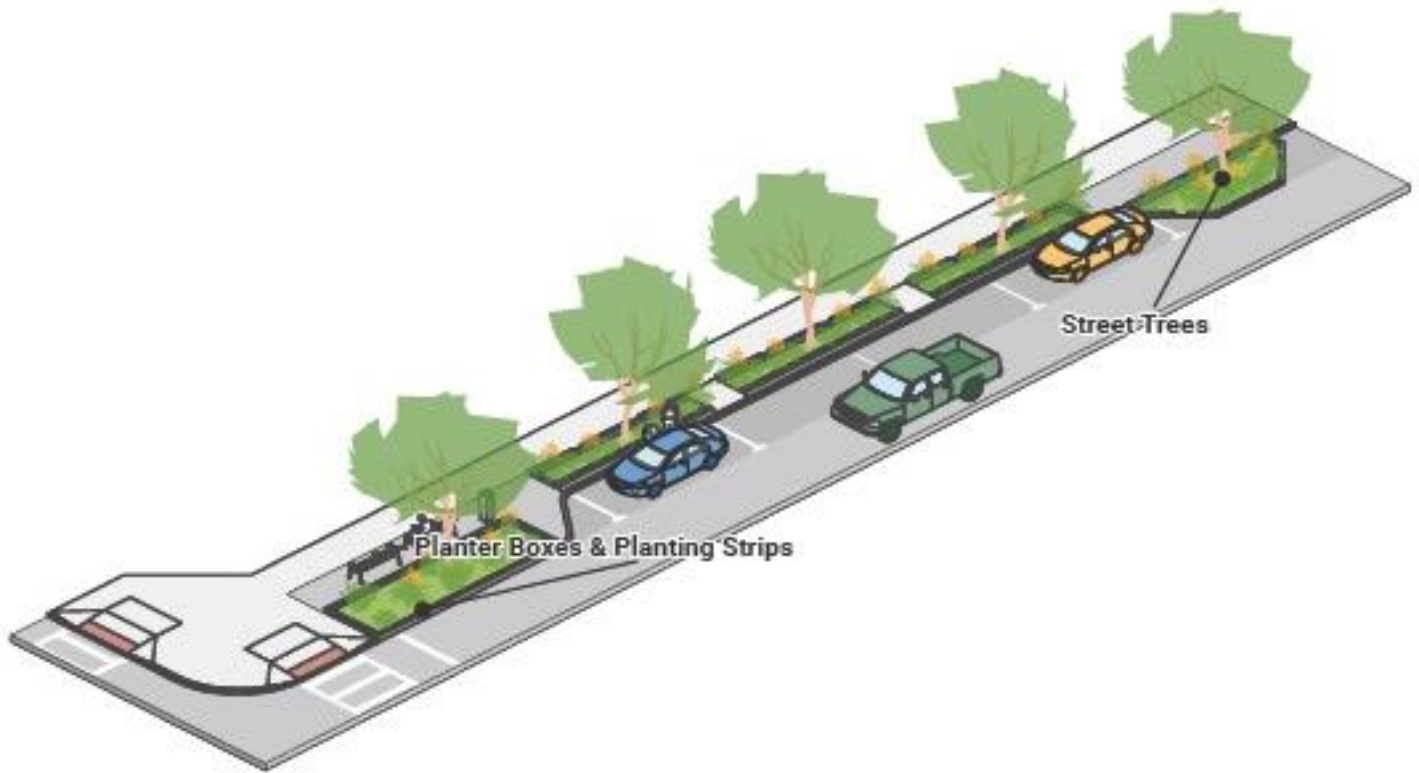
STORAGE

Storage functions provide extended stay spaces for vehicles and equipment when they are not in use. Prioritizing storage infers that there is not a high need to quickly access the space for short-term stays or errands. As such, storage functions are typically prioritized on local streets, where the main curb space users are residents.

In most cases, if a street is prioritized for storage, the main curb use will be long-term private vehicle parking. That said, storage functions can also include construction and equipment storage, reserved spaces, storage pods, or EV charging stations.

Electric Vehicle (EV) Charging Stations

Reserved Spaces By Permit

Reserved Spaces for Institutional Users
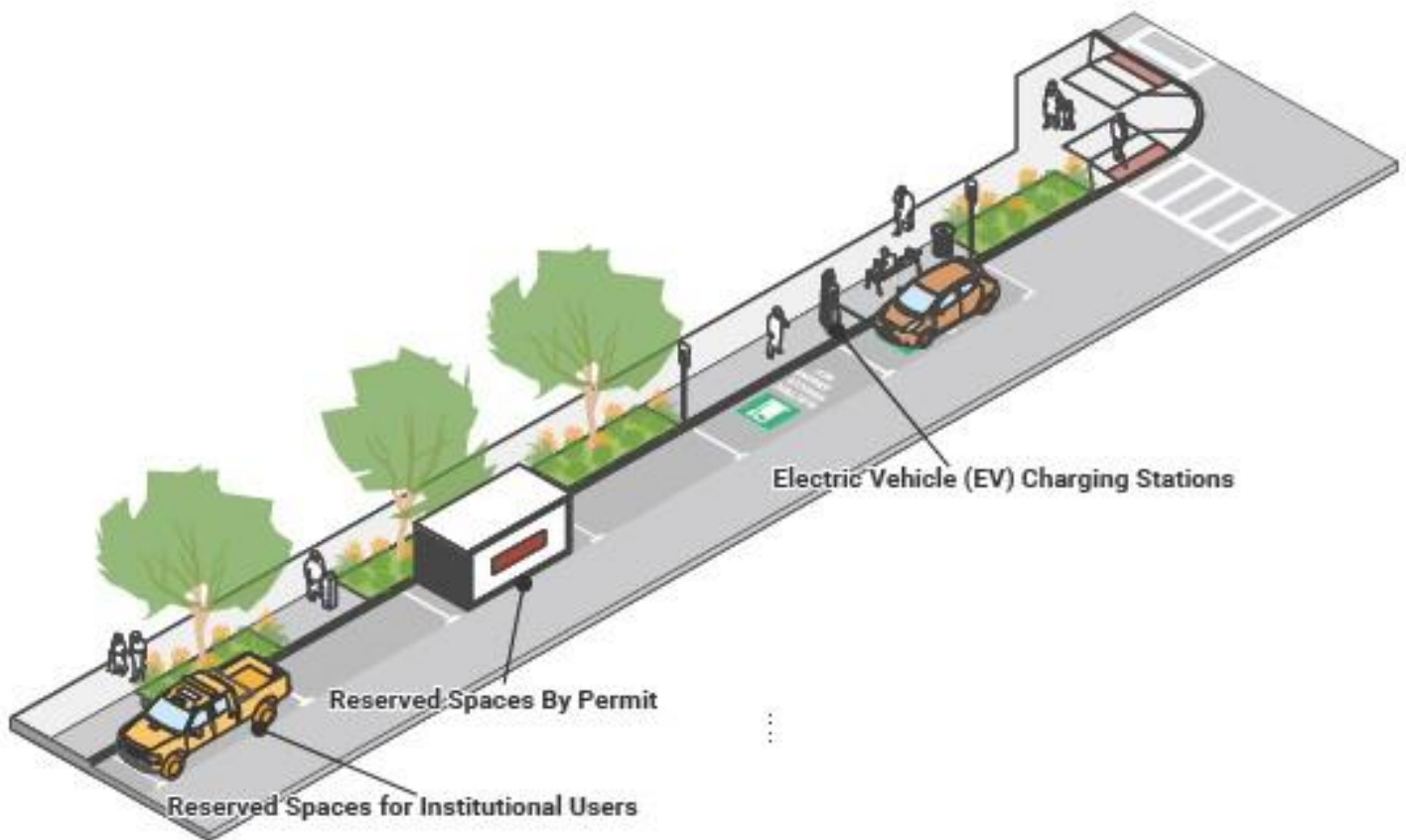
Prioritizing Curb Functions

Cities can most efficiently manage curb space by considering the overall functional needs and desired outcomes in a corridor or neighborhood, rather than making ad-hoc decisions on a case-by-case basis. This policy recommends that the city follow a three-step process in allocating curb space, which is shown in **Figure 2.2** and described below.

1) **Prioritize safety.** Through the Vision Zero Action Plan, the city has committed to a goal of reaching zero traffic fatalities and a 50% reduction in severe injuries by 2030. Improvements like No Parking around intersections, fire hydrants, and crosswalks, curb extensions, and dedicated turn lanes can be critical in preventing collisions and ensuring travelers can see each other with sufficient time to react. When allocating curb space, city staff should first determine whether any design solutions are needed to mitigate safety risks and address conflict points.

2) **Meet mobility goals required by plans and policies.** While businesses will often prioritize vehicular access above mobility, sufficient access cannot be had without sufficient mobility. Dallas has plans and policies that dictate where and how the public right-of-way should be used to achieve mobility goals. For example, the Dallas Bike Plan identifies routes where a dedicated bike facility will take priority over other curbside uses. The Thoroughfare Plan dictates the number of travel lanes that need to be provided along arterial and collector roads. The Street Design Manual establishes the minimum width of pedestrian zone elements based on the type of street. City staff should consult the Dallas Bike Plan, Thoroughfare Plan, Street Design Manual, Pedestrian Overlay Zone requirements, Complete Streets Manual, and sidewalk requirements in zoning districts to determine what multimodal facilities take priority within streets' right-of-way. Once parking is permitted along a street, it is often very difficult to take away.

3) **Prioritize access, activation, greening, and storage based on the land use and transportation content.** In some circumstances, ensuring safety and mobility goals are met may take up most of the available right-of-way, including the space above and below the curb. However, in many locations in commercial and mixed-use areas, unallocated curb space will remain after these first priorities have been met. The land uses, multimodal mobility options, and neighborhood character together should guide decisions about what curb functions are most important. **Figure 2.3** recommends curb use priorities based on the land use and transportation contexts within Dallas.

Figure 2.2. Process for Allocating Curb Space
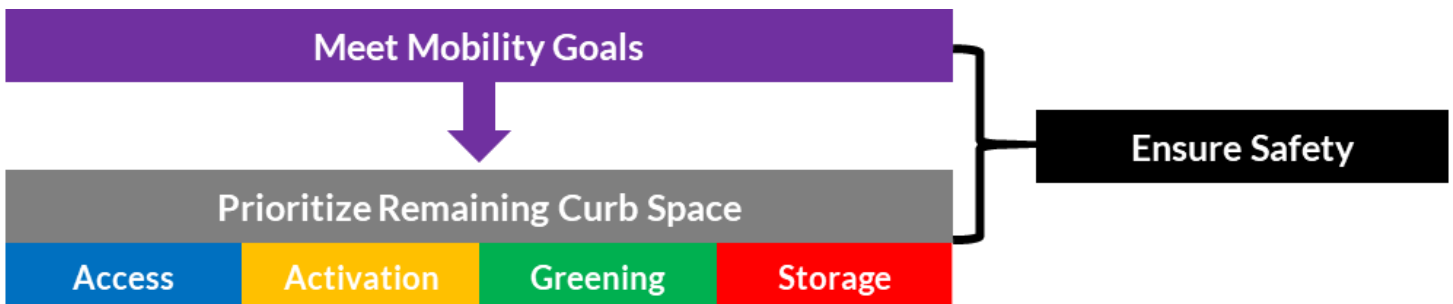
Figure 2.3. Recommended Priority Curb Functions by Land Use and Transportation Context

		STREET CLASSIFICATION		
		Principal and Minor Arterials	Collector Streets	Local Streets
STREET CONTEXT	**Mixed-Use**	Prioritize Access; Balance Activation, Greening	Prioritize Access; Balance Activation, Greening, Storage	Balance Access, Greening, Storage
	Commercial			
	Parkways	Prioritize Greening; Balance Access, Activation	Balance Activation, Greening	-
	Industrial	Prioritize Access	Prioritize Access, Greening Balance Storage	Prioritize Storage; Balance Access, Greening
	Residential	Prioritize Greening and Access	Balance Access, Greening, Storage	Balance Access, Greening, Storage

Note: functional classifications and contextual street types align with the Dallas Complete Streets Design Manual designations.

The recommendations in **Figure 2.3** reflect the ways that the land use characteristics of an area strongly influence how and why users seek to use the curb. For example, an entertainment district may see many visitors arriving and departing by transit, bicycle, rideshare (such as taxi, shuttle, or TNC), and carpool. The success of this district will depend in part on convenient multi-modal access, with longer-term parking primarily occurring in off-street parking lots and garages. In contrast, a residential neighborhood may be most desirable when the streets are well-planted with trees and offer convenient longer-term on-street parking—pointing to greening and storage as core functions, with uses related to access focused primarily on pick-up/drop-off at multi-family buildings.

Figure 2.3 also indicates how a street's functional classification determines the curb use priorities. After mobility, access is the priority on arterials, as these roads serve as the main routes leading people into an area. Activation may be better suited for collectors, which support active land uses with plenty of local foot traffic but are more comfortable places to linger due to their lower vehicle volumes and speeds. Long-term storage (i.e., parking for more than four hours) should generally be redirected to off-street parking lots and garages, and local streets and other lower-classification routes, which benefit from traffic calming and are less likely to be the sites of land uses that

generate frequent short trips. Depending on the urban context, greening may be a priority on streets of any size – to provide separation from traffic on large streets, traffic calming and a pleasant pedestrian environment on smaller streets, and environmental benefits anywhere.

There may be some cases where a specific curb use should be sited as close to a particular land use as possible. For example, establishing transit stations, ADA-accessible parking, and drop-off/pick-up zones in front of a land use that serves the disability community will maximize accessibility for those with limited mobility. In most cases, however, balancing distribution of curb uses within a larger area can offer reasonable convenience to all users, even if the use they seek is not directly in front of their destination. In a high-demand restaurant or entertainment district, most users will willingly walk a few blocks from their short-term parking, transit stop, or bicycle parking to their destination, and a commercial loading zone can generally serve all businesses within 100-200 feet. In summary, by selecting functional priorities based on land use and considering where to site curb uses from a neighborhood or district perspective, the City can improve the efficiency and functionality of its curb zones.

Arranging Curb Uses Along a Block

A key tenet of designing safe and efficient transportation networks is predictability. The concept of predictability can and should be extended to curb management decisions, to provide a more seamless and user-friendly experience that promotes compliance. This section provides guidance on how and where to locate curb uses to create a more predictable experience for users.

In an ideal setting, on-street parking would be the central use along a block, buffered by loading zones or taxi stands at the end of the block. However, in some locations it may be necessary to locate on-street spaces at the end of a block to account for transit or commercial vehicle loading. In other locations, especially in evening operations, it may be necessary to locate on-street parking on the end of blocks, buffering valet operations.

Of all the curb uses identified in this document, on-street parking needs to remain the most flexible in its location and placement. However, one constant that should be applied throughout commercial and mixed-use areas in Dallas is to provide similar groupings of on-street spaces. Short duration parking (e.g., 30-minute limits) should not be included within the same block that has mostly two-hour parking. Similarly, passenger loading, commercial vehicle loading, and taxi stands should not be placed in the center of on-street parking sections. Rather, these uses should be located to buffer on-street uses from the intersection and allow vehicles to enter and exit these loading areas more easily. The application and location of on-street parking and loading should be decided based on adjacent land uses and competing curb lane needs.

Curb uses on a typical block should support the land use and transportation context. Once street space has been allocated to ensure safety and achieve multi-modal mobility, the space above and below the curb can be used to meet priorities related to access, activation, greening, and storage.

Figure 2.4 shows how different curb uses might be arranged along a block face in a mixed-use district, demonstrating some of the best practices for enhancing safety, comfort, and convenience for people in active urban neighborhoods.

Figure 2.4. Best Practices for Locating Curb Uses Along a Block

Providing longer-stay on-street parking on side streets prioritizes more active curb uses on the main corridors.

Positioning micro-mobility hubs near transit stops supports first/last mile connections for transit riders.

Parklets and vending such as food trucks may be placed adjacent to each other, providing space to eat, drink, and gather.

Accessible parking should be placed near a curb ramp, which may be at the end of a block, when no access aisle is provided.

Commercial loading with large trucks may be best suited on side streets.

Placement of the bus stop on the far side of the intersection increases the visibility of passengers boarding and exiting as they cross the street and prevents turning vehicles from obstructing the bus allowing it to depart promptly and safely.

Where contextually possible/recommended, midblock curb extensions provide opportunities to safely cross the street. Designs may incorporate bike parking, landscaping, mobility hub elements, or street furniture while maintaining clear sightlines.

At intersections, provide daylighting and parking restrictions (50' preferred, 20' minimum) to maximize visibility.

General use loading / short stay zones can serve taxis, TNCs, passenger pick-up/drop-off, or people making a quick purchase. Place near activated spaces (i.e., restaurants, cafes, public open spaces), high-density residential buildings, or other key services.

Action Items

The action items in the following table are needed to realize the recommendations in this chapter.

#	ACTION	COST	TERM
2.1	Using the curb use inventory created for this effort as a starting point, expand and maintain an up-to-date GIS-based inventory of curb uses in central Dallas and areas that require active curb management and parking enforcement.	$	Medium

CREATING LOCAL PARKING & CURB MANAGEMENT PLANS

OBJECTIVE: Increase access to businesses in mixed-use and commercial districts by promoting adequate turnover of on-street parking stalls using time limits and parking meters.

Historically, most curb management decisions in Dallas have been made on a case-by-case basis, generally in response to service requests that are submitted by members of the public that are requesting treatments like No Parking signs, parking time limits signs, or loading zones at specific locations. However, there may be times when a more holistic review of an area is needed.

Indications of a need for greater parking management in an area include:

- On-street parking is more than 85% occupied for most of the day on *multiple contiguous blocks*, leading to a greater prevalence of illegal parking activities (stopping or parking in the travel lanes, parking too close to intersections, etc.) and concerns about emergency vehicle access. (See the Paid Parking chapter for the reasoning behind the 85% threshold.)

- Extensive use of valet parking, which can discourage patrons from making short visits to shops. Valets also require frequent enforcement to ensure their operations do not impact safe and efficient roadway operations or use on-street parking stalls to park vehicles.

- Business-generated parking spilling into residential neighborhoods and requests for more Residential Parking Permit zones in an area.

- Development/redevelopment activity resulting in increasing residential densities and intensity of non-residential uses.

- Reductions in on- and off-street parking capacity resulting in more competition for curb access.

- Frequent requests from residents and businesses for parking enforcement and/or increased parking management.

This chapter is intended to provide a framework for creating an on-street parking and curb management plan for an area, with the focus being on creating plans for areas in and around entertainment and commercial districts. The step-by-step process is shown in **Figure 3.1**. Depending on the size and complexity of the area being studied, consultant support may be needed to prepare the plan. This framework can be used as a starting point for preparing a Request for Proposal. Funding could come from a Public Improvement District (PID), or through a budget enhancement request from the City's General Fund.

Process for Creating a Local Parking & Curb Management Plan

Step 1: Initiate Process

The plan creation process may be initiated and sponsored by a business district, neighborhood association, or by the City. Business owners and residents interested in pursuing parking management strategies should work with their representative business association, neighborhood association, or Public Improvement District (PID) (hereafter collectively referred to as "association") to request the creation of a plan. The association must submit a letter of interest to the Department of Transportation that includes a description of the parking issues in the area, the days of the week and hours of the day in which they are occurring, the areas in which they are occurring, any discussions that have occurred between businesses and residents in the area, and the association's point-of-contact for the effort.

During the initial meeting between the association and the Department of Transportation, it should be determined whether the Department of Transportation or the association will sponsor the effort, depending on available resources and the size and needs of the proposed plan area. Regardless of who leads the effort, the association and the Department of Transportation will partner and provide input throughout the process. Additional items that should be documented or established at this time include:

- The issues and needs for the entire area and for specific locations.

- The goals for parking and curb management in the area (e.g., increase access to shops by encouraging parking turnover, reduce congestion and safety issues caused by illegal parking improve access for commercial delivery vehicles, etc.).

- The timeline and next steps for preparing a plan.

- Stakeholders that should be part of a Workgroup or Parking Committee for the effort.

- The proposed boundary for the plan.

Figure 3.1. Local Area Parking & Curb Management Planning Process

Initiate Process

Determine Boundary, Goals, Stakeholders for Study

Document Existing Conditions

Recommend Parking and Curb Management Strategies

Finalize Recommendations and Implement

Monitor

Defining the Plan Boundary

The following guidance may be used to define the boundary of the area to be studied.

- The proposed boundary for the plan will often follow that of the business district.

- The boundary should be centered around the key generator(s) that cause on-street parking to be above 85% occupancy on surrounding blocks and extend around those generators the distance that most people are willing to park and walk. Industry guidance for how far people are generally willing to park and walk to their ultimate destinations is between 300 and 600 feet for retail customers, 1,200 to 1,500 feet for employee parking, and up to 2,000 feet for special event locations like stadiums and arenas (Smith & Butcher, 2008)[1]. Factors that can impact the distance include the walking environment, the familiarity of the user with the area, the perception of security, the perception of barriers or conflicts along the walking route, and the cost of alternatives to walking. Observations as well as input from local businesses, residents, and visitors will be used to inform the distance that people are parking and walking to the generators.

- Highways, major roads, and railroads are often considered to be barriers to walking and can help define the boundary

Step 2: Document Existing Conditions

A detailed inventory of on-street parking supply and current parking management strategies is required to inform the extent of data collection efforts and identify areas that may need new management strategies. This includes documenting the existing curb uses, the number of parking stalls in the area classified by type of parking space (e.g., 2-hour parking, loading zone, valet zone, handicap parking, etc.), occupancy, the length of time people park, and any parking or loading challenges. Off-street parking supply and occupancy could also be documented.

Local stakeholders and city staff should work together to identify the boundaries for the occupancy and turnover study which, depending on the size of the proposed plan area, may be a representative sample of the larger area.

Step 3: Recommend Parking and Curb Management Strategies

If the occupancy survey determines that occupancy exceeds 85% and the issues span multiple blocks, the stakeholder group and city staff will develop a set of recommended strategies for plan area. The recommendations may consist of various strategies that are described in subsequent chapters in this document. Input on the recommendations should be collected from key stakeholders, adjacent neighborhood groups, and city staff through usual information gathering methods typically used to gather input, including community meetings, focus group meetings and surveys. The department or agency that would be responsible for leading the implementation of each strategy would also be proposed at this time.

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[1] Smith, M. S. & Butcher, T. A. (2008, May). How Far Should Parkers Have to Walk? Parking, 47(4), National Parking Association. ISSN: 0031-2193

Step 4: Finalize Recommendations and Implement

After revising the recommendations and responsibilities based on the feedback received, the recommendations and responsibilities would be finalized and approved by the Department of Transportation, and an implementation plan prepared. The Department of Transportation will lead implementation of the on-street parking management strategies. If parking meters or Residential Parking Only zones are recommended, staff will work with appropriate stakeholders to initiate the processes and take the requests to City Council for approval, as required. If the need to create new off-street parking supply is recommended, the association would be the primary lead for that action item, in coordination with the Office of Economic Development, the Planning and Urban Design Department, the Development Services Department, and the Department of Transportation, or future departments that handle the responsibilities of the current departments.

Step 5: Monitoring

Regular monitoring of system performance helps to ensure that the implemented recommendations have the intended effect. Annual performance monitoring is recommended.

PARKING TIME LIMITS

4

OBJECTIVE: Increase access to businesses in mixed-use and commercial districts by promoting adequate turnover of on-street parking stalls using time limits and parking meters.

The use of time limits and restrictions is a tool used to enact turnover and circulation within parking spaces, while providing greater exposure for adjacent businesses throughout the day. This section discusses the regulations and practices related to parking time limits, and the recommended criteria for implementing time limits going forward.

Existing Conditions

Section 28-26 of the City Code authorizes the traffic engineer to install time limits. Like parking meters, time limits are another tool to discourage people from parking for long periods of time in front of businesses.

Across Dallas, there are numerous blocks that have paid and unpaid time-limited parking stalls. However, there is no policy currently in place to decide when new time-limited parking restrictions should be implemented and how long the limits should be.

Paid parking stalls in the Central Business District, Baylor, Uptown/Victory, and Southwestern Medical Paid (Metered) Parking Areas have time limits that vary considerably between spaces, with time limits of 2-hours, 4-hours, 10-hours, and 12-hours in one area. Parking time limits may vary along individual blocks, such as along Broom Street, which has time limits of 2 hours and 4 hours. In the Cedars, time limits are all 2

hours. In the Deep Ellum and Park Central Paid (Metered) Parking Areas, time limits are all 4 hours. In the Jefferson Paid (Metered) Parking Areas, most parking stalls have time limits of 2 hours; however, the parking stalls along Crawford Street have time limits of 4 hours.

Outside of the Paid (Metered) Parking Areas, 2-hour and 4-hour time limits can be found sporadically, such as along Fairmont Street and Routh Street in Uptown, Bishop Avenue in Bishop Arts, along Gaston Avenue next to Lakewood Shopping Center, and in Preston Center. There are also shorter-duration time limits, like 10-minute parking, in front of certain businesses that rely on short customer visits, like coffee shops, donut shops, and dry cleaners.

Time limits only work to promote turnover when there is regular enforcement of them. Without parking meters, it can be difficult to tell how long a vehicle has been parked in a given space. License Plate Recognition (LPR) technology can assist with this; however, it requires the establishment of a vendor contract for the software to be implemented.

The next section provides a framework for establishing new time-limited parking or modifying existing time limits.

Criteria for Implementing Time Limits

When determining what time limits to implement in paid parking zones and in special cases, it is recommended that 2-hour zones serve as the default. Additional data and land use information are needed to implement 15/30-minute or 4-hour zones. Two-hour and 4-hour time limits often require greater levels of enforcement to ensure compliance when compared to 15- and 30-minute time limits; therefore, it is recommended that the installation of 2- and 4- hour time limits be accompanied by parking meters or paid parking devices, which have been shown to increase compliance with time limits.

To determine appropriateness of time limits, consult with businesses and residents and consider parking availability goals in commercial and mixed-use areas, the nature of nearby land uses, the availability of alternative parking options, and other relevant factors.

High Turnover (15-30 Minute Limit)

Some businesses rely on high customer turnover and 2-hour parking may not provide sufficient turnover to meet their customers' needs. For these businesses, such as coffee shops, dry cleaners, day cares, banks, post offices, or other businesses where a high percentage of customers stay for 15 minutes or less, a shorter base time may be necessary. By implementing a shorter duration time limit, such as 15 or 30 minutes rather than 2 hours, a parking space could turnover 16 times in an 8-hour period, rather than 4 times. Shorter time limits could potentially increase revenues for business owners due to ease of access. For example, if an average shopping trip takes 30 minutes and an average purchase level is $5.00, a retailer could make an additional $60 per day or a little more than $15,000 per year. Furthermore, these locations should not be accompanied by parking meters, as the time it takes to pay the meter could be a deterrence to customers given the short nature of the trip.

When a high-turnover space has already been installed on the corner closest to the requesting business, staff will review each request for additional high-turnover spaces on a case-by-case basis taking into account proximity of the next closest high-turnover space location as well as available occupancy, turnover, and citation data.

It is recommended that 15/30-minute and 4-hour parking spaces be reviewed at least once every two years to determine if conditions supporting their use have changed and if the time limits should be modified.

> **High turnover spaces will be considered when the following criteria are met:**
>
> - **The requesting business is recognized as a qualified high turnover business type or is able to demonstrate an average stay duration of 15 minutes or less.**
>
> - **The requesting business does not have private off-street parking available for customers.**
>
> - **On-street parking occupancy on the adjacent block exceeds 85% for at least two hours during the most recent round of data collection.**

Legend

Ⓧ   High-turnover stall count per block face

▬   High-turnover stall
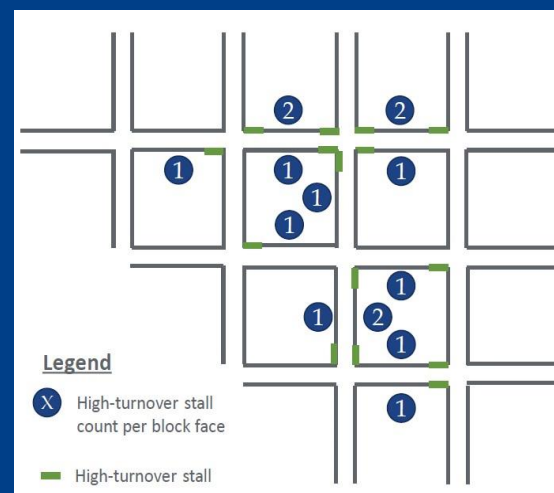
Low Turnover (2-4 Hour Limit)

In areas where certain businesses or institutions attract visitors who stay for two hours or more, a 2-hour time limit on parking can be overly restrictive. In such cases, especially when there are no nearby off-street public parking alternatives, implementing 4-hour time zones can offer more convenient parking choices

Four-hour zones may be requested by businesses provided the following criteria are met:

- The proposal seeks to convert 40 on-street parking stalls across contiguous blocks from 2-hour to 4-hour parking, ensuring consistent time limits within the area, rather than having isolated blocks with different time limits, to avoid confusion among visitors.

- Near the proposed 4-hour zone, there are no public off-street parking facilities available, or the nearby off-street public parking areas consistently have average occupancy rates of 85% or higher for 3 or more hours daily.

- The proposed 4-hour zone encompasses various destinations where visitors typically stay between 2 and 4 hours on average.

- The average parking duration on each block proposed for conversion is consistently 3 hours or more, as per citation or occupancy data.

Legend

Ⓧ Stall count per block face

━━ 4-Hour zone
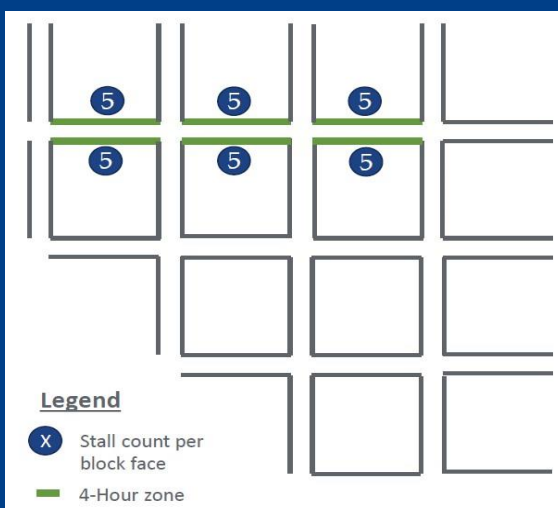
Peak Hour Parking Restrictions

Peak hour parking restrictions (also known a rush hour parking restrictions) prohibit parking along a street only during peak hours (e.g., 7-9 a.m. and 4-6 p.m.), allowing the parking lane to be used as a travel lane during those times. Peak hour parking restrictions should only be implemented in very special circumstances after careful consideration. These restrictions require high levels of enforcement to be effective, and enforcement officers that can be dedicated to enforcing the zone during peak hours should be identified before zones are installed. Without adequate enforcement, unexpected merging could cause traffic congestion to be worse than if there were no parking restrictions. These restrictions also typically create unexpected lane drops at the ends of the zone during off-peak hours when parking is allowed, and driver confusion and sudden need to merge will need to be carefully considered.

PAID PARKING

5

> **OBJECTIVE: Increase access to businesses in mixed-use and commercial districts by promoting adequate turnover of on-street parking stalls using time limits and parking meters.**

Since they were first installed in Oklahoma City in 1935, the purpose of parking meters (also referred to a "paid parking" in this document) has been to reduce circling and cruising for parking in cities' central business districts and other high activity commercial districts by making parking more available.[2] Cruising for parking in turn creates other negative externalities, like pollution, noise, and congestion.[3]

Without significant financing to build new parking (a supply-oriented approach), the primary way to accomplish this objective is by pricing on-street parking in a way that encourages people who will be parking for longer periods of time (e.g., employees and commuters) to park in off-street spaces (a demand-side approach). But just setting parking at any rate can either a) not increase parking availability (if the price is too low), or b) exceed the amount drivers are willing to pay for the added convenience and reduce patron traffic at local businesses (if the price is too high). That is why cities implement parking pricing programs that modify parking rates based observed occupancy levels. Shoup (2009) calls this the Goldilocks principle; that the right price for curb parking is the lowest price that can produce one or two vacant parking spaces on each block. Everyone will

see that curb parking is readily available, and at the same time, no one can say that performance parking prices will drive customers away if almost all curb spaces are occupied.[4]

This idea is far from new. A 1956 book by the United States Bureau of Public Roads recommended maintaining a curb occupancy rate of no more than 85%-90% to mitigate cruising, circling the block looking for a parking space.[2] And research has shown that parking meters perform will in allocating limited space to a maximum number of users:[5]

- A study by Ottosson et. al (2013) found that pricing affects parking duration: motorists park for shorter time on average during the day in neighborhoods with increased rates and longer in neighborhoods with decreased rates and that performance-based parking increases turnovers during peak periods.[6]

- A study of San Francisco's SFPark pilot program, which used variable, demand-based pricing, found that rate changes helped achieve the City's occupancy goal of 60%-80% and reduced cruising by 50%.[3]

- The impact of underpriced on-street parking on urban traffic congestion in the peak periods has been modeled by Glazer and Niskanen (1992),

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[2] Millard-Ball, A., Weinberger, R. R., & Hampshire, R. C. (2014). Assessing the impacts of San Francisco's parking pricing experiment. *Transportation Research Part A: Policy and Practice, 63*, 76-92.
[3] Fabusuyi, T. Hampshire, R. C. (2018). Rethinking performance-based parking pricing: A case study of SFpark. *Transportation Research Part A: Policy and Practice, 115*, 90-101.

[4] Shoup, D. (2009). The price of parking on a great street. *Parking Today, 14(2)*, 22-23.
[5] Adiv, A. & Wang, W. (1987). *On-street parking meter behavior* (Publication No. MI-11-0009-02).
[6] Ottosson, D. B., Chen, C., Wang, T., & Lin, H. (2013). The sensitivity of on-street parking demand in response to price changes: A case study in Seattle, WA. *Transport Policy, 25*, 222-232.

Arnott and Rowse (1999), Arnott and Inci (2006), and Shoup (2006).[7]

More recently, some of the focus of pricing on-street parking has shifted to the relationship to alternative modes of transportation. Low parking prices likely induce travel and encourage driving, while at the same time taking up space that could otherwise be used to improve access to businesses by alternative modes of transportation (Shoup, 2005).[8] Pricing on-street parking in cities' central business districts can ensure the city is not subsidizing convenient access for drivers at the expense of walking, bicycling or transit facilities. Some cities even use the revenue from parking meters to fund improvements to walking, bicycling, and transit (Shoup, 2016).[9]

This chapter describes the current state of on-street parking in Dallas (at the time of the document's adoption); presents new policies that will be used going forward to determine when to create or modify the boundaries of Paid (Metered) Parking Areas, install new parking meters, changing parking meter rates, establish Event Parking Areas and rates; and provides guidance on establishing Parking Benefit Districts and using parking technology.

Existing Conditions

Paid (Metered) Parking Regulations

Parking meters are an important source of revenue for the city. In 2018 (prior to COVID-19), meters yielded approximately $3,150,000 in revenue. Citations for meter violations yielded another $540,000 the same year. The city's approximately 3,540 (as of December 2023) parking meters are spread across nine Paid (Metered) Parking Areas. Parking meters cannot be installed outside of these areas, the boundaries of which are established in the City Code and shown in **Figure 5.1**.

Dallas City Code Article 11, Sections 28-114.1 and 28-114.2 establishes detailed parking meter regulations for individual street blocks in Paid (Metered) Parking Areas, including the meter rates and active meter time ranges. These regulations are summarized in **Figure 5.2**. In all areas, meters are active from Monday to Sunday.

In the Central Business District Paid (Metered) Parking Area, meter rates for individual blocks range from $0.05/hour to $1.50/hour for a parking space, with the exception of the Woodall Rogers Frontage Road, which has a split rate and charges as high as $2.50/hour in the evening on weekdays. With split rates, the parking rate changes based on the time of day and day of the week. Adding to the complexity, the times in which the meters are active, and payment is required to park changes depending on the block, with some blocks having meter hours of 7 a.m. – 6 p.m. and other blocks having hours of 7 a.m. – midnight.

In the other eight Paid (Metered) Parking Areas, meter rates range from $0.05/hour to $1.25/hour for a parking space. There is only one split rate in these areas: on Victory Avenue in the Uptown/Victory area, where the rate is as high as $2.00/hour in the evening hours.

Some of the parking meters generate much more revenue than others, in part because parking demand is higher on some blocks and partially because the meter rates are highly inconsistent. Fifty percent of all Dallas meters have not had their rates updated in the last 10-20 years and an additional 11% have not had their rates updated in over 20 years. As a result of this inconsistency, parking rates and time limits vary significantly within and across Paid (Metered) Parking Areas. Additionally, current meter rates are much lower than those in comparable cities. Together, these parking conditions suggest that Dallas's on-street parking system is currently operating well below its potential, leading to lost revenues.

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[7] Hymel, K. (2014). Do parking fees affect retail sales? Evidence from Starbucks. *Economics of Transportation, 3(3)*, 221-233.

[8] Shoup, D. (2005). *The high cost of free parking. Planners Press, American Planning Association.*

[9] Shoup, D. (2016). Parking benefit districts. *The Access Almanac, 49, 35-37.*

Figure 5.1. Existing Paid (Metered) Parking Areas
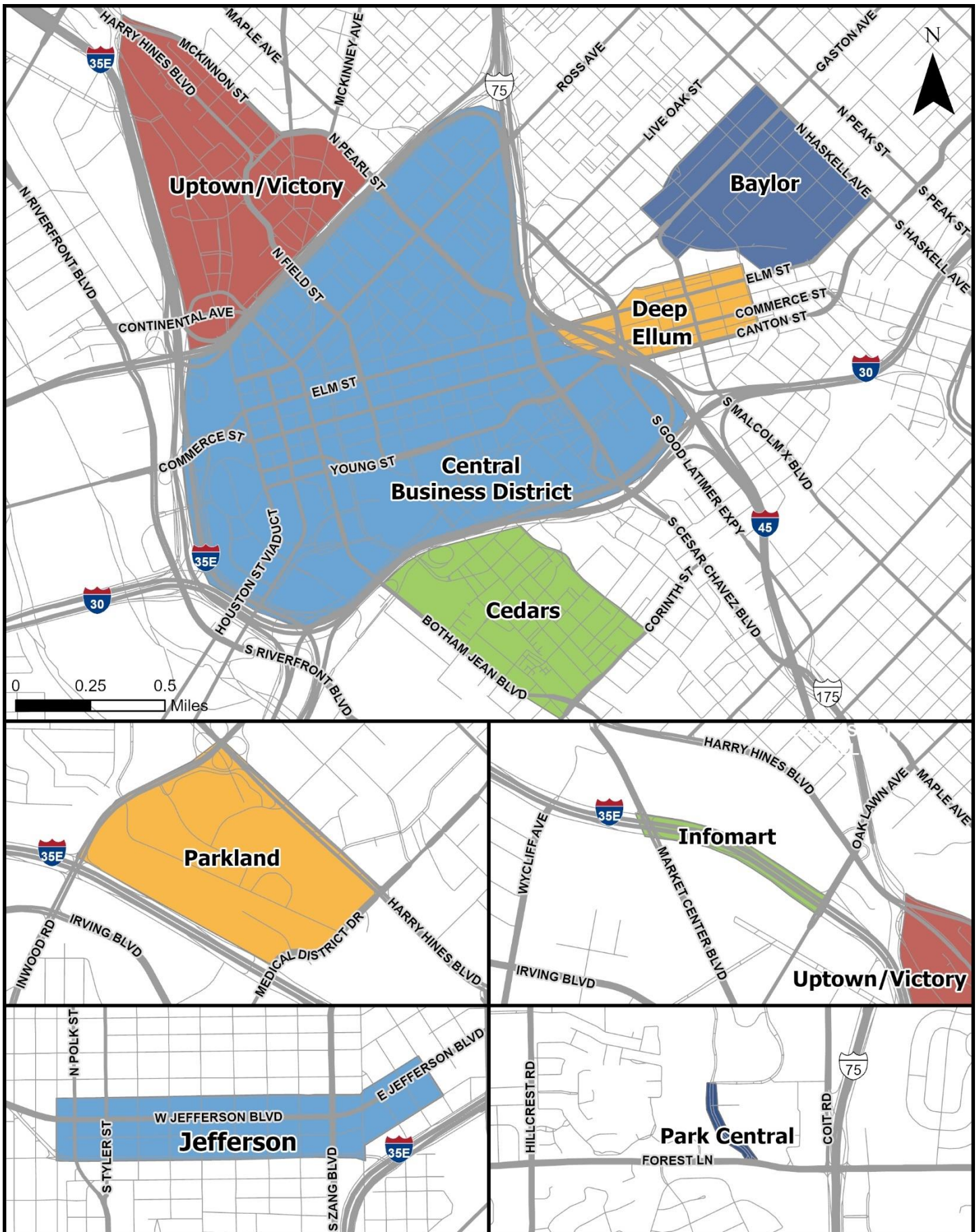
Figure 5.2. Dallas Parking Meter Rates and Times

METERED PARKING AREAS	HOURLY RATES (VARIES BY BLOCK)	TIMES WHEN METERS ARE ACTIVE (VARIES BY BLOCK)	SPLIT RATES: LOCATION, RATES, & APPLICABLE TIMES
Central Business District	$1.50 $1.25 $1.00 $0.60 $0.50 $0.30 $0.25 $0.20 $0.15 $0.10 $0.05	7am-6pm 7am-12am	Woodall Rogers Service Road: Mon - Fri: $1.50 - 7am-9am $2.00 - 9am-6pm $2.50 - 6pm-12am Sat - Sun: $2.00 - 7am-12am
Baylor	$0.25 $0.20 $0.10 $0.05	7am-6pm 7am-12am	None
Cedars	$0.60	7am-6pm	None
Deep Ellum	$0.50 $0.30 $0.25 $0.10	6pm-12am 7am-12am 7am-6pm	None
Infomart	$0.30	7am-12am	None
Jefferson	$0.25 $0.20 $0.10	10am-4pm	None
Park Central	$0.50	7am-6pm	None
Parkland	$0.60 $0.30 $0.20	7am-6pm 7am-12am	None
Uptown/ Victory	$1.25 $0.60 $0.30 $0.25 $0.05	7am-12am 7am-6pm 10am-4pm	Victory Ave: Mon - Sun: $1.00 - 7am-5pm $2.00 - 5pm-12am

Peer City Parking Rates Comparison

The Dallas Strategic Mobility Plan identified several peer cities against which Dallas is typically compared when evaluating mobility: San Antonio, Phoenix, Austin, Atlanta, and Charlotte. A survey of these cities' parking rates and policies was conducted, the results of which are summarized in **Figure 5.3**. A clear conclusion emerged: Dallas is dramatically underpricing its metered parking compared to its peer cities.

In general, Dallas's peer cities charge $1.00 to $2.00/hour for on-street parking, with Austin charging as high as $5.00/hour depending on the duration of the vehicle's stay (known as variable pricing). The average on-street rate among the peer cities of $1.90/hour is forty cents above Dallas's maximum rate, indicating that a baseline rate adjustment is overdue. Dallas was also the only city surveyed that specifies in its code the areas of the city in which meters may be installed, and what rate they must be set at in different parts of the city.

Cities that use performance-based parking pricing were also reviewed. In general, the cities surveyed in **Figure 5.4** do not exceed a maximum rate adjustment of $0.50-$0.60/hour up or down from the current rate. Most cities adjust in increments of $0.25 or $0.50/hour.

Figure 5.3. Survey of Parking Meter Rates and Policies in Peer Cities

CITY	DALLAS	SAN ANTONIO	PHOENIX	AUSTIN	ATLANTA	CHARLOTTE
Population	1,348,890	1,434,625	1,608,139	961,855	498,715	874,579
Population Density (people/sq. mi.)	3,970.40	2,875.86	3,105.35	3,006.36	3,600	2,846.38
Price Range On-Street (per hour)	$0.05 - $1.50	$1.80	$1.00 - $1.50	$2.00 - $5.00	$2.00	$1.00
Period of Review for Adjustment	None	12-18	None	12 Months	None	None
Adjustment Range (per hour)	None	Unknown	Unknown	$0.25 - $0.50	None	None
Time Limit Range	1 Hour 2 Hour 4 Hours 6 Hours	15/30 Minutes 2 Hours 8 Hours 10 Hours 24 Hours	15/30 Minutes 2 Hours 4 Hours 8 Hours	10 Hours	2 hours 3 Hours 4 Hours	15 Minutes 1 Hour 2 Hours
Rate Type	Fixed	Fixed	Fixed	Variable	Fixed	Fixed

Figure 5.4. Parking Meter Rates and Policies of Cities with Performance-Based Pricing

CITY	SEATTLE	SAN FRANCISCO	PORTLAND
Price Range	$0.50 - $5.00	$0.25 - $6.00	$1.00 - $5.00
Adjustment	+/- $0.50	+/- $0.25	+/- $0.20, $0.40, $0.60
Guidance	> 90%: Increase > 85%: Watch for 1 Year < 70%: Watch for 1 Year < 65%: Decrease	> 80%: Increase < 60%: Decrease < 30%: Decrease	> 85%: Increase < 65%: Decrease
Period	12 Months	2 Months	12 Months
Time Limits	2 Hours 3 Hours (after 5pm) 4 Hours 10 Hours	4 Hours No Limit	15/30 Minutes 2 Hours 4 Hours

Overview of the Recommendations

The following sections provide recommendations to help Dallas move towards a performance-based parking pricing framework, in which encouraging economic vitality by promoting parking turnover is the goal. **The performance metric is to have one to two parking spaces available on a block face throughout the day in commercial and mixed-use areas.** Topics covered in the following sections include:

- Criteria for creating new Paid (Metered) Parking Areas or modifying the boundaries of existing areas

- When to install new paid parking stalls or parking meters

- When to adjust parking meter rates, and by how much

- When to establish and adjust event parking rates

- How parking meter revenues could be used (Parking Benefit Districts)

- Parking meter technology considerations

- Methods for collecting occupancy data to make data-driven decisions

Creating or Modifying Paid (Metered) Parking Areas

On-street parking in the City of Dallas can only be designated as paid parking (e.g., by installing meters or signs) in Paid (Metered) Parking Areas, the boundaries of which are defined in Chapter 28 of the City Code. This section describes the process for warranting new areas or making changes to the boundaries of existing areas. Only areas where a need to install parking meters to promote turnover has been identified, either through a local area parking or curb management plan or through occupancy surveys and discussions with local stakeholders, should be evaluated for the creation of Paid (Metered) Parking Areas.

## Step 1: Ensure Criteria are Met

The following criteria must be met to recommend the establishment of a new Paid (Metered) Parking Area or the expansion of an existing area.

Requirement 1: Land Use Context

A Paid (Metered) Parking Area shall not be established unless the land use in the area is predominantly characterized by commercial uses or a mix of uses including retail, entertainment, commercial, medical, educational, civic, and residential uses.

Requirement 2: Minimum Size

Paid (Metered) Parking Areas shall consist of a minimum of 80 on-street parking stalls, along 16 contiguous block faces, or eight contiguous blocks. By ensuring that blocks with paid parking are contiguous, the traveling and parking experience in an area is more predictable and easier to navigate for visitors. Furthermore, requiring a minimum number of paid parking stalls ensures the necessary enforcement of the parking meters will be cost effective. However, exceptions to the minimum may be considered on a case-by-case basis.
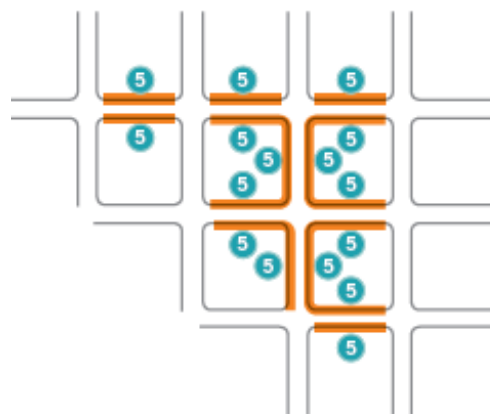
Requirement 3: Minimum Parking Demand

Effective parking management ensures that there are typically one to two open parking stalls per block. According to best practice, this corresponds to an occupancy rate of approximately 85% during peak hours. A Paid (Metered) Parking Area should not be installed unless the following occupancy warrants are met.

- Average occupancy of parking stalls in the proposed Paid (Metered) Parking Area reaches or exceeds 85% during 3 or more hours during the day, and

- Average occupancy of parking stalls in the proposed Paid (Metered) Parking Area reaches or exceeds 70% during 5 or more hours during the day

The area included within the calculation must be observed over at least two days. This two-tiered approach is intended to avoid situations where paid parking is heavily used for a small portion of the day (e.g., around dinnertime), but remain largely unused for most of the day. In those situations, it may be difficult to recoup the cost of installing, maintaining, and operating the parking meters.

The occupancy study may include a larger area than the proposed Paid (Metered) Parking Area to ensure that data for the areas of highest demand are captured.

Figure 5.5. Summary of Warrants for Establishing or Modifying Paid (Metered) Parking Areas

REQUIREMENTS	DATA NEEDED
Requirement 1: Is it a commercial or mixed-use area?	Land Use
Requirement 2: Does the area include: • At least 80 parking stalls and • At least 16 contiguous block faces, or • At least 8 contiguous blocks	# of Stalls
	# Block Faces
	# of Blocks
Requirement 3: Does average occupancy of parking stalls in the proposed area: • Reach or exceed 85% occupancy for ≥3 hours over ≥2 days, and • Reach or exceed 70% occupancy for ≥5 hours over ≥2 days	# Hours ≥85%
	# Hours ≥70%

Step 2: Public Meeting and City Council Approval

Before making a recommendation to City Council on the establishment of a new Paid (Metered) Parking Area or the modification of the boundaries of an existing area, the Department of Transportation shall hold a public meeting to allow input into the changes being presented.

Implementing paid on-street parking will, by design, shift parking demands within an area. Parking demands are likely to increase in surrounding areas with unregulated on-street parking. At least 20 days prior to the public meeting, written notice of the meeting shall be sent to all properties and neighborhood and business associations inside the proposed boundaries and within 200 feet of the proposed boundaries.

Following the public meeting, the Department of Transportation will submit the final boundary to City Council for approval to amend the relevant section in Chapter 28 of the City Code.

Installing New Paid Parking Spaces or Parking Meters

Designating new paid parking stalls or installing parking meters may be considered as a tool to promote turnover in commercial and mixed-use areas. Parking spaces may be designated as paid parking by installing meters, installing signs, and marking the limits of parking spaces. The following section presents a series of requirements that must be met to install new meters and designate paid parking spaces. Locations that meet these requirements do not necessarily need to have parking meters, but such locations would have this option as a management tool.

Warrants for Installing New Paid Parking Spaces or Parking Meters

Requirement 1: Located in a Paid (Metered) Parking Area

The location must be in the boundaries of a Paid (Metered) Parking Area identified in Chapter 28 of the code.

Requirement 2: On-Street Parking Already Permitted

On-street parking must already be a permitted use of the curb. The decision about whether to allow on-street parking requires a separate engineering review.

Requirement 3: Contiguity

For paid parking spaces to be designated or for meters to be installed on a given block, the block must be adjacent to another block with paid parking or that is also proposed for paid parking.

Requirement 4: Parking Occupancy Warrants Met

Following a performance-based process informed by observed demand and turnover, paid parking spaces or parking meters should not be installed unless the following occupancy warrants are met:

- Average occupancy of parking spaces along the block reaches or exceeds 85% during 3 or more hours during the day, and

- Average occupancy of parking spaces along the block reaches or exceeds 70% during 5 or more hours during the day

The area included within the calculation must be observed over at least two days. This two-tiered approach is intended to avoid situations where parking meters are heavily used for a small portion of the day (e.g., around dinnertime), but remain largely unused for most of the day. In those situations, it may be difficult to recoup the cost of installing, maintaining, and operating the parking meters.

Requirement 5: Outreach to Surrounding Areas

At least ten days prior to installing parking meters or paid parking spaces, a written notice should be given to all properties within 500 feet of the location where paid parking spaces or parking meters will be installed. The notice should include:

- Operation start date

- Hourly parking rate

- Parking time limits

- Enforcement hours

- Other restrictions that may apply

If the parking meters are to be installed within close proximity to single-family residential areas, it may be necessary to measure parking demands in nearby single-family residential areas before and after the installation of meters to determine if a Resident Parking Only (RPO) zone is needed. The RPO zone creation process is independent from the parking meter installation process and should follow the established procedures outlined in the Dallas City Code Section 28-121.

Figure 5.6. Summary of Warrants for Installing Parking Meters or Designating New Paid Parking Spaces

REQUIREMENT 1	DATA NEEDED
Is the location within the boundaries of a Paid (Metered) Parking Area?	Name of Paid (Metered) Parking Area
REQUIREMENT 2	
Is on-street parking already permitted?	Existing Curb Use
REQUIREMENT 3	
Is the location adjacent to a block with paid parking?	Name of Adjacent Block with Parking Meters or Paid Parking Spaces
REQUIREMENT 4	
Does average occupancy of parking spaces along the block: • Reach or exceed 85% occupancy for ≥3 hours over ≥2 days, and • Reach or exceed 70% occupancy for ≥5 hours over ≥2 days	# Hours ≥85% # Hours ≥70%
REQUIREMENT 5	
Has a written notice been sent to all properties within 500 feet of the upcoming paid parking or meter installation location	# of Notices

Adjusting Paid Parking Rates

Increasing rates has been shown by several studies to decrease parking occupancy and decreasing rates has been shown to increase parking occupancy (Wilson, 2015). The goal of Dallas's performance-based parking pricing program is to set the LOWEST PRICE that achieves the goal of one or two open parking spaces on each block face during business hours, thereby making it easier for patrons to access businesses, mitigating the need to circle the block to find parking, and reducing traffic congestion. If the price is too high and many parking spaces remain vacant, nearby stores lose customers, and the city loses tax revenue. If the price is too low and no spaces are vacant, people will be discouraged from visiting an area. Therefore, correctly pricing parking based on demand is the key tool by which the city will meet its performance goal.

Currently, hourly parking meter rates in Dallas vary between $0.05 and $1.50/hour. To allow for a performance-based pricing approach, and based on the research into peer cities, an hourly rate range between $1.00 and $6.00 per hour is recommended for approval by City Council. To maintain a flexible range of rates, they should be adjusted up or down by $0.25 or $0.50/hour at least once a year as needed. These adjustment increments and timeframes are intended to ensure that prices will not rapidly increase or decrease and acknowledge the city's current resources to conduct occupancy surveys and adjust rates each year. It is further recommended that the Department of Transportation Director have the authority to make meter rate adjustments that remain within this range. The Director's decision would be informed by the data metrics described in this chapter.

Figure 5.7 shows the amount that rates should be adjusted up or down based on the measured occupancy to meet the city's goal. These adjustment amounts are based on the findings in *Parking Management for Smart Growth* (Wilson, 2015), that parking elasticity values typically range from -0.1 to -0.4, with -0.3 being the most common value. That is a 10% price increase expected to reduce demand by 3%.

The following data should be collected within each paid parking zone in each Paid (Metered) Parking Area as inputs into the performance-based meter rate adjustment process:

- Hourly occupancy percentage by block face, collected over at least two days during hours when meters are active
- Average duration of stay by block and posted time limit, collected over at least two days during hours when meters are enforced
- Violation rates, calculated based on observed duration of stay data and posted time limits
- Annual on-street meter transactions (as a check to review the total number and distribution of transactions between blocks within the zone)
- Citation rates (as a check to confirm levels of enforcement)

This data should be collected at least once every year using consistent processes to allow for year-to-year comparisons. Some paid parking zones are too large to allow for cost-effective data collection across all parking stalls. Large zones may be sampled using a statistically valid representation of the larger paid parking zone.

Meter rates should be REDUCED according to Figure 5.7 if occupancy for the paid parking zone is less than 65%. If average occupancy remains less than 65% for two contiguous adjustment periods and rates are at the minimum level, staff should consider relocating the parking meters to an area of higher demand within the Paid (Metered) Parking Area.

Meter rates should be INCREASED according to Figure 5.7 if:

- **Average occupancy in the paid parking zone reaches or exceeds 85% during 3 or more hours during the day, and**

- **Average occupancy in the paid parking zone reaches or exceeds 70% during 5 or more hours during the day.**

In some cases, known land use changes, low citation rates, or any number of other local factors could lead to a delayed or modified rate adjustment compared to the outcome of the data-driven process. For example, it should be taken into special consideration that pricing in proximity to government buildings remain affordable to not burden residents trying to access services. These recommendations should be documented and submitted to the Department of Transportation Director within 90 days of the completed data collection report for consideration.

Figure 5.7. Recommended Hourly Rate Adjustments Based on Average Occupancy

STARTING RATE	DECREASE BY $0.50	DECREASE BY $0.25	NO CHANGE	INCREASE BY $0.25	INCREASE BY $0.50
$1.00	-	-	< 85%	85% - 97%	≥ 97%
$1.25	-	61% - 65%	65% - 85%	85% - 95%	≥ 95%
$1.50	< 61%	61% - 65%	65% - 85%	85% - 94%	≥ 93%
$1.75	< 57%	57% - 65%	65% - 85%	85% - 93%	≥ 92%
$2.00	< 58%	58% - 65%	65% - 85%	85% - 92%	≥ 91%
$2.25	< 59%	59% - 65%	65% - 85%	85% - 91%	≥ 90%
$2.50	< 60%	60% - 65%	65% - 85%	85% - 90%	≥ 90%
$2.75	< 60%	60% - 65%	65% - 85%	85% - 90%	≥ 90%
$3.00	< 60%	60% - 65%	65% - 85%	85% - 90%	≥ 89%
$3.25	< 61%	61% - 65%	65% - 85%	85% - 89%	≥ 89%
$3.50	< 61%	61% - 65%	65% - 85%	85% - 89%	≥ 89%
$3.75	< 61%	61% - 65%	65% - 85%	85% - 89%	≥ 89%
$4.00	< 61%	61% - 65%	65% - 85%	85% - 89%	≥ 89%
$4.25	< 62%	62% - 65%	65% - 85%	85% - 88%	≥ 88%
$4.50	< 62%	62% - 65%	65% - 85%	85% - 88%	≥ 88%
$4.75	< 62%	62% - 65%	65% - 85%	85% - 88%	≥ 88%
$5.00	< 62%	62% - 65%	65% - 85%	85% - 88%	≥ 88%
$5.25	< 62%	62% - 65%	65% - 85%	85% - 88%	≥ 88%
$5.50	< 62%	62% - 65%	65% - 85%	85% - 88%	≥ 88%
$5.75	< 62%	62% - 65%	65% - 85%	85% - 86%	-
$6.00	< 63%	63% - 65%	65% - 85%	-	-

Rates may vary between paid parking zones in a Paid (Metered) Parking Area but should be consistent within paid parking zones to provide predictability for users. The intended effect of rate adjustments is primarily to redistribute parking between areas of higher and lower demand within a Paid (Metered) Parking Area. In some cases, the boundaries of paid parking zones may need to be adjusted as part of rate adjustment process. Economic vitality is supported by providing visitors with tiered parking pricing options within an area. Regular data collection can also identify if previous rate changes resulted in a shift in parking demand or an overall reduction in parking demand within an area.

Establishing Event Parking Rates

Dallas has many large event venues, such as the American Airlines Center, Cotton Bowl/Fair Park, and Dallas Convention Center. Because large events draw many more people than a typical weekday, they can cause gridlock around the event venues as drivers struggle to find parking. Many cities raise the cost of parking during events to maximize their revenue and encourage attendees to use other modes of transportation to access event locations, alleviating congestion.

Presently, Dallas does not have event parking rates in the Dallas City Code. Establishing and codifying event parking rates would enable the regulation of event-day parking by the Department of Transportation, helping Dallas maximize its on-street parking efficiency. It is recommended that City Council adopt event parking rates into the code, with a minimum hourly event rate of $3.00 and a maximum hourly rate of $10.00. The initial event rate for an area should be based on the normal meter rate for that paid parking zone, as shown in **Figure 5.8**.

Implementing Event Parking Rates

To implement event parking rates, decisions regarding pricing, time limits, and revenue allocation are subject to the following requirements.

Requirement 1: Located in a Paid (Metered) Parking Area

The area proposed for event on-street parking rates should be located in a Paid (Metered) Parking Area.

Requirement 2: Event Size

Only events which are expected to draw at least 10,000 attendees should be considered for increased event on-street parking rates.

Requirement 3: Data Driven

A parking demand study during a representative event should be completed to inform the boundaries of where event parking rates would be implemented within the Paid (Metered) Parking Area.

Setting and Adjusting Event Parking Rates

Event rates should initially be set based on the parking meter rate along each block during non-event times, as shown in **Figure 5.8**.

Figure 5.8. Event Parking Rate Recommendations

NORMAL RATE FOR THE PAID PARKING ZONE	EVENT RATE (2 HOURS BEFORE AND AFTER EVENT TIME)
$1.00	
$1.25	
$1.50	
$1.75	$3.00
$2.00	
$2.25	
$2.50	
$2.75	
$3.00	
$3.25	
$3.50	
$3.75	$7.00
$4.00	
$4.25	
$4.50	
$4.75	
$5.00	
$5.25	
$5.50	$10.00
$5.75	
$6.00	

As with the performance-based pricing for standard meter rates it is recommended that the Department of Transportation Director have the authority to make meter rate adjustments that remain within the range of $3.00/hour to $10.00/hour, with input from local stakeholders, based on a data-driven process. Rates should be adjusted up or down from the starting rates shown in **Figure 5.8** by $1.00, $2.00, or $3.00/hour as recommended in **Figure 5.9** based on occupancy data. A maximum annual adjustment of +/- $3.00/hour is recommended. Using these parameters and an assumed elasticity factor of -0.30 to inform the magnitude of adjustment, the following data-driven rate adjustment process should be used to inform rate adjustment recommendations for the Director's review:

- Meter rates should be **REDUCED** according to **Figure 5.9** if the average occupancy in the paid parking zone for the event area is less than 65%.

- Meter rates should be **INCREASED** according to **Figure 5.9** if the average occupancy in the paid parking zone for the event area exceeds 85% during two or more hours during the event.

Even with increased rates, if on-street parking is priced lower than event rates in nearby off-street facilities, it is likely that occupancies will continue to exceed 85% during events. The proposed rate adjustment process is therefore presented as a guide to inform the magnitude of rate adjustments, and in many cases, the Department of Transportation Director may elect to maintain existing event rates or implement a lower rate increase than suggested by **Figure 5.9.** The primary consideration when determining the rate adjustment should be the effectiveness of the proposed rate in encouraging the use of alternative modes for travel to and from events.

Figure 5.9. Recommended Hourly Rate Adjustments for Event Parking Areas

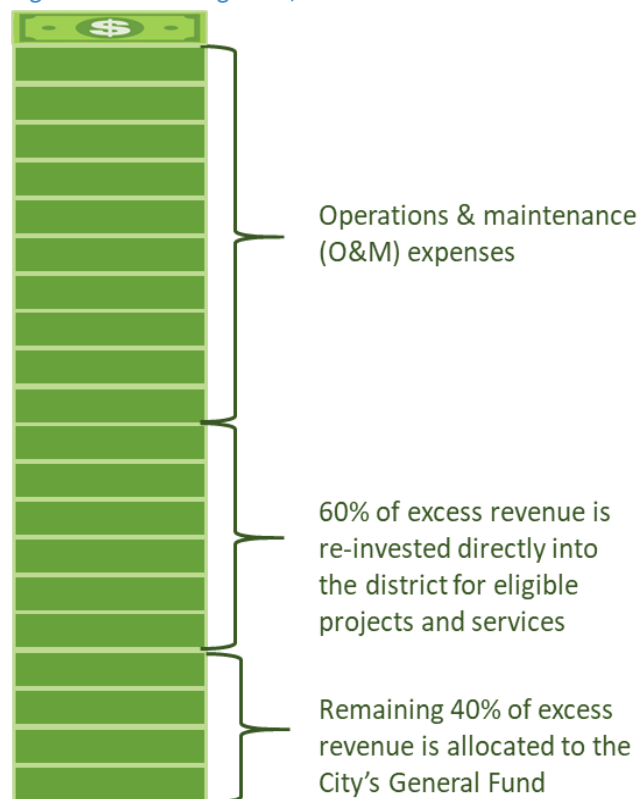| STARTING RATE	DECREASE BY $3.00	DECREASE BY $2.00	DECREASE BY $1.00	NO CHANGE	INCREASE BY $1.00	INCREASE BY $2.00	INCREASE BY $3.00
$ 3.00	-	-	-	< 85%	85% - 95%	≥ 95%	-
$ 4.00	-	-	< 65 %	65% - 85%	85% - 93%	≥ 93%	-
$ 5.00	-	< 59%	59% - 65%	65% - 85%	85% - 91%	91% - 97%	≥ 97%
$ 6.00	< 55%	55% - 60%	60% - 65%	65% - 85%	85% - 90%	90% - 95%	≥ 95%
$ 7.00	< 56%	56% - 61%	61% - 65%	65% - 85%	85% - 89%	89% - 94%	≥ 94%
$ 8.00	< 57%	57% - 61%	61% - 65%	65% - 85%	85% - 89%	≥ 89%	-
$ 9.00	< 58%	58% - 62%	62% - 65%	65% - 85%	≥ 85%	-	-
$ 10.00	< 59%	59% - 62%	62% - 65%	≥ 65%	-	-	-

Parking Benefit Districts

The benefits of parking meters and changing parking rates, such as making it easier for business patrons to find a parking space, may not be enough to assuage the concerns of business owners when it comes to installing meters or increasing meter rates. However, if meter revenue is dedicated to specific, additional public services in metered areas, residents and business owners will be much more inclined to support performance-based pricing. Directing a certain portion of the meter revenue back into the neighborhood is done through the creation of a Parking Benefit District (PBD).

The amount of revenue generated that will go to the PBD is typically 50-60% of the remaining revenue from parking meters after the cost of operating and maintaining the parking meters and PBD has been paid for. Through conversations with stakeholders, 60% was determined to be the optimal number for Dallas. By having 40% of the remaining revenue go back to the general fund for citywide services that also benefit less affluent neighborhoods, concerns about inequality can be addressed.

The boundaries, decision-making structure, financing framework, and improvements and programs that the PBD can fund must be defined through a separate ordinance adopted by City Council. The geographic boundaries are often the same as the Paid (Metered) Parking Area or, if applicable, the Public Improvement District (PID) for that area.

The following steps outline the considerations and process that should be used to create PBDs in Dallas. It is based on the process used by the City of Austin.

Figure 5.10. Parking Benefit District Revenue Allocation

Operations & maintenance (O&M) expenses

60% of excess revenue is re-invested directly into the district for eligible projects and services

Remaining 40% of excess revenue is allocated to the City's General Fund

PBD Implementation Process

Step 1: Initiate Process

A representative of a Public Improvement District, business association, or neighborhood association whose boundaries are completely or partially located within the proposed PBD may make a request to the Director of Transportation for the creation of a PBD.

The Director shall ensure the following minimum criteria are met for the creation of a PBD before continuing to Step 2.

a. The proposed boundaries of the PBD must be located within the boundaries of an existing Paid (Metered) Parking Area.

The PBD must include enough paid parking spaces to generate enough revenue for meaningful programs or improvements once all annual expenses are paid, including the maintenance and operations of the paid parking in the PBD. At the time that a district is created, the required paid parking spaces may include both existing and new spaces; however, the minimum number of paid parking spaces required for the PBD should be calculated at the outset. For example, assuming a meter rate of $1.50/hour and 85% occupancy rate with 100% payment compliance, a PBD would require approximately 300 paid parking spaces to generate $500,000 in revenue annually. However, it is important to acknowledge that various factors impact revenue, with meter rates and payment compliance among vehicles occupying spaces being the most significant. Additionally, factors such as the use of paid parking spaces for freight delivery, passenger pick-up/drop-off stands, valet services, construction, and special events, which may render spaces unusable to the general public, also contribute to revenue dynamics.

b. The applicant must have support from all Public Improvement Districts, business associations, and neighborhood associations that are wholly or partially within the PBD.

Step 2: Pre-application Meeting

Following the receipt of the request, city staff will arrange a pre-application meeting with the applicant and any other relevant stakeholders to discuss:

- Justification for the need to create a PBD.

- The proposed boundaries of the PBD.

- Proposed makeup of the advisory committee that will govern the PBD. This could be an existing PID Board.

- Proposed programs and projects to be funded by revenue from the PBD.

- The number of existing paid parking spaces and the minimum number of paid parking spaces that will be needed within the PBD to generate sufficient revenue to support the PBD.

- Other parking management strategies.

PBD Advisory Committee

The purpose of the advisory committee is to provide oversight and make a recommendation to the Department of Transportation Director on how the PBD revenue from the previous year should be spent. All committee meetings would be open to the public and subject to public records law. The committee could take one of several potential forms, such as:

- An existing community organization, such as a PID Board.

- A newly created appointed or volunteer committee, which could include residents, property owners, and businesses.

- A non-profit community development organization.

Revenue Expenditure Options

A defined list of PBD revenue expenditures should be defined in the adopting ordinance. Examples of eligible projects and programs are listed below. The list is not intended to be comprehensive but rather a starting point.

- Sidewalk widening, repairs, or power-washing and graffiti removal

- Tree planting and landscaping

- Lighting

- Wayfinding

- Streetcar operations

- Bicycle infrastructure and amenities

- Transit passes for employees of businesses in the PBD

- Transit infrastructure and amenities

- Public safety

- Street maintenance

- Parking structure

Note: Because of the nature of performance-based pricing, prices may not increase at the same rate as inflation. Parking demand is also susceptible to changes in the economy or weather. Therefore, caution should be used when using PBD revenues to fund ongoing and costly projects or programs where the cost of maintenance and operation will continue to rise over time. Examples include parking structures or transit service, which should be funded principally by a more stable form of revenue like a Public Improvement District.

All parking revenue is collected and distributed by the City and will be retained by the City. All improvements or programs funded by parking revenue expenditures must follow city purchasing procedures.

Step 3: Submit the Application

After the pre-application meeting, the applicant may submit a formal application for the creation of a PBD. The application should address the following, at minimum:

- The boundaries of the proposed district identified by streets and static land features.

- A justification for the proposed district.

- A visual representation of the proposed block faces that have paid parking spaces or that are proposed to have paid parking spaces.

- The minimum number of paid parking spaces the district will have.

- The proposed makeup of the advisory committee.

- The proposed types of projects and programs that may be funded with the PBD revenue.

- Letters of support or relevant community meeting notes.

The City will develop a template application.

Step 4: Community Meeting

The applicant is required to convene a community meeting after the application is submitted. At least two weeks before the meeting the applicant must coordinate with Department of Transportation staff to send notification of the meeting by e-mail to all registered neighborhood organizations whose boundaries are in proximity to the proposed district boundaries, place at least two signs providing notification of the meeting on each block face and distribute flyers within the proposed district.

Step 5: City Council Approval

City staff will draft the ordinance that will be taken to City Council to create the PBD. The ordinance would include the boundaries of the PBD, the net percent of the public paid parking revenue that would go back to the PBD (60%), the minimum number of paid parking spaces that the PBD must contain, the defined list of PBD revenue expenditures, and the makeup and role of the advisory committee. City Council would reserve the right to terminate a PBD if paid parking spaces do not generate more than the amount needed to pay all annual expenses.

Step 6: Implementation

The committee will meet regularly as a group and with the broader community to compile a list of recommended programs and projects for proposed revenue expenditure. City staff will work with the committee to identify eligible projects and programs. Once a list of projects and programs for the year is finalized, an annual work plan will be developed to document the allocation of funds. Department of Transportation staff will attend the committee meetings and support committee activities.

PBD Success Stories

Boulder, CO

Boulder experienced a 12% increase in carpooling, reducing parking demand by 850 spaces. The meter revenue for the PBD was used to fund projects for their district, including employee transit passes, a Wi-Fi network, and Pearl Street Mall improvements.

Old Pasadena, CA

Old Pasadena borrowed against future meter revenues and funded streetscape, parking, maintenance, and safety projects, reversing the decline in the district. A sales tax revenue increase created a cycle of reinvestment, making the city a popular destination. The first year of the PBD resulted in a 100% increase in sales tax revenues.

San Diego, CA

Funds from the PBD in San Diego were used to revitalize their historic district through infrastructure improvements, including directional signs, landscaping, and pedestrian improvements.
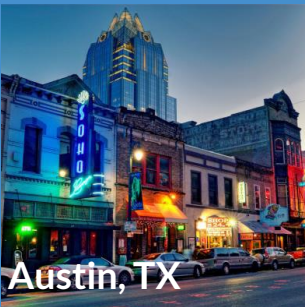
Austin, TX

The Austin PBD experienced a 10% growth in sales tax and 16% growth in mixed beverage receipts. Projects funded by meter revenue include sidewalk and streetscape improvements.

Parking Meter Technology and Infrastructure

Dallas owns and operates approximately 3,540 parking meters as of December 2023, which are a combination of single and multi-space meters. Approximately 45% of the existing parking meters operate with digital technology, allowing electronic payment methods. In order to continue operating effectively and efficiently, a continued focus on technological enhancements will need to be prioritized. A recent shift has been the implementation of 4G and 5G networks, and the impending suspension of support for meters that use the 2G network. These network shifts require enhancements to the parking meters themselves, which come at a cost. Planning for the parking meter maintenance and capital upgrades associated with technological advances will be critical to ensuring ease of use for customers, implementation of variable parking meter rate, and efficiency in enforcement.

The following meter technologies will be needed as part of all future upgrades (at minimum):

- Pay by credit card and pay by-cell options in all areas

- Ability to remotely program on-street rates

- Wireless communication enabled to allow for more streamlined enforcement

- Ability to show vacant stalls in a parking zone in a public-facing online platform for smartphone application.

- Option for in-meter or camera-based license plate recognition (LPR)*

- Option to communicate with an in-meter or 3rd party digital count system*

*The last two features would potentially lower the labor costs for meter enforcement and allow city staff to better monitor parking occupancy rates.

Selecting the Type of Parking Meter

The types of parking payment options include:

- Single-Space Meters: Coin-Operated Meters and Smart Meters

- Multi-Space Smart Meters: Pay-And-Display, Pay-By-Plate, Pay-by-Space

- Pay-by-Phone Only

An evaluation of the pros and cons of each option was conducted. Multi-space pay-by-plate meters have the greatest number of pros and least number of cons, followed by single-space smart meters. For the detailed list of pros and cons, see Appendix 1. There will likely need to be flexibility in the use of single-space versus multi-space meters, based on the circumstances of the area. However, it is recommended that the types of meters used in Dallas be kept to a minimum, such as one style of single-space smart meter and one-style of pay-by-plate multi-space meter.

Data Collection - Making Data-Driven Decisions

Data collection is a necessary and nuanced component of curb management as it guides decision makers in determining how the curb is used, by what means curb space can be used more efficiently, where enforcement is needed, and in what manner can safety be improved, and congestion reduced. Methods for collecting parking data vary widely, ranging in cost, efficiency, and data accessibility. Although using technology is more convenient and accurate, in some cases, manual data collection may be more appropriate. When selecting a data collection method, various factors should be considered to ensure the method is appropriate based on the capacity of the organization, such as:

- Technology integration

- Reliability of the technology or manual data collection methods

- Purchase, installation, and maintenance costs

- Staffing requirements (FHWA, 2020)

This section discusses four data collection methods typically used when managing the curb, grouped by the level of expense.

High Tech Data Collection

Parking Space Sensors

Parking space sensors typically use sensor technology or digital-camera technology to detect when a vehicle is present in the space. The sensors can be placed in pavement, affixed to single-space parking meters, or hung from ceilings in parking garages (FHWA, 2020).

Cities have found that vehicle sensors have benefited the community by guiding enforcement efforts, simplifying data collection, and by directing motorists to available spaces through smartphone applications or online mapping tools. These data sources are indirectly helping to reduce congestion and vehicle emissions and enhance the parking experience. While sensors provide a continuous, in-depth view into the use of the on-street parking system, they have high operation and maintenance costs that have made them prohibitively expensive for most cities.

License Plate Recognition Technology

License Plate Recognition (LPR) technology automates the enforcement and data collection process by taking pictures of the license plates of parked vehicles. The systems can be hand-held or vehicle-mounted and work in daylight and low-light conditions. It is important to note that vehicle mounted systems can result in errors if the offender's license plate is obscured or if the respective vehicle is moving too fast (FHWA, 2020).

LPR can be used to enhance enforcement practices by collecting parking behavior data to assist in parking

management decisions that are data driven and specific to how the parking system operates.

With LPR, it can be determined how many vehicles are parked in both on-street and off-street facilities each hour, how long vehicles are parked and their movement behaviors throughout the area, and if a vehicle lacks a necessary permit. LPR units can also assist officers with identifying offenders that have been issued multiple citations, identifying stolen or wanted vehicles, and preventing fraud by replacing printed permits with license plates (FHWA, 2020). If the data indicates a pattern of violations in a certain area, management practices or policies can be adjusted accordingly.

LPR technology is currently used on a limited scale by the city, but there are significant opportunities for expanding this camera technology to additional city vehicles, while reducing staffing requirements for enforcement personnel.

Medium-Tech Data Collection

Manual Data Collection

Manual data collection requires personnel to go out into the field to conduct observations along a block face for a specified period or review collected video footage to identify curb user behavior as well as the frequency and volume. Data collection efforts could be conducted annually or throughout the year, depending on how often parking rates are adjusted and how often the city would like to test how changes in practices or policies are impacting the use of the curb. Collection should be conducted at similar times of year so that data comparisons are for similar conditions seasonally.

As manual collection can be a large undertaking, small neighborhoods are ideal for this method as the entire

inventory within the area can be covered. Large neighborhoods can also use this method if the technology is not available. However, if periodic counts are required, it is recommended to only count the inventory of a sample area within the neighborhood that is representative of the larger neighborhood (FHWA, 2020)[10].

While manual data collection is prone to error, takes time, and does not provide real-time data, the costs associated with it are relatively low when compared to the high-tech approaches, especially if data collection is conducted using existing staff rather than a third party.

Low-Tech Data Collection

Revenue & Transaction Data

A recent performance pricing pilot study at Carnegie-Mellon University relied on monthly revenue and transaction data gathered from the system's pay stations to identify parking occupancy and apply rate adjustments accordingly. This same strategy could be used as a low-cost option to estimate approximate parking occupancy, using the data generated by the existing pay-by-space parking meters. In this strategy, the total hours parked in a month (determined through meter revenue data) would be compared to the total hours of parking available for the month to identify approximate parking occupancy. The formula below represents how parking occupancy would be calculated.

Parking Occupancy Estimate =
[Hours of Enforcement] x [Days in Month] x [# of Meters
Total Hours Parked in a Month]

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[10] (FHWA), F. H. (2020, July 1). *Contemporary Approaches to Parking Pricing: A Primer*. Retrieved from United States Department of Transportation - Federal Highway Administration: https://ops.fhwa.dot.gov/publications/fhwahop12026/sec_3.htm

Action Items

The action items in the following table are needed to realize the recommendations in this chapter.

#	ACTION	COST	TERM
5.1	Modify Chapter 28 of the Dallas City Code to rename Metered Parking Areas as Paid Parking Areas and provide guidance for when it may be appropriate to establish or modify the boundaries of a Paid (Metered)Parking Area; and remove the block-specific meter zones, rates and enforcement times and instead provide parameters for when to utilize parking meters and adjust meter rates. The parameters may include: • Guidance for when the installation or removal of paid parking spaces is appropriate. Changes to meters must be based on measured vehicle occupancy on a set of blocks, with the goal of having one or two open spaces on each block face throughout the day. • Rates can be adjusted no more frequently than once every 6 months. • Rates can only be adjusted in increments of $0.25 to $0.50 per hour. • The minimum parking meter rate is $1.00 per hour. The maximum parking meter rate is $6.00 per hour.	$	Short
5.2	After amending the code, increase all meter rates that are currently less than $1.00 per hour to $1.00 per hour.	$	Short
5.3	Evaluate a progressive or tiered rate structure to accommodate longer stays, allowing motorists to stay beyond the time limit if they paid for it.	$	Medium
5.4	Evaluate the minimum and maximum rates every five years and amend Chapter 28 as needed.	$	Long
5.5	Conduct a parking occupancy survey of all metered parking spaces to determine if rates should be increased or decreased, or if meters should be removed.	$$$	Medium
5.6	Identify areas to implement event parking rates and begin discussions with area stakeholders.	$	Medium
5.7	Consider amending the Dallas City Code to enable the establishment of Parking Benefit Districts.	$	Short
5.8	Identify at least one area that could be an applicable candidate for a Parking Benefit District and begin discussions with local stakeholders.	$	Short
5.9	Develop an application form for districts and neighborhoods to use to apply to establish a Parking Benefit District.	$	Short
5.10	Consider adopting a standard partnership agreement that defines city baseline services (e.g., meter installation, maintenance, standard signs, and markings) and supplemental services (e.g., technology solutions, mobility pilots, pedestrian amenities) that might be provided by community partners and public improvement districts.	$	Medium
5.11	Develop a maintenance and phasing plan to upgrade parking meter technology.	$	Short
5.12	Ensure parking meter payment technology is up to date with payment methods of the day by completing the upgrade of coin-operated meters with credit card-enabled smart meters, while also ensuring spaces are available for people to pay by cash. Implement smart meters where only app-based payment exists today.	$$$	Medium

#	ACTION	COST	TERM
5.13	Expand the use of LPR technology to increase the efficiency of parking occupancy surveys and parking enforcement. Consider piloting technologies to allow for more automated occupancy surveying.	$$$	Medium
5.14	Update the parking meter hooding and temporary removal section of the code (Section 28-114.12) to establish criteria and revise the fee structure to account for the temporary and permanent removal or relocation of paid parking spaces and associated hardware.	$	Short

LOADING ZONES

> **OBJECTIVE:** Accommodate increasing loading needs and proactively manage loading and on-street parking demand for developments in commercial and mixed-use districts.

After parking, the second most predominant use of the curb in an urban environment are loading zones. Loading zones are dedicated curbside spaces that provide for personal and commercial deliveries and passenger pick-up and drop-off. Historically, most loading zones were commercial, but over time other types of zones have been added. The city now has seven types of signed loading zones- 1) taxi 2) valet 3) passenger 4) freight 5) commercial 6) band and 7) rideshare. However, it is important to note that enforcement of the last two, band and rideshare, is not currently mandated by ordinance.

The surge in online shopping, app-based deliveries, and the popularity of ride-hailing services such as Uber and Lyft has drawn increased focus on loading zones, bringing to light various issues, including:

1. **Lack of loading zones.** Insufficient curb space in business districts and mixed-use areas for both commercial delivery vehicles and non-commercial vehicles engaged in app-based deliveries or passenger pick-up and drop-off has led to illegal parking and loading in travel lanes and encroachment on intersections, causing traffic obstruction, congestion, and safety concerns.

2. **Ordinances regulating commercial loading are either outdated or ambiguous.** The outdated and ambiguous ordinances governing commercial loading in Dallas pose significant challenges for enforcement:

   - The City Code's unclear provisions permit any vehicle to occupy loading zones during loading or unloading, complicating efforts to restrict non-commercial vehicles.

   - Only vehicles meeting the city's definition of commercial vehicles, which must display specific state license plates, are permitted to utilize freight loading zones without a permit. However, these designated plates are no longer issued by the state of Texas meaning all vehicles must obtain a permit to use freight loading zones legally.

   - The term "freight" as a loading zone designation may not fully represent the diverse range of commercial vehicles used for deliveries in urban environments. Today, delivery operations involve various vehicle types and sizes beyond traditional freight transport, including vans, pick-up trucks, and even passenger cars, catering to specific delivery needs in the retail, food service, and e-commerce industries. Relying solely on "freight" for loading zone designation might overlook the nuanced demands of delivery logistics, risking misclassification or exclusion of essential vehicles for urban commerce.

   - The inconvenient process of obtaining or renewing loading zone permits, requiring

individuals to physically visit the Oak Cliff Municipal Center, exacerbates the issues. This requirement imposes additional burdens as it requires allocation of time and resources to make the in-person visit and consequently, deters compliance with permit requirements.

3. **Loading zones have been signed that currently have no grounds for enforcement in the code.** Certain uses, such as band loading zones and rideshare zones, are marked with signage but are not currently regulated in accordance with the city code. The code does not categorize band loading zones as a designated curb use, resulting in a lack of established limitations or compliance standards for them. While rideshare zones are defined within the code, there is insufficient language to enforce their appropriate utilization.

4. **Challenges with valet parking.** Certain locations experience ongoing problems with valet operators, as some operate in close proximity to one another, causing traffic congestion and generating a public nuisance that is difficult to regulate.

5. **Increasing loading demand caused by new development.** New developments, especially hotels, high-density multi-family residential, and restaurants often lack capacity to accommodate demand for app-based deliveries to residents and visitors, resulting in frequent obstruction of travel lanes. Additionally, the proposal to reduce or eliminate off-street parking requirements could further intensify these issues.

6. **Lack of a strategy to respond to emerging technology.** Technological advancements in the e-commerce and ridesharing industry have exacerbated existing issues resulting from limited access to the curb. While the imminent deployment of autonomous vehicles (AV) in ridesharing holds promise for enhanced safety and transportation efficiency, it also introduces new challenges, such as changes in travel behavior due to the elimination of passenger-supervised parking. Consequently, this shift will increase the demand for space to be reallocated from traditional parking spaces to loading zones. Predicting the adoption rate of fully

AVs adds complexity to forecasting the impact on curbsides. Nonetheless, failing to adjust curbside regulations to effectively integrate emerging technology may lead to mobility issues and traffic congestion.

It is essential for loading zones to adapt to the various and evolving loading demands. Such adaptability ensures optimal utilization of the city's curb space, effectively serving the needs of businesses, delivery services, and other users in a balanced manner. The subsequent section will detail recommendations for addressing the identified issues. When implementing these recommendations, Department of Transportation staff should prioritize the following considerations:

1. Encourage off-street freight deliveries

2. Mitigate congestion, improve air quality, and focus on safety

3. Achieve a balanced approach to the allocation of curbside space

Recommendations

1. Install more loading zones and expand the use of combination zones

The following recommendations should be considered to increase curb access for vehicles engaged in freight and passenger loading activity:

Expand the use of combination zones. To optimize curb space usage, consider implementing more combination zones that accommodate different users of the curb throughout the day or week. These zones would cater to commercial or passenger loading during peak times and transition to parking or other uses when demand is low. This approach addresses the issue of valuable curb space sitting empty or being misused. However, implementing combination zones requires addressing challenges such as signage, enforcement, and potential curb painting or other methods to color code the curb.

To enhance combination zone utilization, revise Section 28-89 to enable flexible passenger loading zone hours. Create five to ten combination zone options with corresponding signage, seeking input from businesses and delivery firms during the process. Unregulated time slots on signage could permit free parking, aligning with drivers' preferences. Additionally, if the city chooses to implement curb painting or other color-coding methods, it should be carefully considered within the regulations.

Establish siting criteria for loading zones. Strategically position loading zones near their destinations, preferably situating commercial loading zones with a minimum length of 20 feet the beginning of blocks to facilitate vehicle maneuvering and access to curb ramps. Ensure that zones accommodating delivery trucks, or two passenger vehicles are at least 40 feet long. Passenger loading zones should vary in length from 40 to 140 feet, depending on location and

anticipated loading activity. Select locations that minimize traffic disruption by avoiding congested or problematic areas. Avoid heavy foot traffic zones, crosswalks, and areas where pedestrians may encounter difficulty navigating around loading activities.

Develop an application process for requests to establish loading zones. The city should formalize the process for reviewing and approving requests to install and remove loading zones. A streamlined application process, taking into user demands, is essential for efficient management. In business areas, especially those with mixed-use buildings, loading zones should take precedence over passenger vehicle parking when there is a proven need for additional loading space (e.g., a request is received, illegal loading is observed, etc.) to address safety and congestion concerns. City engineers must assess off-street options before considering new on-street loading zones. Requests to remove existing zones should follow a similar process.

When reviewing requests, the following information should be considered, among other factors:

- The days of the week and the hours of the day that experience the highest activity levels, as well as the typical duration of loading/unloading events.

- The location of the nearest on-street loading zone with respect to the requested loading zone location.

- The days, hours, times, and time limits of the nearest on-street loading zone.

- The size (linear length) of the nearest loading zone.

Establish an annual review process. To be proactive, consider implementing a regular review of loading zone necessity to address changes in business locations and turnovers, ensuring optimal utilization and alignment with business needs. Key metrics for review include occupancy, turnover, duration of stay, violation rates, and peak hour of use.

2. Modernize and clarify commercial loading regulations and improve permitting

City policies should aim to provide delivery access while minimizing the impacts of delivery operations on traffic congestion, parking availability, and safety. The city should consider the following recommendations to address the diverse needs of delivery recipients who depend on this curb function.

Remove ambiguity from the code to ensure enforceability. Clear and unambiguous regulations are imperative for various reasons.

- **Provide a solid foundation for enforcing regulations.** Clear regulations leave little room for interpretation, it becomes easier to identify violations and take appropriate action.

- **Promote fairness and equal treatment.** Rules are precise and leave no room for subjective interpretation preventing potential disparities in enforcement.

- **Enhance compliance.** Curb users are likely to adhere to rules when they understand them clearly avoiding unintentional violations due to confusion.

- **Create efficient administrative processes.** Well-defined regulations streamline these processes enabling easier interpretation, application, and enforcement.

The city should amend Chapter 28 to establish a clearer and more objective regulatory framework, incorporating the following changes:

- Eliminate the provision allowing any vehicle to utilize a loading zone for loading or unloading.

- Modernize the definition of commercial vehicles to encompass all vehicles that typically engage in commercial delivery activity, including vans and box trucks commonly utilized for parcel and e-commerce deliveries.

- Modernize terminology by changing "freight curb loading zone" to "commercial loading zone."

If the definition of commercial vehicles is updated to include box trucks and commercial delivery vans, these vehicles would no longer be required to obtain a loading zone permit to use freight or commercial loading zones that could either be seen as unfair to passenger vehicles that must pay to use the curb in Paid (Metered) Parking Areas, or it could result in demand exceeding supply for the use of the zones. The city should further evaluate the following questions and seek input from business districts and commercial vehicle operators.

- Should passenger vehicles be allowed to use freight or commercial loading zones if they obtain a permit? If so, should conditions apply?

- Should commercial vehicles be required to pay a parking meter fee or obtain a monthly or annual permit to use freight or commercial loading zones?

- If permits are required for all vehicles to access loading zones, should the time restrictions to load/unload be regulated by the loading permit or the loading zone?

- Should the permit cost be determined by factors such as vehicle type, size, preferred loading locations (designated loading zones or paid parking spaces), desired loading times (30 min, 1 hour, 2 hour, etc.), or a combination of these factors?

Furthermore, implementing an online platform for loading zone permit applications and renewals will streamline the process. This digital approach allows businesses and individuals to electronically submit required documentation and payments, minimizing the need for in-person visits.

3. Evaluate process to assess requests for private or unregulated curb uses

Careful consideration and evaluation is crucial when assessing requests to reserve curb space for private use. While there may be circumstances where reserving public right-of-way for private use is deemed appropriate, it is essential that such decisions be made transparently, with fairness, and with due consideration for the broader community's interests and welfare. The city should consider the following recommendation to promote efficiency, safety, and fairness in allocating valuable curb space.

Avoid creating signs for unregulated uses. To ensure consistency, enforceability, and adherence to established guidelines, it is advisable to refrain from creating signs for curb uses that are not regulated in the Dallas City Code. If it is determined that the new use of the curb is valid and serves the broader public interest, the code should first be amended by City Council before signs are installed.

4. Evaluate valet regulations to balance demand for valet stands with other curb uses

Valet stands operating in Downtown and other mixed-use areas are often located in close proximity to one another. This exacerbates parking issues, which could be alleviated through enhanced parking management strategies. Valet is usually marketed as a resource for drivers to avoid unfamiliar or complex parking conditions. The city recognizes that the use of curb space for valet operations provides a public benefit, while also recognizing the negative impact of valet operations on curb space and travel, such as impeding traffic, interfering with the rights of others using the streets and curb, inducing public safety issues, and generally creating a public nuisance that is often a challenge to enforce. Therefore, permitting valet parking operations should be approached as a special privilege, not as a matter of right.

By considering the following recommendations, the city can work towards mitigating the overabundance of

valet parking, promoting a more organized and efficient use of curb space, and reducing the adverse effects on traffic flow and public spaces.

Revise siting criteria. Valet stands, operating on-street, should be strategically positioned at or near the center of a blockface to mitigate the potential impact of vehicular queuing on nearby intersections. Centralizing these stands not only minimizes conflicts and enhances uniformity but also facilitates the consolidation of multiple stands, optimizing service efficiency for several businesses. Enforcing a one-stand-per-blockface policy further mitigates disruptions to pedestrian and vehicular traffic, while also reducing the loss of on-street parking spaces for valet services. When allocating permits to operators, the city should prioritize those who apply first on a first-come, first-served basis, especially if multiple operators are seeking to establish stands on a blockface.

Evaluate fee structure. While the city currently collects an annual application fee, parking obstruction fee, and a fee for the installing of signs and markings, the city should review the current fee structure to determine if adjustments are needed to cover the cost of administration, enforcement, and the true value of the curb space. Additionally, evaluate fines for noncompliance, considering adjustments to enhance their effectiveness in deterring valet operators from creating public nuisances.

Where parking meters exist, it is not stated in the Code whether valet parking services must also pay for the hooding or removal of parking meters. The cost to "hood" parking meters is 70% of the maximum hourly capacity of each meter to be hooded multiplied by the hourly rate for the meter. If this cost is not included, valet parking services are paying significantly less than members of the public pay to use those parking spaces. For example, the hourly rate of parking meters on Commerce Street in downtown is $1.50, and meters are active Monday-Sunday from 7:00 a.m. to 6:00 p.m. If a metered parking space on Commerce Street was occupied 70% of the time, it would generate $4,215.75 annually.

5. Ensure loading needs are met during development review process

The city should consider the following recommendations to manage loading activities for new development and new uses in existing development:

New development. For new development, account for loading and short-term parking needs especially for hotels, high-density multi-family residential, and restaurants. Prioritize off-street loading, with facilities designed to meet the building's service needs.

Existing development. To accommodate new uses in existing buildings, consider creative strategies like combination loading zones, alleyway access, off-peak deliveries, and shared valet.

Consider changes to the code to manage loading activities. Evaluate Chapter 51A of the code for possible modifications to adapt off-street loading requirements for hotels, restaurants, bars, and high-density residential areas to accommodate the growing prevalence of rideshare and on-demand delivery services in the planning and design of loading spaces. One potential modification could be to amend to Chapter 51A to mandate developers create loading operation plans for specific uses, such as hotels, bars, and high-density multi-family residential buildings.

Off-street parking code amendment coordination. Maintain ongoing coordination with the team responsible for amending the Off-street parking code. This involves proactively identifying potential implementation obstacles, refining policies, and ensuring alignment with the city's overarching goals and objectives.

6. Plan for an uncertain future

Effective curb management necessitates a flexible strategy capable of adapting to diverse potential futures and shifts in behavior. It is crucial to acknowledge that what may seem unimaginable today could become common tomorrow. Crafting a curb management strategy that accommodates the activities of both passenger and freight carriers today, while planning for the future, including the integration of autonomous vehicles, is essential. This strategy should be adaptable and resilient to uncertainties. The following recommendations can help plan for future technologies:

Acknowledge and start conversations early. Successful integration of emerging technologies, such as autonomous vehicles, entails an initial step of acknowledging their imminent deployment. Successful integration requires early and thorough conversations among a diverse array of stakeholders including city officials, freight operators, technology companies, businesses, and other impacted stakeholders. These discussions serve as a foundational element, fostering informed decision-making and cultivating a collaborative environment that accommodates the varied interests and needs of all stakeholders involved. It is essential that these conversations be inclusive, allowing for a thorough exploration of the potential impacts autonomous vehicles. This approach promotes a shared understanding among all stakeholders, recognizing the impacts, benefits, and challenges associated with the introduction of autonomous vehicles. Key aspects addressed in these discussions include infrastructure requirements, regulatory frameworks, safety considerations, equitable access, and broader implications for the city. This approach provides room to incorporate innovation in a manner, that ensures that integration is seamless, but also prioritizes the well-being of the broader community, efficiency, and is sustainable long term.

Consider Autonomous Vehicles when siting loading zones. The arrival of AVs is expected to bring significant changes to the built environment, presenting new challenges. One critical challenge is the necessity for additional drop-off and pick-up zones. In response to these challenges, a report by the American Planning Association, titled "Planning for Autonomous Mobility (2018)," puts forth several recommendations for cities to prepare for an AV future. Specifically related to curb management, the city should consider the following strategies:

- **Proactively identify potential locations for pick-up and drop-off zones for passengers and deliveries utilizing AV technology.** Ensure these locations do not conflict with other curb functions or traffic operations. Priority should be given to locations with minimal curb uses, particularly those serving multiple buildings in commercial or mixed commercial-residential areas, ensuring convenient access for both passengers and freight carriers.

- **Establish regulations and management strategies for pick-up and drop-off activities.** To mitigate congestion and minimize conflicts with other modes, program these activities spatially and temporally, by regulating how AVs may operate within a designated zone or general area. This may include constraining AVs to particular locations and/or time periods or specifying the types of AVs permitted to operate within a zone.[11]

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[11] Crute, J., Riggs, W., Chapin, T.S., & Stevens, L. (2018) *Planning for Autonomous Mobility*. PAS Report 592. American Planning Association

Action Items

The action items in the following table are needed to realize the recommendations in this chapter.

#	ACTION	COST	TERM
6.1	Map locations of existing loading zones and post online for public viewing.	$	Medium
6.2	Proactively identify locations for combination loading zones.	$	Medium
6.3	Establish an application process and criteria to process requests for loading zones	$	Short
6.4	Amend Chapter 28 of the Dallas City Code as needed to: • Remove ambiguous language hindering loading zone enforcement • Modernize the definition of commercial vehicles • Modernize terminology by changing "freight" to "commercial."	$	Medium
6.5	Establish an online permitting system for commercial loading zone permits	$	Medium
6.6	Modify Chapter 43 of the Dallas City Code to adjust the valet license fee structure to account for administrative and enforcement costs as well as revenue lost due to obstruction of parking spaces; clarify enforcement procedures including violations, fees, revocations, and reinstatement of licenses	$	Short
6.7	Evaluate the following potential changes to Chapter 51A of the City Code to better manage loading activities: Evaluate the following potential changes to Chapter 51A of the City Code to better manage loading activities: • Ensure the off-street loading requirements for hotels, restaurants and bars, and high-density residential account for the increasing use of rideshare and on-demand delivery in the provision and design of loading spaces. • Require developers to prepare a loading operation plan for certain uses (e.g., hotels, bars, high-density multi-family residential).	$	Medium
6.8	Amend Chapter 28 of the Dallas City Code to provide flexibility to passenger loading zones by eliminating the requirement that they be effective at all times and replacing it with language specifying that they shall be effective as indicated by signage or markings.	$	Short
6.9	Develop five to ten options for combination zones and associated signage	$	Medium

PARKING FOR SPECIAL USERS

7

OBJECTIVE: Promote equity and accessibility and provide for the changing needs for the curb as transportation technologies and modes evolve.

Curb space should be equitably available to serve the most people and best interests of a neighborhood. Proactively planning for users ensures that access for neighborhood businesses and residents are not disproportionally affected by demands of the curb from outside users, that disabled users have proper accommodations, and that emerging technology can be implemented with existing infrastructure or with feasible modifications to infrastructure. This chapter covers:

- Employee parking
- Residential parking permits
- Electric vehicle parking
- Handicap parking

Employee Parking

An increase in the minimum on-street parking rate and a move to performance-based parking pricing has raised concerns about the impact on service industry workers earning low wages that work for businesses with limited or no dedicated off-street parking, particularly when real or perceived criminal activity presents concerns about walking long distances to and from the business when shifts end late at night after transit service has ended. At the same time, when employees park for long periods of time in front of or near businesses, the lack of readily available parking can deter potential patrons from visiting those same businesses. Based on a review of other cities' practices, several strategies were identified for providing parking or transportation for service industry employees in areas like Downtown and Deep Ellum that could be considered by the city and stakeholders.

1. Shared Parking Arrangements with Private Property Owners

Because employee parking is typically longer-term parking (i.e., more than four hours), when identifying locations for employee parking, off-street locations such as parking lots and garages should be the focus, so as not to take valuable short-term on-street spaces for customers. Shared parking arrangements can be beneficial to both the business and the parking lot and garage owners. Once benefits have been identified and concerns addressed, the arrangement should have the following components at minimum:

- Restricting the use of certain parking spaces to employees of the contributing business

- Shared costs for maintenance, improvements, security, and enforcement

2. Parking Permit for Underutilized Streets

Even in the densest area, there are on-street parking areas that go unused throughout the day. Another strategy is for the city to create a permit to allow employees to park on underutilized streets, thereby leaving parking spaces in high demand areas to visitors and customers. Permits should be limited to ensure parking demand can be accommodated, and parking for nearby businesses or residents remains accessible. For most cities, these permits allow employees to park for unlimited periods of time, but they still have to pay the parking meter.

3. Travel Demand Management

Reducing employee parking demand allows more parking for customers. Create an incentive program to encourage employees to travel to work by other means than a vehicle. The program can include a variety of incentives and options, such as:

- Transit pass subsidies

- Rideshare subsidies

- Emergency ride home services

- Carpool/vanpool matching services

Case Studies

Austin, TX Affordable Parking Program: A City-Facilitated Shared Parking Arrangement

The Affordable Parking Program is a public-private partnership between the City of Austin, Downtown Austin Alliance, and parking management vendors (i.e., private companies that manage parking lots and garages). The initiative's goal is to reduce economic barriers for downtown employees who commute downtown by car. Downtown Austin's service and entertainment industry employees can access parking options at affordable monthly rates as early as 3:00 p.m. and stay as late as 7:00 a.m. during the week, and park up to 24 hours during the weekend, depending on the

garage. Permit holders are granted access to a designated garage for $35-$40 per month.

The City of Austin manages the application process for city-owned garages while privately-owned garages manage their own application process. There is no cost to the city or private garage/lot operators to participate in the program, however; the operator must agree on a set permit price the employee would pay to park at a designated garage. The city works with Downtown Austin Alliance to identify businesses whose employees would benefit from the program and to promote the program by advertising participating garages and parking availability.

Currently, there are over 20 public and private garages/lots participating in the program. To participate, applicants must show proof of employment in the entertainment service industries within the downtown Austin pay-to-park metered areas. Participants have described the program as a win-win: employees have access to more affordable parking, and operators of private lots/garages see higher demand and revenue than they otherwise would in off-peak hours

Case Study: Portland, OR Area Parking Permit Program

The Area Parking Permit Program is intended to help alleviate commuter parking (i.e., parking by those with no apparent connection or business within the permit area) in mostly residential areas by creating a visitor time limit. Those who do have businesses or live in the area may apply to purchase an annual permit, allowing them to park beyond the visitor limit. Each of the zones' visitor time limits and hours are designed around the needs of the individual neighborhood.

To create an Area Parking Permit Program zone, residents and businesses seeking a remedy for the lack of available parking in their area due to commuter parking must initiate the process. Majority (greater than 60%) of the properties who vote, must vote in favor of the program. Area Parking Permit Program zones cannot be created in metered parking areas.

Case Study: Boulder, CO Employee Eco Pass Program - A Transportation Demand Management Program

In the early 1990's, the City of Boulder launched the pilot employee Eco Pass program. Concentrated in the Central Area General Improvement District (CAGID), one of the nation's oldest parking benefit districts, the district's revenue funds free transit passes for city employees and also offers downtown employers partially subsidized EcoPasses that they can provide to their employees. There are a limited number of employee EcoPasses and availability is limited to permanent and full-time employees.

Businesses with at least a 6-month commercial lease that are within the CAGID, the Downtown Boulder Business Improvement District area, and the University Hill General Improvement District are included in the City of Boulder's employee EcoPass program. Businesses must first sign up for the EcoPass program. Once approved, employees then get the Authorization Form from their company's EcoPass.

Case Study: San Luis Obispo, CA Validation Tickets and Employee Quarterly Parking Pass

This program was created to help alleviate downtown parking demand. Downtown businesses can purchase validation tickets to provide parking validation for customers (or staff) in any of the three downtown parking structures.

This quarterly employee pass provides downtown employees with access to reduced parking rates in the downtown parking structures. Each pass provides unrestricted access for one vehicle between the hours of 6:00 am – 12:00 am. Employees that work in downtown are eligible for a Free City Bus Pass.

Recommendation

There are many factors that need to be discussed between business districts and the city before more specific recommendations can be finalized. When potential strategy options were presented to Dallas City Council as part of a briefing on this policy document in January 2022, the majority of City Council members did not support of subsidizing employee parking for private businesses. It is recommended that a workshop be convened with business district representatives. Topics of discussion may include, but are not limited to:

- The types of strategies that should be pursued
- Roles and responsibilities
- If the parking permit strategy:
    - What streets should be selected for employee parking?
    - Is parking only for employees on that street, are employees allowed to park beyond the given time limits, or are employees given passes that are a reduced rate compared to what they might otherwise have to pay to park on that street?
    - Should the number of permits be limited per business?
    - Should there be a maximum income qualification?
    - What should the cost of the permits be?
- If the Transportation Demand Management Strategy:
    - How would the discounted transit passes or carpool incentives be funded?
    - Should the number be limited per business?
    - Should there be a maximum income qualification?

Residential Parking Permits

Existing Programs

The city's residential parking programs make on-street spaces available for use by residences and businesses in close proximity to commercial and mixed-use areas where the spaces would otherwise be occupied by commuter or visitor vehicles. Zones are established to restrict on-street parking during certain hours and days and allow only those vehicles displaying a parking permit to park within the zone.

The city operates two residential parking permit programs, as defined in Division 5B and 5C of Chapter 28, Article XI of the Code.

1. Residential Permit Parking (RPP) Program.

Limited to the Deep Ellum neighborhood, the program's purpose is to address the problems that arise when streets are used for parking vehicles by persons using adjacent commercial, industrial, and commuter facilities, but who do not reside in the neighborhood, making it challenging for Deep Ellum residents to obtain easy and adequate parking near their residences.

- The director may designate RPP zones in Deep Ellum as they determine "necessary to provide for the parking needs of the residents of that district."

- Only resident motor vehicles displaying a valid permit may parking in those zones.

- To be eligible for a permit, a person must reside within the Deep Ellum District. An annual permit costs $25 for the first vehicle in the household, and $50 for each additional vehicle.

2. Resident Parking Only (RPO) Program.
Limited to neighborhoods where residential streets (i.e., streets in which the majority of lots are occupied by single-family or duplex uses) are used for parking by people accessing adjacent nonresidential generators, creating problems like hazardous traffic conditions, air and noise pollution, litter, and the inability of residents to obtain easy and adequate parking near their residences. A "nonresidential parking generator" is "any facility, other than a structure used for a single-family or duplex use, that generates more parking needs than the facility can fully accommodate," including commercial, institutional, or commuter facilities. Only complete blocks of a residential street may be designated as a resident-parking-only zone, on one or both sides of the street.

- The director may designate RPO zones upon receipt of a petition and $50 application fee, and if a parking study commissioned by the director shows that more than 60% of parking spaces are in use, and 20% or more of the vehicles using the parking spaces are not owned or operated by owners or occupants of residents or business establishments within the area requested to be designated as an RPO zone.

- Only permitted vehicles may park in RPO zones.

- The RPO zone applicants must pay $42 for each RPO sign required to be installed.

- Businesses located in a proposed zoned are also allowed to apply for permits.

- Up to six permits may be issued to individual residence or business establishments. The annual permit fee is $6.

- RPO permit holders can apply for temporary permits for visitors attending a party or special event at the residence or business establishment. The fee is $0.10 for each temporary permit, and residences or business establishments may receive up to 50 per month. Temporary permits expire at noon on the day following the date stamped on the permit.

Today, there are 77 blocks identified as RPO zones in the Dallas. The largest number of RPO zones are located in and around the State-Thomas area, Henderson, and Lower Greenville. The majority of the zones do not meet the criteria in the code.

Recommendations

City policies recognize that residents have an expectation that the neighborhood will not be overrun with parking by commuters and those transacting business in nearby commercial areas, and that on-street parking for their vehicles and those of their guests should be available for their use in the general vicinity of their residence. However, the cost and convenience of the parking depends upon the residential density and the extent of available public right-of-way. For example, in general, residents in single-family homes may expect to be able to park their own vehicle within a block of their home, while residents of high-rise apartments may expect that service vehicles and guests may have to park a few blocks away at peak times.

The city's goal is to achieve a balance between maximizing on-street parking utilization and access to businesses with the residents' desire for convenient on-street parking and preserved neighborhood character and needs of adjacent business districts. To improve the residential parking permit programs, a more detailed review with of peer city practices and stakeholder discussions is needed. Community engagement opportunities will be provided to gather feedback from city residents. The following items should be considered during those discussions.

1) Whether the RPP and RPO zones should continue to exclude non-permit-holders entirely, or the regulations and associated signs be modified to instead exempt permit-holders from time limit restrictions in the zones. This would prevent non-residents and commuters from parking on residential blocks for long periods of time, while ensuring that the curb is not reserved solely for use by residents in mixed-use areas. In looking at other cities' residential parking program, almost none of them granted exclusive use of blocks to permit holders. Most programs allow permit-holders to be exempt from time-limit restrictions on designated blocks.

2) Whether the notification process should be changed.

3) Whether the RPP program and the RPO program should be consolidated to improve the efficiency of program management.

4) Whether RPP or RPO zones should be restricted to streets that are abutted by mostly single-family homes.

5) Whether businesses should be allowed to obtain RPO permits, for example for employees or visitors, as allowed today.

6) The restrictions on and process for obtaining visitor permits.

7) Whether to establish a period review process for evaluating the continued need for RPP and RPO zones.

8) Whether to reduce the number of permits that may be issued to each residence to better match the number of parking spaces along a block.

9) The cost of permits

10) The goals of RPP and RPO zones and the criteria for establishing new zones.

Electric Vehicles

Electromobility, also known as e-mobility, is the use of electric vehicles (EV), including cars, bikes, scooters, buses, and trucks that are powered fully, or in part, by electricity from the power grid. The use of e-mobility has increased dramatically in recent years with the trend expected to continue in the coming years. Per Dallas-Fort Worth (DFW) Clean Cities Coalition, electric cars currently represent 1% of cars registered in Dallas. However, between December 2021 and December 2022, registered ownership of electric cars in the city increased 35%, from 7,700 to 10,347.

Although the use of e-mobility has increased, the lack of publicly accessible electric vehicle charging infrastructure has resulted in "range anxiety"—a fear of running out of charge before reaching a destination or an available charging point. The perception of EV's having low range and the uneven distribution of charging stations deters many from considering it as a reliable form of transportation and is a hindrance to large-scale adoption. Given residents, commuters, and visitors travel to the Dallas's business districts to live, work, and play, it is important that EV charging is available, accessible, and convenient for various charging needs.

To prepare for the increasing use of e-mobility, it is recommended the city take a proactive approach to accommodate the growing demand by working with stakeholders to develop policy/guidance to improve the city's network of charging stations, supporting the Comprehensive Environmental & Climate Action Plan's (CECAP) goal of increasing access to sustainable, affordable transportation options.

As EV charging infrastructure is often considered a semi-permanent use and can conflict with other curb uses, it is recommended for the city to focus EV charging infrastructure in off-street parking locations or on corridors where transit and bike infrastructure is not prioritized, if on-street charging is preferred.

Considerations for an On-street EV Charging Policy

The following questions need to be answered to create a policy for on-street EV charging.

- Should the city focus on EV charging stations in off-street parking lots and garages, or allow EV charging stations to be installed for parking spaces along public streets?

- Should the city be the one to pay for, install, maintain, and operate the charging stations, or should licenses be granted to private companies to install, maintain, and operate charging stations in the public right-of-way?

- Should stations located in the public right-of-way be accessible to all members of the public and not limited to members of a provider or the owner of the charging stations?

- Should inspections be included in the permitting process to ensure chargers are in good condition?

- If the space is a metered parking space, should the meter rate be added on top of the cost to charge the vehicle?

- If the adjacent property owner is the entity that is licensed to install, operate, and maintain the charging stations, how will responsibility of the charging station be addressed if the property is sold to a new owner?

- Should there be a limit on the number of charging stations spaces allowed per block?

Handicap Parking

Providing adequate parking for persons with disabilities is important to ensure equal access to the curb for the most vulnerable curb users with diverse mobility needs. Along all public street parking areas, marked or metered, and in off-street lots and garages, provide ADA spaces in accordance with current federal, state, and local ADA regulations and guidance. This includes the Public Rights- of- Way Accessibility Guidelines (PROWAG), Texas Manual on Uniform Traffic Control Devices (TMUTCD), Chapter 681 of the Texas Transportation code, and section 4.3.7.3 of the Dallas Street Design Manual.

Guidelines

When locating on-street ADA parking spaces, consider key factors for accessibility and compliance.

Number of Spaces: Determine the appropriate number of ADA-accessible spaces based on the total parking capacity and the requirements outlined in PROWAG.

Figure 7.1 Minimum Required Number of ADA Parking Spaces

TOTAL NUMBR OF METERED OR DESIGNATED PARKING SPACES	MINIMUM REQUIRED # OF ADA PARKING SPACES
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 and over	4 percent of total

Slope and Grade: Ensure the slope and grade comply with PROWAG to avoid steep slopes challenging for those with mobility impairments.

Space Dimensions: Follow PROWAG for the dimensions of ADA-accessible spaces, including the width of the space and the adjacent access aisle.

Visibility and Signage: Provide clear and visible signage indicating the presence of ADA-accessible spaces. Ensure that the signage is easily seen from the road and includes the international symbol of accessibility as outlined in the TMUTCD.

Accessibility Features: Ensure that the selected locations have appropriate access to curb ramps and the adjacent sidewalk is clear of obstacles for wheelchair or scooter access.

Proximity to Key Destinations: Ensure ADA-accessible spaces are conveniently located near essential services and amenities like government facilities, healthcare, shopping, entertainment, education, and transit hubs for enhanced accessibility.

Consultation with Stakeholders: Seek input from relevant advocacy groups and stakeholders to address the diverse needs of the community.

Compliance with Regulations: Ensure that the design and placement of ADA-accessible spaces comply with local, state, and federal accessibility regulations, including the Americans with Disabilities Act (ADA) requirements.

Addressing these considerations can transform the curb into a more inclusive and accessible environment for persons with disabilities who depend on it to access their destinations

Action Items

The action items in the following table are needed to realize the recommendations in this chapter.

#	ACTION	COST	TERM
7.1	**Employee Parking:** Convene a workshop with business district representatives to discuss strategies for employee parking.	$	Short
7.2	**Residential Parking:** Review the Residential Parking Program and the Resident Parking-Only Program with input from area residents and businesses to ensure these programs are meeting their intended purposes. Modify the programs as needed, incorporating feedback from residents and businesses.	$	Medium
7.3	**EV Parking:** Compile research and case studies of other cities' EV charging policies, programs, and practices, in consultation with state and federal policies and guidelines. Collect stakeholder and public input on the considerations for EV charging infrastructure. Present the findings and draft recommendation to the appropriate City committee. Finalize the City's policy for on-street EV charging, as applicable.	$	Medium
7.4	**Handicap Parking:** Determine the number of handicap parking spaces that need to be installed in Paid (Metered) Parking Areas to meet national accessibility guidelines. Determine where the spaces should be located and begin installation.	$	Medium
7.5	**Handicap Parking:** Update the Street Design Manual and the DDOT Sign Catalog to incorporate handicap-accessible parking standards.	$	Medium

SIGNS AND MARKINGS

8

OBJECTIVE: Manage expectations and simplify the experience for all curb users by making it predictable and easy to understand.

The design of parking time limit signs, No Parking, and other signs communicating the use of the curb is established by the Dallas Department of Transportation's Traffic Sign Standards current edition, which defers to the Federal Highway Administration (FHWA) and the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Signs for off-street parking are typically implemented by private entities, each with their own unique style. The variety of signage dilutes the overall look and feel of an area, while confusing motorists about where and when it is legal to park. Providing signage and markings that are consistent across the city minimizes confusion and reinforces curb users' expectations.

Issues and opportunities for improvement related to existing signs and markings communicating the use of the curb were identified by stakeholders and through a review of best practices they include:

1. **Lack of delineation of on-street parking spaces:** Most business districts lack pavement markings to delineate the limits of individual on-street parking stalls, even if single-space meters are used. This leads to driver confusion about where parking is allowed, instances where parked vehicles are not aligned with any single parking meter, and it also

makes it difficult to enforce parking in metered parking stalls. Per Section 28-105 of the Code, "the driver of a vehicle shall park the vehicle in a metered parking stall so that the entire vehicle is within the limit lines marked on the curb or street designating the parking stall." This regulation cannot be enforced without parking stall markings.

2. **Inconsistent use of curb paint:** Inconsistent application of curb paint, coupled with the inconstant use of colors, contributes to a lack of clarity in defining parking regulations.

3. **Confusing signage.** The absence of arrows on No Parking signs, solely relying on words, creates confusion for motorists trying to determine where along the curb it is legal to park.
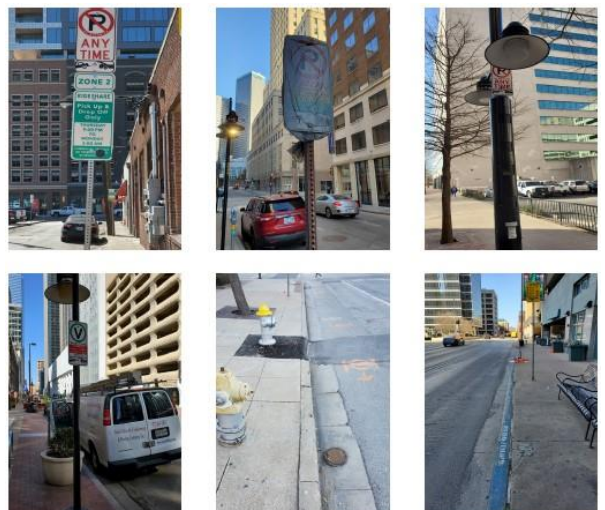
Delineate Parking Meter Stalls and Zones

Of the issues noted above, the lack of delineation for on-street metered parking is the most perversive and would be an easy solution to implement. Striping on-street stalls would achieve the following benefits:

- It would be clear to drivers with limited literacy or English Proficiency where it is legal to park

- Drivers would have a clear understanding of which meter goes with which space

- Drivers may find it easier to get in and out of parallel parking during busy conditions, which would reduce traffic delays

- Safety would be improved at intersections, driveways, and pedestrian crossings by clearly delineating setbacks

- It would be easier to see and enforce when drivers park outside of legal parking areas (e.g., to close to crosswalks or fire hydrants)

- Loading zones, Street Seats, micro-mobility stations, etc. would be allocated to a defined area

- Future License Plate Recognition (LPR) and vehicle count systems could be implemented to monitor occupancy across a defined number of on-street stalls

A policy decision needs to be made about whether the city's current standard parking stall markings should also be used to delineate non-metered parking stalls, and when the use of a solid line separating the parking lane from the travel lane is appropriate.
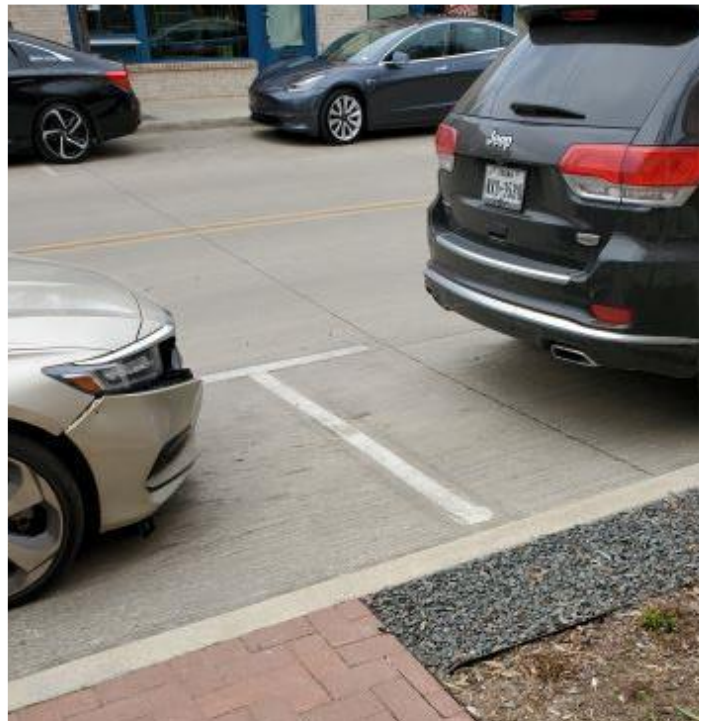
Paint Curbs

The purpose of painting curbs is to communicate to drivers specific on-street parking rules. The use of curb paint can be used to supplement on-street signage or to reduce signage clutter by communicating the restrictions via curb color. The TMUTCD permits curb paint without signs if a legible word marking indicating the regulation is present on the curb. Curb paint without word markings or signs may be used in certain situations. This is applicable, for instance, when conveying a general prohibition by statute on parking within a specified distance of a STOP sign, YIELD sign, driveway, fire hydrant, or crosswalk.

Painting curbs can make the curb use regulations visible from a greater distance, reduce the chance of misunderstanding, and make driver navigation easier and more predictable. This could be particularly beneficial in Paid (Metered) Parking Areas where there is a high demand for the curb that often leads to sign clutter and illegal parking.

It is recommended that the City of Dallas make greater use of painting curbs. Due to the additional maintenance expense this would entail, it is recommended that painting curbs be limited to Paid (Metered) Parking Areas as these areas have the highest demand for curb space and the greatest

potential for conflicts. Because Paid (Metered) Parking Areas have greater regulation of the curb and require a higher number of signs, painting the curbs would likely have a negligible impact on maintenance costs if it is accompanied by a reduced number of signs that must be maintained.

Figure 8.1 shows the curb colors that are recommended for Dallas and what they represent. These recommendations are based on a review of other cities and relevant literature and are consistent with the TMUTCD and best practices. The curb colors

would need to be added to Chapter 28 of the Dallas City Code to be enforceable.

After the color curbs are added to the code to be enforceable, a phased implementation, funding, and maintenance plan should be created for implementing colored curbs and reducing sign clutter in Paid (Metered) Parking Areas. It is recommended that the implementation plan start with painting curbs red around fire hydrants.

Figure 8.1. Curb Use Colors

CURB COLOR	PURPOSE	DESCRIPTION	SAMPLE APPLICATIONS	ADDITIONAL SIGNS OR MARKINGS
Red	No Parking Any Time	Applied at locations where parking and stopping is prohibited at all times.	The clear zone by a fire hydrant or crosswalk, at bus stops, or along travel lanes where parking is prohibited at all times.	Should be supplemented by No Parking signs as required, although this could create confusion about whether parking is prohibited when signs are not present.
No Color	Parking Allowed	The curb may be used for parking. Parking may be restricted at certain times of day or day of week, or to residents with permits.	The curb next to metered parking stalls, 15-minute parking zones, free all-day parking, and RPO zones.	Signs may be needed to indicate time-of-day or day-of-week restrictions, time restrictions, that payment is required to park, or that a permit is required to park.
Yellow	Commercial /Passenger Loading Only	The curb may only be used for passenger and/or commercial delivery loading at all times.	The curb next to freight loading zones, passenger or rideshare loading zones, valet zones, or flex loading zones.	Signs to indicate the type of loading zone and any special time limits or time-of-day restrictions.
Blue	Disabled Parking	Parking only for people with disabled placards or plates. Typically applied at all times with no exceptions for time of day or day of week.	At parking stalls designated for handicap parking. (see additional discussion in the Special Users chapter.)	Handicap parking signs and markings, as required in TMUTCD.

Update Signage

As demands for the curb and new uses for the curb (e.g., rideshare, deliveries) have increased over the past 10 years, and as the Dallas Department of Transportation staff have come and gone, there is a need to take a fresh look at the design and placement of the signs regulating the use of the curb. This section identifies some of the issues and opportunities that have been identified related to curb use signage, and the corresponding recommendations.

Some of the major issues and opportunities with the signage, as noted by city staff and members of the stakeholder committee, include:

- **Sign clutter:** Some neighborhoods have an overabundance of signage; this may be confusing to visitors and lead to an increase in traffic circulation and decreased driver awareness of pedestrians, bicyclists, and scooter riders.

- **Third-party/ private signage:** There are some instances of private and third-party signage placed along the block face. These signs are inconsistent in terms of font colors and placement, and it is unclear if any of these signs are done with city approval.

- **Misalignment of signs with curb features:** In many cases, signposts are not aligned with appropriate setbacks for driveways and intersections, or signs fail to delineate the limits of the stated curb use or restriction.

- **Missing signage:** Parking stalls with paid parking regulations often lack signage indicating that motorists must pay to park and what the time limits are. No Parking signs are sometimes missing around fire hydrants.

- **Ambiguous signage:** The use of words rather than arrows on No Parking signs to indicate where the

restriction applies has been reported to cause confusion about where it is illegal to park.

- **Conflicting signage with curb usage:** Parking meters in a rideshare zone with overlapping hours.

- **Unnecessary signage:** Most signs have a "towing enforced" supplemental sign, but the city rarely conducts towing.

The current standards for sign placement and messaging should be reviewed. Below, are broad recommendations for consideration:

- Provide signage and markings for curb uses that is consistent within districts and across the city and is easy to see and comprehend. This may require adding additional types of signs to the city's traffic sign standards, such as, flex loading zone signs, parking time limit signs, and paid parking signs.

- Utilize symbols rather than, or in addition to, words whenever possible.

- Replace the No Parking signs in the current edition of the department's Traffic Sign Standards with signs that utilize arrows.

- When arrows are used, ensure signs are installed at a 45-degree angle to the curb so it is clearer where the arrows are pointing.

- Minimize sign clutter by using strategies like painting curbs red for No Parking in Paid (Metered) Parking Areas.

The National Association of City Transportation Officials (NACTO) provides several guidelines for messaging and design of downtown signage given the changing requirements for curbs and on-street usage. It is recommended that the city conduct a more in-depth review of signage and wayfinding to supplement the recommendations contained in this document.

Action Items

The action items in the following table are needed to realize the recommendations in this chapter.

#	ACTION	COST	TERM
8.1	Stripe the limit lines of all metered parking stalls in accordance with Section 28-105 of the code.	$$	Medium
8.2	Develop standards for whether and how non-metered parking stalls should be marked, and when it is appropriate to stripe a solid line to separate the parking are from the travel lane.	$	Medium
8.3	Amend Chapter 28 of the Dallas City Code to make red and yellow curb markings enforceable.	$	Short
8.4	Create standard details for curb markings	$	Short
8.5	Develop a phasing plan for implementing curb markings	$	Medium
8.6	Identify funding to implement painted curbs in Paid (Metered) Parking Areas, with the goal of completing implementation in one area per year, starting with the Downtown Central Business District. Painting curbs red around fire hydrants, intersections, and driveways in accordance with the No Parking regulations in the code should be the top priority. A potential funding source could be the increased revenue from performance-based parking meter pricing.	$$	Long
8.7	Develop new standard for No Parking signs that use arrows and symbols rather than words to indicate where the regulation applies. Begin implementing the new standard signs as requests for new No Parking signs come in or signs need to be replaced.	$	Short
8.8	Finalize the city's standard signs for passenger loading, commercial/freight loading, and combination zones, with input gathered from local business districts, and add to the Traffic Sign Standards as funds are available, implement this new signage in commercial and mixed-use areas in a systematic manner, completing all updates in one Paid (Metered) Parking Areas before moving to the next.	$	Short
8.9	Implement paid parking signage where absent, in accordance with TMUTCD.	$$	Short
8.10	Develop a sign replacement program when new types of signs are developed, to avoid confusion and provide predictability.	$	Medium
8.11	Designate bus only lanes with proper markings and signage.	$	Medium
8.12	Revise striping and signage budget to account for increased cost to update signage and install markings.	$	Short

COMMUNICATION

OBJECTIVE: Manage expectations and simplify the experience for all curb users by making it predictable and easy to understand.

Implementing curb management tools and policies, including performance-based parking pricing, requires effective communication of meter rates, policies, and curb use regulations to users. Clear communication helps reduce confusion and frustration while promoting a better understanding of curb operations. This chapter will outline communication strategies aimed at improving customer experience and conveying essential information to users.

Provide Real Time Availability

Smartphone Applications

Smartphone apps provide easily accessible information and vehicle navigation to motorists. Information included in a smartphone app could include parking locations, rates, restrictions, and real-time availability (if technology permits). In many cases, cities provide their parking data in an open-source format, to allow interested smartphone app developers to incorporate the data into a larger network at no cost to the city. Such smartphone app developers include ParkMe and Parkopedia, who are more interested in creating a database of parking information on a national scale than developing individual parking apps for cities. The type of data sources that could be fed into the development of a smartphone app could include sensor data (if implemented) and meter transaction data for on and off-street facilities. At the time of this report, Google has recently implemented a parking difficulty feature in pilot communities (Atlanta, Charlotte, Tampa, Phoenix, and 20 other locations) that provides information about how

challenging parking will be based on an input destination. It is envisioned that future iterations would also be able to help determine less challenging parking within a proximate distance from the user's destination.

Provide Education

Customer outreach is an essential piece to educating the public on the goals, objectives, regulations, and practices of the city's performance parking program. The goal of outreach is to encourage understanding and compliance with the new program. The following section summarizes the different outreach efforts that could be implemented as part of an on-going outreach campaign. While the final outreach campaign will likely contain a combination of outreach efforts, it is essential that branding and messaging remain clear and consistent throughout to support customer recognition and understanding.

Website

Many times, visitors plan where they are going to park by researching parking options online. For a fully functioning performance parking and curb management programs, it is imperative that the parking rates and rate adjustments are properly communicated to the public to reduce confusion and driver frustration. In addition to communicating parking rates, the city's website provides an excellent opportunity to educate the public on the performance parking pricing program. The website should be expanded to include information on the program such as:

- A description of the program purpose and how it works

- The goals of the program

- The benefits the program provides

- Frequently asked questions

- Program contact information
- Annual data collection results
- Rate adjustment announcements
- Rate structure
- Parking maps and associated rates

Videos

Another opportunity to educate the public is to produce a short video that explains performance parking pricing program elements and the benefits it will provide. This video should be posted on the website, as well as be distributed to other media outlets and stakeholder groups to reach a wider audience.

Business Information Packet

Before the program is initiated, the city should develop a packet to be distributed to area businesses, organizations, and neighborhood groups that contains information on the new program. The packet should be developed for electronic and print distribution and should include:

- A description of the program, including how it works and the benefits it will provide to the community
- Information on how to use the parking system
- Information on how the program is structured including the rate setting policies
- Information on how users will be notified of rate changes

Enforcement Officers

Parking enforcement officers interact with parkers daily and are a great resource to speak with the public regarding the performance parking pricing program. The parking enforcement officers should be educated on the objectives of the program and how it works. This will enable them to effectively communicate the program's message to motorists.

Action Items

The action items in the following table are needed to realize the recommendations in this chapter.

#	ACTION	COST	TERM
9.1	In future contract negotiations with parking meter vendors, prioritize vendors that can provide real-time data to parking apps.	$	Long
9.2	Add the following information to the Parking Management Program website: • Information on paid parking: a map showing the location of metered parking areas, a description of parking meter rates and time limits, information on performance-based parking pricing, etc. • Information on special signs and their meanings, such as commercial loading zone signs, passenger loading zone signs, flex use loading zones, handicap parking, RPO signs, paid parking signs, etc. • A map showing the location of loading zones. • A map showing the location of RPO districts.	$	Short

IMPLEMENTATION & PHASING

10

The implementation plan organizes critical actions, considering timeframes for completion following policy adoption and funding availability. Short-term actions can be completed within the first year after policy adoption, medium-term actions within three years, and long-term actions within five years. Costs are categorized as inexpensive ($ = $0-$50k), moderately expensive ($$ = $50-$200k), or expensive ($$$ = >$200k).

While most actions require planning, funding, or staff time, some must be promptly executed to build momentum and prepare for future actions. The Priority Action Item table identifies a critical action needing City Council approval. A set of code amendments is ready for City Council consideration, to be presented immediately after the adoption of the On-Street Parking and Curb Management Policy.

Following the approval of the policy document and initial ordinance amendments, the City Council should expect subsequent ordinance amendments and follow-up actions as recommendations are implemented.

Amendments to Policy

From time to time, staff may administratively update the policy document to provide clarifications that do not impact the goals, objectives, and policies outlined in the document.

Maintenance of Policy Document

The most current policy should always be posted and be available on the Department of Transportation or Parking Management program website.

Figure 10.1 Priority Action Items Immediately Following the Policy Adoption

	#	Action	Cost
Priority Action Items	5.1	**Paid Parking:** Modify Chapter 28 of the Dallas City Code to rename Metered Parking Areas as Paid Parking Areas and provide guidance for when it may be appropriate to establish or modify the boundaries of a Paid (Metered) Parking Area; and remove the block-specific meter rates and enforcement times and instead provide parameters for when to utilize parking meters and adjust meter rates. The parameters may include: • Guidance for when the installation or removal of paid parking spaces is appropriate. Changes to meters must be based on measured vehicle occupancy on a set of blocks, with the goal of having one or two open spaces on each block face throughout the day. • Rates can be adjusted no more frequently than once every 6 months. • Rates can only be adjusted in increments of $0.25 to $0.50 per hour. • The minimum parking meter rate is $1.00 per hour. The maximum parking meter rate is $6.00 per hour.	$

Figure 10.2 Short-Term Action Items

	#	Action	Cost
Short-Term Action Items (Within 1 Year)	5.2	**Paid Parking:** After amending the Code, increase all meter rates that are currently less than $1.00 per hour to $1.00 per hour.	$
	5.7	**Paid Parking:** Consider amending the Dallas City Code to enable the establishment of parking benefit districts.	$
	5.8	**Paid Parking:** Identify at least one area that could be an applicable candidate for a parking benefit district and begin discussions with local stakeholders.	$
	5.9	**Paid Parking:** Develop and application form for districts and neighborhoods to use to apply to establish a Parking Benefit District.	$
	5.11	**Paid Parking:** Develop a maintenance and phasing plan to upgrade parking meter technology.	$
	5.14	**Paid Parking:** Update the parking meter hooding and temporary removal section of the code (Section 28-114.12) to establish criteria and revise the fee structure to account for the temporary and permanent removal of paid parking spaces and associated hardware, lost revenue, and relocation of paid parking spaces.	$
	6.3	**Loading Zones:** Establish an application process and criteria to process requests for loading zones	$
	6.6	**Loading Zones:** Modify Chapter 43 of the Dallas City Code to adjust the valet license fee structure to account for administrative and enforcement costs as well as revenue lost due to obstruction of parking spaces; clarify enforcement procedures including violations, fees, revocations, and reinstatement of licenses	$
	6.8	**Loading Zones:** Amend Chapter 28 of the Dallas City Code to provide flexibility to passenger loading zones by eliminating the requirement that they be effective at all times and replacing it with language specifying that they shall be effective as indicated by signage or markings.	$
	7.1	**Employee Parking:** Convene a workshop with business district representatives to discuss strategies for employee parking. Take a recommendation to City Council within two years of policy adoption.	$
	8.3	**Signs and Markings:** Amend Chapter 28 of the Dallas City Code to make red and yellow curb markings enforceable.	$
	8.4	**Signs and Markings:** Create standard detail for curb markings	$
	8.7	**Signs and Markings:** Develop new standard for No Parking signs that use arrows and symbols rather than words to indicate where the regulation applies. Begin implementing the new standard signs as requests for new No Parking signs come in or signs need to be replaced.	$
	8.8	**Signs and Markings:** Finalize the city's standard signs for passenger loading, commercial/freight loading, and combination zones, with input gathered from local business districts, and add to the Traffic Sign Standards as funds are available, implement this new signage in commercial and mixed-use areas in a systematic manner, completing all updates in one Paid (Metered) Parking Areas before moving to the next.	$

Figure 10.2 Short-Term Action Items (cont'd)

#	Action	Cost
8.9	**Signs and Markings:** Implement paid parking signage where absent, in accordance with TMUTCD.	$$
8.12	**Signs and Markings:** Revise striping and signage budget to account for increased cost to update signage and install markings	$
9.2	**Communication:** Add the following information to the Parking Management Program website: • Information on paid parking: a map showing the location of metered parking areas, a description of parking meter rates and time limits, information on performance-based parking pricing, etc. • Information on special signs and their meanings, such as commercial loading zone signs, passenger loading zone signs, flex use loading zones, handicap parking, RPO signs, paid parking signs, etc. • A map showing the location of loading zones. • A map showing the location of RPO districts.	$

Figure 10.3 Medium-Term Action Items

	#	Action	Cost
Medium-Term Action Items (Within 3 Years)	2.1	**Prioritizing and Allocating Curb Uses:** Using the curb use inventory created for this effort as a starting point, expand and maintain an up-to-date GIS-based inventory of curb uses in central Dallas and areas that require active curb management and parking enforcement.	$$
	5.3	**Paid Parking:** Evaluate a progressive or tiered rate structure to accommodate longer stays, allowing motorists to stay beyond the time limit if they paid for it.	$
	5.5	**Paid Parking:** Conduct a parking occupancy survey of all metered parking spaces to determine if rates should be increased or decreased, or if meters should be removed.	$$$
	5.6	**Paid Parking:** Identify areas to implement event parking rates and begin discussions with area stakeholders.	$
	5.10	**Paid Parking:** Consider adopting a standard partnership agreement that defines city baseline services (e.g., meter installation, maintenance, standard signs, and markings) and supplemental services (e.g., technology solutions, mobility pilots, pedestrian amenities) that might be provided by community partners and public improvement districts.	$
	5.12	**Paid Parking:** Ensure parking meter payment technology is up to date with payment methods of the day by completing the upgrade of coin-operated meters with credit card-enabled smart meters, while also ensuring spaces are available for people to pay by cash. Implement smart meters where only app-based payment exists today.	$$$
	5.13	**Paid Parking:** Expand the use of LPR technology to increase the efficiency of parking occupancy surveys and parking enforcement. Consider piloting technologies to allow for more automated occupancy surveying.	$$$
	6.1	**Loading Zones:** Map locations of existing loading zones and post online for public viewing.	$
	6.2	**Loading Zones:** Proactively identify locations for combination loading zones.	$
	6.4	**Loading Zones:** Amend Chapter 28 of the Dallas City Code as needed to: • Remove ambiguous language hindering loading zone enforcement • Modernize the definition of commercial vehicles • Modernize terminology by changing "freight" to "commercial"	$
	6.5	**Loading Zones:** Establish an online permitting system for commercial loading zone permits	$
	6.7	**Loading Zones:** Evaluate the following potential changes to Chapter 51A of the City Code to better manage loading activities: • Ensure the off-street loading requirements for hotels, restaurants and bars, and high-density residential account for the increasing use of rideshare and on-demand delivery in the provision and design of loading spaces. • Require developers to prepare a loading operation plan for certain uses (e.g., hotels, bars, high-density multi-family residential).	$
	6.9	**Loading Zones:** Develop five to ten options for combination zones and associated signage	$
	7.2	**Residential Parking:** Review the Residential Parking Program and the Resident Parking-Only Program with input from area residents and businesses to ensure these programs are meeting their intended purposes. Modify the programs as needed, incorporating feedback from residents and businesses.	$

Figure 10.3 Medium-Term Action Items (cont'd)

	#	Action	Cost
Medium-Term action Items (Within 3 Years)	7.3	**EV Parking:** Compile research and case studies of other cities' EV charging policies, programs, and practices, in consultation with state and federal policies and guidelines. Collect stakeholder and public input on the considerations for EV charging infrastructure. Present the findings and draft recommendation to the appropriate City committee. Finalize the City's policy for on-street EV charging, as applicable.	$
	7.4	**Handicap Parking:** Determine the number of handicap parking spaces that need to be installed in Paid (Metered) Parking Areas to meet national accessibility guidelines. Determine where the spaces should be located and begin installation.	$$
	7.5	**Handicap Parking:** Update the Street Design Manual and the DDOT Sign Catalog to incorporate handicap-accessible parking standards.	$
	8.1	**Signs and Markings:** Stripe the limit lines of all metered parking stalls in accordance with Section 28-105 of the code.	$$
	8.2	**Signs and Markings:** Develop standards for whether and how non-metered parking stalls should be marked, and when it is appropriate to stripe a solid line to separate the parking area from the travel lane.	$
	8.5	**Signs and Markings:** Develop a phasing plan for implementing curb markings	$
	8.10	**Signs and Markings:** Develop a sign replacement program when new types of signs are developed, to avoid confusion and provide predictability.	$
	8.11	**Signs and Markings:** Designate bus only lanes with proper markings and signage.	$

10.4 Long-Term Action Items

	#	Action	Cost
Long-Term Action Items (Within 5 Years)	5.4	**Paid Parking:** Evaluate the minimum and maximum rates every five years and amend Chapter 28 as needed.	$
	8.6	**Signs and Markings:** Identify funding to implement painted curbs in Paid (Metered) Parking Areas, with the goal of completing implementation in one area per year, starting with the Downtown Central Business District. Painting curbs red around fire hydrants, intersections, and driveways in accordance with the No Parking regulations in the code should be the top priority. A potential funding source could be the increased revenue from performance-based parking meter pricing.	$$
	9.1	**Communication:** In future contract negotiations with parking meter vendors, prioritize vendors that can provide real-time data to parking apps.	$

APPENDIX

Parking Meter Technology Pros-Cons

The following summary of pros and cons of parking meter technology options is based on the Federal Highway Administration's 2020 publication, "Contemporary Approaches to Parking Pricing: A Primer."

Technology Option	How Users Pay	How Enforcement Works	Pros	Cons	Other Notes
1. Single-Space Coin-Operated Meters	Users pay at the meter next to their car, either with coins or through the app (after scanning the QR code on the meter).	Enforcement officers must visually inspect the meter to see if it is expired-- and, if there is also a Pay-by-Phone option, check an additional database-- before issuing a parking citation.	1. User convenience to pay at the space rather than at a central payment location. 2. Provide a visual reminder to users (i.e., the meter itself) that they must pay to park. 3. Meter failures affect only one parking space rather than an entire block face. 4. No wireless technology costs.	1. Limited payment options accepted (only coin and pay-by-phone). 2. Challenging to adjust prices, report revenue collected, and monitor utilization. 3. No automatic alerts to operations about system failures. (Requires users to report or regular inspections, decreasing the revenue that could be collected. 4. Enforcement is more time-consuming and labor-intensive. 5. More infrastructure to maintain than multi-space meters or Pay-by-Phone only. 6. More sidewalk clutter than multi-space meters or app only. 7. Enforcement officers must visually inspect every parking meter, making enforcement less efficient.	
2. Single-Space "Smart" Meters	Users pay at the meter next to their car, either with coins, cash, credit card, or through the app (after scanning the QR code on the meter).	Enforcement officers utilize wireless devices to check the status of each space.	1. User convenience to pay at the space rather than at a central payment location. 2. Provide a visual reminder to users (i.e., the meter itself) that they must pay to park. 3. Meter failures affect only one parking space rather than an entire block face. 4. Many payment options accepted (coins, bills, card, pay-by-phone). 5. The meters are wirelessly networked to allow real-time reporting, automatically report system failures, and support dynamic pricing. 6. Can also integrate with pay-by-phone (app) systems, improving enforcement.	1. More infrastructure to maintain than multi-space meters or Pay-by-Phone only. 2. More sidewalk clutter than multi-space meters or Pay-by-Phone only. 3. If time is left on a meter, it could be used by a new vehicle, rather than the new vehicle having to start the clock over. In addition to impacting revenue, this could also make it challenging to accurately collect data on user behaviors like average time parked (which can inform what time limits are set).	If Pay-by-Phone is available, it must be integrated with meters and LRP technology for enforcement to be efficient. Otherwise, Enforcement Officers must check multiple databases before issuing a parking citation.

Technology Option	How Users Pay	How Enforcement Works	Pros	Cons	Other Notes
3. Multi-Space Pay-And-Display	Users to walk to a central pay station, make their payment, and place a receipt on their vehicle's dashboard.	Enforcement officers must visually inspect the receipt on each vehicle dashboard to determine if the vehicle has paid and that they have not violated time limits.	1. Many payment options accepted (coins, bills, card, pay-by-phone). 2. The meters are wirelessly networked to allow real-time reporting, automatically report system failures, and support dynamic pricing. 3. Can also integrate with pay-by-phone (app) systems, improving enforcement 4. Less infrastructure to maintain than single-space meters. 5. Less sidewalk clutter than single-space meters.	1. Greater user inconvenience than single-space meters, as user must walk to a central kiosk to pay. 2. Greater user inconvenience than other multi-space and Pay-by-Phone Only options, as user must walk to kiosk to pay and back to their car again to display receipt. 3. If the meter fails, it effects all spaces on the entire block face. 4. Enforcement officers must visually inspect the receipt on every vehicle's dashboard, making enforcement less efficient. 5. More infrastructure to maintain than Pay-by-Phone Only.	The kiosk should be centralized on the block and there should be signs indicating users must pay at the kiosk, to avoid contested tickets from people claiming they did not realize they had to pay to park.
4. Multi-Space Pay-by-Plate	Users input their license plate number when making payment at the multi-space meter or in the Pay-by-Phone system (if available).	Enforcement officers will scan your license plate number with their handheld ticketing device to verify your payment. For enforcement to be most efficient, officers would only get out of their car to issue tickets if there is a block with many cars that in violation, allowing them to focus their energy on the blocks with the greatest number of violators in the least amount of time.	1. Many payment options accepted (coins, bills, card, pay-by-phone). 2. The meters are wirelessly networked to allow real-time reporting, automatically report system failures, and support dynamic pricing. 3. Can also integrate with pay-by-phone (app) systems, improving enforcement. 4. Less infrastructure to maintain than single-space meters. 5. Less sidewalk clutter than single-space meters. 6. If the meter fails, customers can pay for parking at any multi-space meter kiosk so long as the customer properly enters their license plate number and the zone number in which they parked.	1. Greater user inconvenience than single-space meters, as user must walk to a central kiosk to pay. 2. More meter infrastructure to maintain than Pay-by-Phone Only.	The kiosk should be centralized on the block, with signs indicating users must pay at the kiosk, to avoid contested tickets from people claiming they did not realize they had to pay to park. If Pay-by-Phone is available, it must be integrated with meters and LRP technology for enforcement to be efficient. Otherwise, enforcement officers must check multiple databases before issuing a parking citation.

Technology Option	How Users Pay	How Enforcement Works	Pros	Cons	Other Notes
5. Multi-Space Pay-by-Space	Similar to Pay-by-Plate, but instead users enter a space number associated with their parking space when they pay at the multi-space meter.	Enforcement officers use wireless devices to check the status of each space. For enforcement to be most efficient, officers would only get out of their car to issue tickets if there was a block with many cars in violation, allowing them to enforce the greatest number of violators in the least amount of time.	1. Many payment options accepted (coins, bills, card, pay-by-phone). 2. The meters are wirelessly networked to allow real-time reporting, automatically report system failures, and support dynamic pricing. 3. Can also integrate with pay-by-phone (app) systems, improving enforcement. 4. Less infrastructure to maintain than single-space meters. 5. Less sidewalk clutter than single-space meters.	1. Greater user inconvenience than single-space meters, as user must walk to a central kiosk to pay. 2. If the meter fails, it effects all spaces on the entire block face. 3. More meter infrastructure to maintain than Pay-by-Phone Only. 4. Requires signing or striping of each individual space number. 5. Integration with Pay-by-App may be more challenging, unless every parking space in the system is assigned a unique number. That would make making changes to parking spaces more challenging.	
6. Pay-by-Phone Only	Pay-by-phone technology allows users to pay for parking by phone, text message, or a smart phone application.	The systems can integrate with "smart" single-space and multi-space meters and LPR technology. The integration with LPR means enforcement officers using that technology can be automatically notified of time violations. If not integrated with meters or LPR, pay-by-phone systems require enforcement officers to check an additional database before issuing a parking citation.	1. Allows for real-time reporting and support dynamic pricing (if there are separate QR or ID codes for each block). 2. More efficient enforcement - occurs similarly to Pay-by-Plate. Enforcement Officers can check the payment status of each vehicle by scanning their license plate using a wireless device. 3. No meter infrastructure to maintain. 4. No way to meters to fail and impact revenue (unless the pay-by-phone system fails). 5. Less sidewalk clutter than single-space meters.	1. Limited payment options accepted (only credit card). Person must have a working phone to park. May pose barriers for low-income, handicap, or disabled people. 2. Users are typically required to download an app, pre-register and provide a credit card number. Infrequent visitors may be reluctant to download an app, and the amount of time it takes to install the app and create an account can be significant when compared to simply entering a credit card into a machine. 3. Greater user inconvenience than single-space meters, as user must walk to a sign to read or scan the code to pay.	There are two ways in which this system charges for parking. Option 1 ("start duration"): user arrives at parking location, enters or scans a code associated with the location, and selects the amount of time they would like to park. Option 2 ("start stop"): requires parkers to contact the system when they first park and when ready to leave.