TUCSON
CURB FRAMEWORK

A Strategic Approach to Evaluating Curb Space Allocation

February 2023

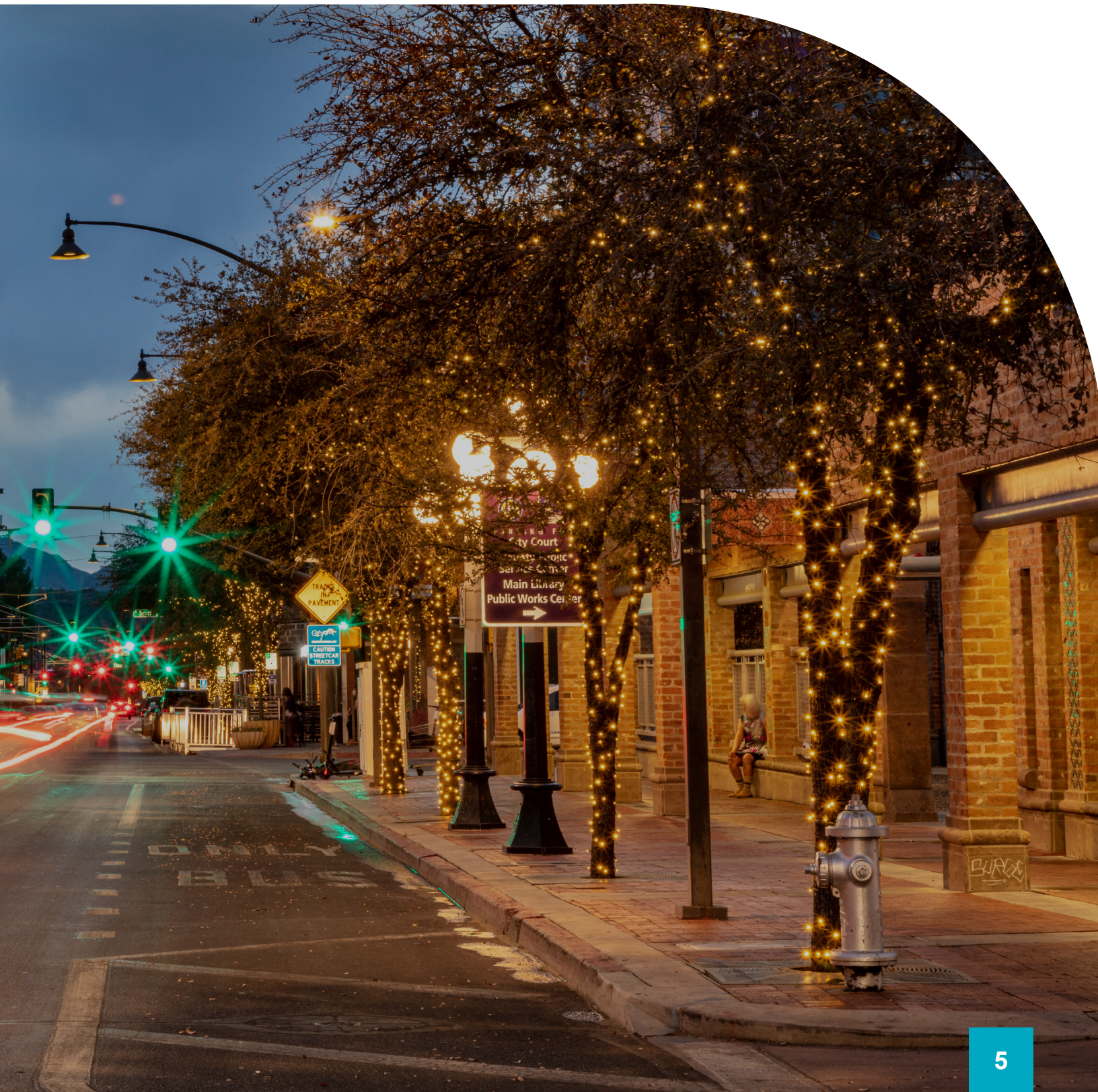

111
ONE WAY

CONTENT

PURPOSE OF THE STUDY

The Tucson Curb Framework Plan is a strategic evaluation of allocating curb space in Tucson, Arizona. This Framework applies industry standards and defined metrics to allocating curb space and determining the trade-offs between various curb uses. As the curb ecosystem in Tucson continues to evolve, this Framework should be used to develop a curb environment that provides equitable access for all.

CHAPTER 1: TUCSON'S MOBILITY BASELINE


TRACKS IN PAVEMENT
CAUTION STREETCAR TRACKS
Main Library
Public Works Ce
BUS

Park Tucson Profile

OVERVIEW

Park Tucson is a division of the City of Tucson's Department of Transportation & Mobility that oversees parking and curb lane management. As an industry-leading parking program, Park Tucson is designated as an Accredited Parking Organization with Distinction by the International Parking and Mobility Institute (IPMI). Park Tucson provides high-quality service to residents, employees, students, visitors, and customers by ensuring that they have access to the places they want to go.

MISSION STATEMENT

Park Tucson's mission is to professionally manage the City of Tucson's parking assets to provide safe, accessible, and convenient parking as an integral part of the continuum of mobility in the Tucson community. Professional operations of parking facilities, services, and enforcement facilitates economic development, enhances neighborhood quality of life, and supports public safety, in conjunction with other modes of transportation.

SYSTEM PROFILE

Park Tucson offers a variety of parking and curb lane management services. These offerings include: On-street Parking, Off-street Parking, and Curb Lane Management.

The Park Tucson program is comprised of :

Approximately 1,600 metered on-street parking spaces

716 parking spaces across 8 surface lots

3,018 spaces across 6 parking garages

On-street parking rate: $1.00 per hour

Off-Street parking rate: $1.00 per hour during weekday business hours. Flat rate of $3.00 at nights and $5.00 on weekends. Monthly permit rates: $35.00 to $85.00 plus tax.

Neighborhood Parking Programs: 15 participating neighborhoods in the city center.

Parking Enforcement monitors compliance in the city center business district and neighborhoods. Park Tucson also responds to calls for enforcement city-wide.

Neighborhood Parking Program

Additionally, the Park Tucson program manages the City's Neighborhood Parking Program. This program allows residents of city center neighborhoods that experience overflow parking from other areas to consistently access on-street parking near their residences and provide on-street parking for their guests. Property owners may select from four options for parking restrictions that are enforced by Park Tucson:

Monday to Friday, 8:00 AM - 5:00 PM restrictions
Annual Permit cost is $48.00

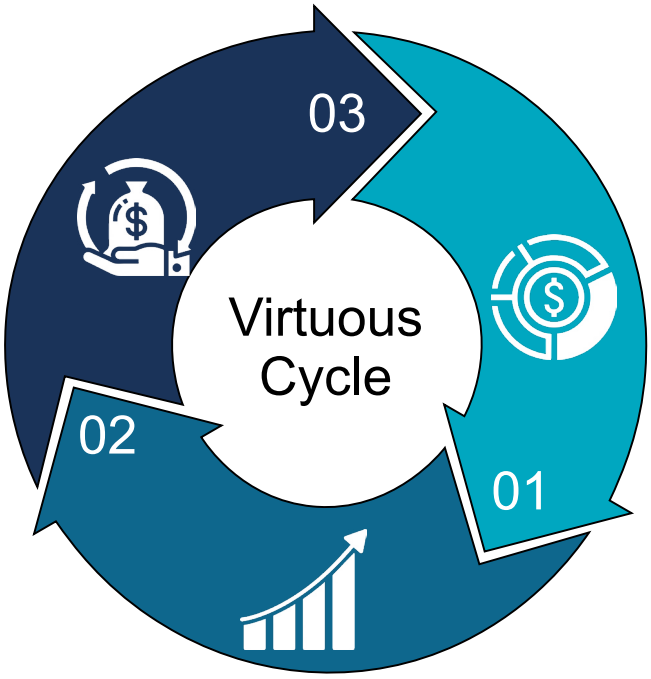
Monday to Friday, 6:00 PM - 6:00 AM and Saturday and Sunday 24 hour restrictions
Annual Permit cost is $48.00

Monday to Friday, 8:00 AM - 5:00 PM and weekend restrictions on University of Arizona men's home basketball game dates
Annual Permit cost is $60.00

24/7 restrictions
Annual Permit cost is $72.00

Neighborhood Reinvestment

Tucson's Neighborhood Reinvestment program contributes a portion of permit and metered parking revenue generated within each participating neighborhood to make transportation-related improvements to sidewalk infrastructure, right-of-way landscaping, and traffic mitigation. Earned funds are carried over from year to year until they are reinvested in the neighborhood. The Neighborhood Reinvestment program embodies the principle of a Virtuous Parking Cycle.



Visitors pay for curb parking, residents pay for permits, and more revenue is available for more public improvements.

A portion of the revenue generated from parking permits and metered parking pays for public improvements in the neighborhoods where the revenue is generated.

Public improvements such as sidewalk repairs, roadway repaving, parklets, and enhanced parking technology, attract more residents and visitors.

Previous Plan Review

Previous Planning Efforts

Understanding the evolution of Tucson's transportation system and future growth management strategies is critical in developing a curb management framework that aligns with previous planning efforts and supports the realization of growth and enhanced mobility. A review of previous and on-going planning efforts in the City of Tucson and Pima County region are in this section.

HIGH CAPACITY TRANSIT SYSTEM STUDY


PAG High Capacity Transit System Study

Executive Summary

September 2009

Purpose

As the population of eastern Pima County continues to grow from the current 1 million to some 1.8 million residents by 2040, expansion of the transportation system will be critical to maintain the high level of mobility that supports the quality of life and economic vitality of the region. With ever-increasing fuel costs, skyrocketing costs to construct and maintain roads, and deepening concerns over climate change and other environmental issues, transit will serve an increasing role in achieving this goal.

The Pima Association of Governments (PAG) has conducted this study to develop a High Capacity Transit (HCT) system plan for the region. HCT systems are intended to carry high volumes of passengers with fast and convenient service. The planning process for this study made use of the latest information related to existing and future population, employment, and transportation conditions in the region, assessed the applicability of different HCT transit modes and technologies, and gathered input from jurisdictions and agencies in the region, as well as the general public, on desirable HCT improvements. The resulting HCT System Plan defines incremental, sustainable, and cost-effective steps for the implementation of HCT technologies to serve existing and future travel demand in the region. The HCT System Plan will be integrated into the transit element of the 2040 Regional Transportation System Plan now under development.

After completing an initial assessment of transit technologies, the HCT modes shown below were identified as the most likely to meet the study's goals and objectives.

Recent Transit System Improvements

Long-range planning for implementation of HCT was a component of the 2030 Regional Transportation Plan adopted in 2006. HCT elements included in this plan included express bus service, bus rapid transit (BRT), and modern streetcar. The Regional Transportation Authority (RTA) 20-year transportation improvement program, funded by a voter-approved ½-cent sales tax, includes the Tucson Modern Streetcar that is currently under design and scheduled to begin operation in 2011, as well as expansion of express bus service. The streetcar will run along a 4-mile corridor providing circulation between the University of Arizona and downtown Tucson and will encourage transit supportive development and redevelopment along the route, illustrating the transportation and land-use benefits of fixed-rail HCT in the region.

In response to increasing transit demand, SunTran recently expanded fixed-route and express bus service. New routes have been added including circulator routes in Oro Valley, Green Valley, Marana and Sahuarita; bus frequency has increased; and hours of operation have been extended at night and on the weekends. To support the expanded transit system, SunTran has

Transit Modes Considered in the Study

Express Bus
Faster than local bus service
Fewer stops than local bus service
Frequent service during peak periods
Runs no-peak service

Bus Rapid Transit (BRT)
Shorter trips served with more frequent stops
Encourages transit-oriented development

Bus Rapid Transit (BRT)
Fewer stops, more frequent service, and longer trips served compared to local bus service
Encourages transit-oriented development
Significantly lower cost compared to LRT

Light Rail Transit (LRT)
Higher speed and capacity than modern streetcar
Normally allows operation in central business district or suburban areas
Encourages transit-oriented development

Commuter Rail Transit (CRT)
High-capacity service between city centers and suburban areas
High operating speeds over long distances with few stops

TRANSIT-ORIENTED DEVELOPMENT HANDBOOK


City of Tucson

TRANSIT-ORIENTED DEVELOPMENT HANDBOOK

FINAL DRAFT

Prepared by

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Phoenix, AZ 85003

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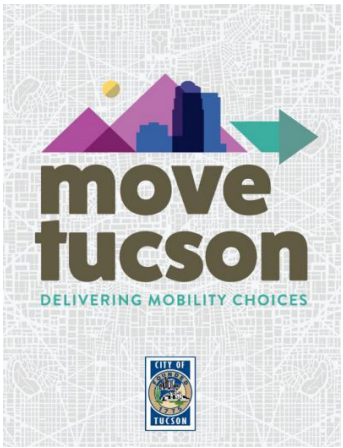
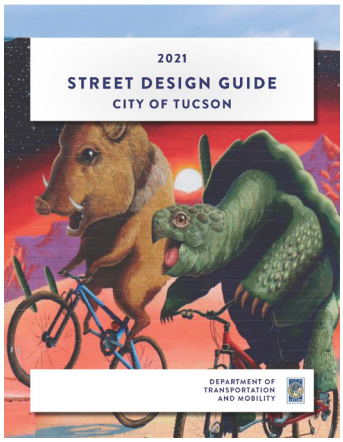
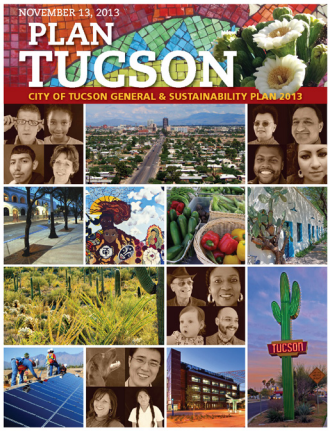
MOVE TUCSON



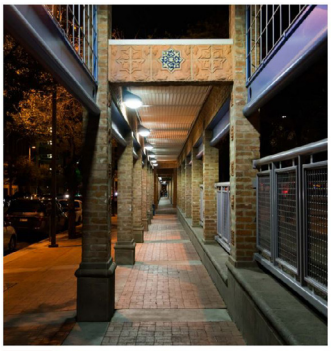
STREET DESIGN GUIDE



PLAN TUCSON



RONSTADT TRANSIT CENTER SITE REDEVELOPMENT



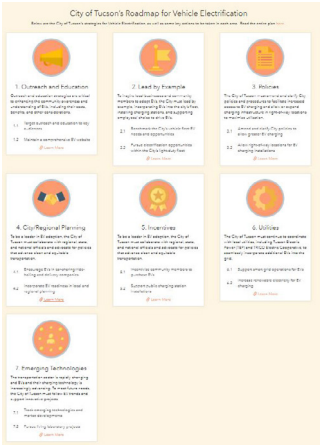
POSTER FROST MIRTO
ARCHITECTURE PLANNING PRESERVATION

Community Planning Process
Ronstadt Transit Center Site Redevelopment, City of Tucson

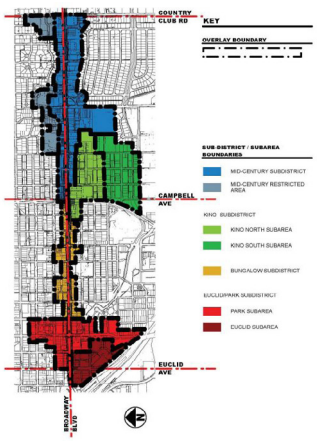
Prepared by: Poster Frost Mirto
May 24, 2013

2045 REGIONAL MOBILITY & ACCESSIBILITY PLAN

ROADMAP FOR VEHICLE ELECTRIFICATION



SUNSHINE MILE OVERLAY DISTRICT



DOWNTOWN TUCSON PARKING STUDY

HIGH CAPACITY TRANSIT SYSTEM STUDY

The Pima Association of Governments' (PAG) High-Capacity Transit Study assessed the applicability of different high-capacity transit (HCT) modes and technologies throughout the region and created a HCT implementation plan to serve existing and future travel demand.

Although the HCT Study does not directly address the dedication of curb space to different uses, it does touch on how the design of streets can support HCT. The five transit modes considered in the Study were: express bus, modern streetcar, bus rapid transit (BRT), light rail transit, and commuter (heavy) rail transit. The three former modes share surface rights-of-way with vehicles, pedestrians, cyclists, and other travelers, while the latter two modes tend to be off-street unless at a stop.

To support the on-street modes, the HCT Study emphasizes that future street planning should have a strong pedestrian focus and recognize the variety of station types needed to support HCT. Additionally, the HCT Study recommends managing parking and access to promote alternative mode use.

The HCT Study launched the planning for the Sun Link Streetcar, the construction of which was completed in 2014. The Sun Link runs along a 4-mile fixed route between the University of Arizona and the Mercado district, west of the downtown core, and riders board from either the traditional curb or a designated median island, depending on the stop. As such, curb usage planning will need to account for different space allotments along the Sun Link route.

KEY TAKEAWAYS

Future street planning should have a strong pedestrian focus.

There is a variety of station types needed to support the HCT, including on-street modes.

Curb usage planning will need to account for different space allotments along the Sun Link route.

PAG High Capacity Transit System Study

Executive Summary September 2009

Purpose

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Frequent service during peak periods
Point-to-point service

Modern Streetcar
Shorter trips served with more frequent stops
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Versatility allows operation in central business district or suburban areas
Encourages transit-oriented development

Commuter Rail Transit (CRT)
High capacity service between city centers and suburban areas
High operating speeds over long distances with few stops

TRANSIT-ORIENTED DEVELOPMENT HANDBOOK

The Tucson Transit-oriented Development (TOD) Handbook is a development guide that lays out Tucson's intended mix of residential, employment, and shopping opportunities in the areas around transit stops. The TOD Handbook aims to facilitate transit use by guiding future streetscape improvements, and construction, ultimately working toward making Tucson a walkable and well-connected community for all.

The TOD Handbook briefly mentions curb space usage in the Street Design subsection of the Pedestrian Amenities chapter, wherein it suggests adding bike lanes along TOD corridors. However, the TOD Handbook's clear top priority for curb space is on-street parking, which it emphasizes as a strategy to slow vehicular traffic and buffer pedestrians from the right-of-way, followed by occasional transit stops. The TOD Handbook does not promote an over-provision of parking, but rather sufficient shared parking to meet the needs of all the TOD area land uses.

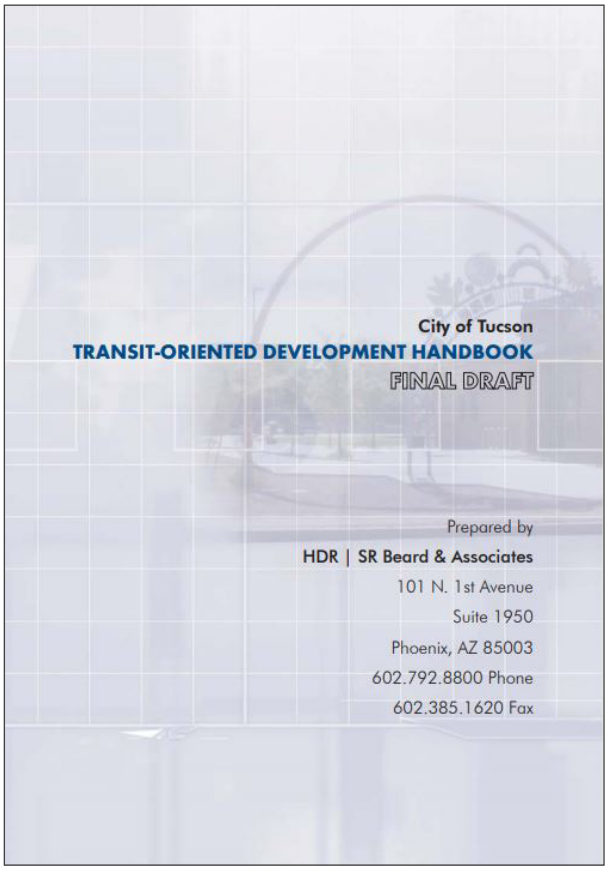
KEY TAKEAWAYS

On-street parking can be used as a strategy to slow vehicular traffic and buffer pedestrians from the right-of-way.

TOD creates a livable community by catering to pedestrians and promoting mixed-use development to eliminate the need for personal vehicles.

Pedestrian amenities along the streetcar corridor are encouraged to provide minimal setbacks of buildings, shade, street connections, and wide sidewalks.

Promote bike lanes along TOD corridors when practical



PLAN TUCSON

The Tucson Comprehensive Plan (Plan Tucson) was adopted in November of 2013 and replaced the 2001 General Plan. Plan Tucson is a long-term policy document intended to guide decisions affecting elements that shape the city, such as housing, jobs, land use, transportation, water, and energy resources. Key to the Plan are goals and policies that provide a framework to guide future actions with the understanding that how the city has grown in the past will not necessarily work in the future.

The Plan aims to ensure that urban design policies “provide multi-modal connections between and within building blocks” by reducing parking and encouraging walking, bicycling, and using transit. Additionally, the Plan includes ambitions to retrofit rights-of-way to include green infrastructure, water-harvesting, and bicycle parking facilities.

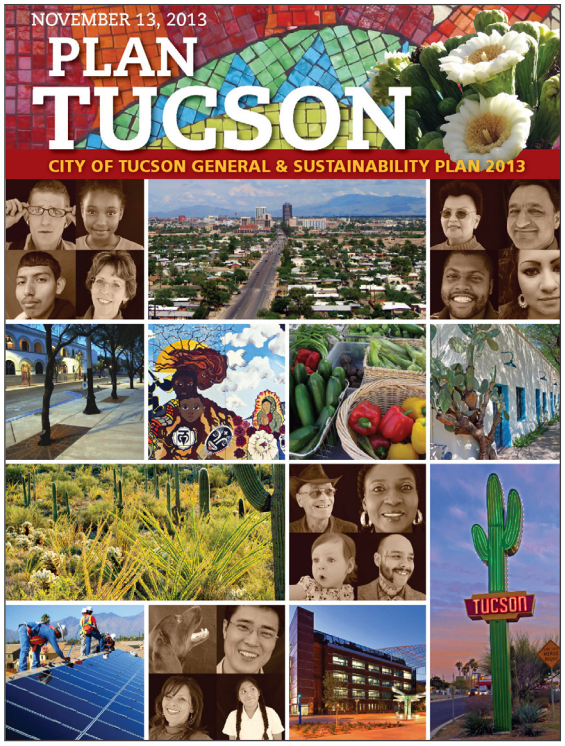
Lastly, one of the Plan’s success metrics is the percentage of housing within a ¼-mile or ½-mile distance of transit stops. Together, these elements convey several top priorities for Tucson’s curb space: replacing parking with pedestrian and bicycle infrastructure, dedicating curb space at routine intervals to transit, and enhancing curb infrastructure to advance city-wide water capture and sustainability.

KEY TAKEAWAYS

Support an interconnected urban trail system throughout the City to meet the recreational needs of pedestrians, bicyclists, and equestrians.

Maximize connectivity of all transportation modes to enhance internal movement within and between individual neighborhoods.

Design and retrofit streets and other rights-of-way to include green infrastructure and water harvesting, complement the surrounding context, and offer multi-modal transportation choices that are convenient, attractive, safe, and healthy.



RONSTADT TRANSIT CENTER SITE REDEVELOPMENT

In 2013, the City of Tucson launched a community planning process to discuss the development of the Ronstadt Transit Center (RTC) site, a conglomeration of three city-owned properties located on the northeast corner of the intersection of Congress Street and Sixth Avenue that includes the Transit Center. The site has unique needs and challenges due to the high volume of buses moving in and out of the Center, and the study analyzed if and how a commercial development could work alongside the existing use.

The RTC Study does not directly address curb use but does highlight two major street elements: bus boarding and green infrastructure. The high fuel hydrocarbon concentrations present on-site from the buses have likely impacted the groundwater, and the RTC Study recognizes the need to incorporate stormwater capture throughout the site. The RTC Study emphasizes that future planning should consider allocating street space to bus-only lanes and green infrastructure, as well as pick-up and drop-off ride-hailing space, on the blocks immediately adjacent to transit centers.

KEY TAKEAWAYS

Accommodate new development for a variety of mixed uses at the same time as providing an efficient and pleasant downtown transportation hub.

Emphasizes that future planning should consider allocating bus-only lanes and green infrastructure.

Provide transportation center services for public buses, the Modern Streetcar, bicycles and bike-share, pedestrians, and other forms of transportation.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REGIONAL MOBILITY AND ACCESSIBILITY PLAN

The 2045 Regional Mobility and Accessibility Plan (RMAP) was adopted in May of 2016 and identifies the region's long-range transportation needs and anticipated revenues. The Pima Association of Government's (PAG) planning area encompasses all of Pima County, an area of nearly 9,200 square miles wherein the vast majority of the region's residents live in and around the cities and towns on the east side.

RMAP is a blueprint for transportation solutions in the Tucson region over the next 30 years. PAG, the federally designated metropolitan planning organization for the Tucson transportation management area, updates its long-range transportation plan every four years to maintain a 30-year outlook of the region's transportation needs.

RMAP's Implementation Plan identifies green infrastructure right-of-way improvements as a top priority, citing curb-cuts and roadside swales as simple ways to capture stormwater, calm traffic, and increase the quality of the pedestrian environment. Additionally, RMAP places emphasis on expanding the regional network of enhanced bike ways, bike boulevards, and bike lanes.

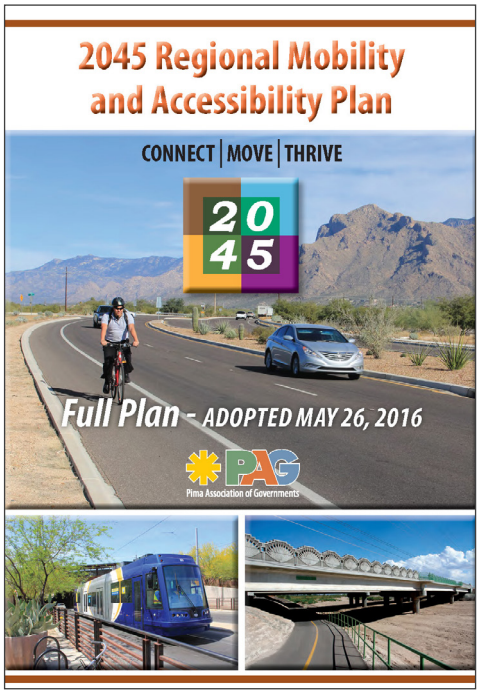
One of the regional planning considerations included in RMAP is the shift in transportation needs throughout Pima County. In addition to population growth in the region, the makeup of the population is changing, with seniors representing an ever-larger share of the region's population in the future. These demographic shifts, combined with younger residents' changing travel preferences, RMAP identifies significant funding for paratransit and bus rapid transit (BRT) in the future.

KEY TAKEAWAYS

Maintain, rehabilitate, and complete roadways, bike and pedestrian infrastructure, and transit systems.

Promote a variety of integrated, high-quality, accessible and interconnected transportation choices to meet all mobility needs and changing travel preferences.

Encourage land use decisions and transportation investments that are complementary and result in improved access to key destinations, and healthy communities.



MOVE TUCSON

Move Tucson is the City of Tucson's ongoing long-range transportation master planning initiative, which will direct mobility and transportation investments through 2040. One of the Plan's stated goals is to make efficient use of limited street space, and preliminary analyses suggest that only 7% of Tucson's streets are close to capacity. 256 miles of City streets have excess capacity and need to be examined for other uses, such as bus lanes, bike lanes, and stormwater capture infrastructure. The vast majority of excess capacity is found on arterial roads, suggesting they may require a tailored curb space program to make the best use of free right-of-way space.

KEY TAKEAWAYS

Increase travel options, especially for shorter distance trips that can reduce strain on the city's streets.

Prioritize safety in the transportation network, with a focus on increasing safe travel opportunities for people bicycling and walking.

Improve multi-modal networks in areas where shorter-distance trips are more likely to occur.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STREET DESIGN GUIDE

Tucson's Street Design Guide was prepared by the City of Tucson Department of Transportation to provide guidance on incorporating a Complete Streets design approach in all transportation projects in the city. The Guide serves as the manual for implementing the City's Complete Streets policy, adopted in 2019.

The Guide makes recommendations for each street type found throughout the city, and the prescribed curb usage changes depending on the "zone system." The zone system is Tucson's custom framework for the use of right-of-way to advance complete street goals. The zone system also prescribes curb lane dimensions based on zone.

In general, the Guide addresses streetscape design and street configuration but does not recommend a set allocation of curb space to different uses – rather, it describes the scenarios in which different curb uses are appropriate. However, the Guide does emphasize that some curb space should be dedicated to bump-outs where feasible to improve the feel of the pedestrian environment and safety for all roadway users. Overall, the Guide is a useful tool for ensuring curb space typologies are in line with the City's complete streets objectives.

KEY TAKEAWAYS

- The Street Design Guide describes scenarios in which different curb uses are appropriate.
- Helps to ensure that curb space typologies are in line with the City's objectives.
- Overall goal is that everyone can safely and comfortably travel throughout the network.


DOWNTOWN
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TRACKS IN PAVEMENT
CAUTION STREETCAR TRACKS
SILVERADO
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ROADMAP FOR VEHICLE ELECTRIFICATION

The Roadmap for Vehicle Electrification is an ongoing planning project that is shaping how Tucson can become a leader in clean, convenient, and affordable transportation that is accessible to historically underserved communities and that is powered by locally sourced clean and renewable energy.

One of the policy objectives in the Roadmap is to permit electric vehicle (EV) charging stations in right-of-way locations by amending the street code, launching a pilot project, and convening a working group to study the results. Because the Roadmap is still in its initial stages, there is no explicit plan for how curb space will be allocated to accommodate EV sharing stations, but it remains a use to be accommodated in the near future.

KEY TAKEAWAYS

Help Tucson become a leader in clean, convenient, and affordable transportation powered by locally sourced clean and renewable energy.

Make EVs and charging infrastructure accessible to a broad range of users, including historically under-served communities.

Incorporate EV car sharing and ride-hailing services into the City's transportation long-range plans.


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TEP4EV.COM
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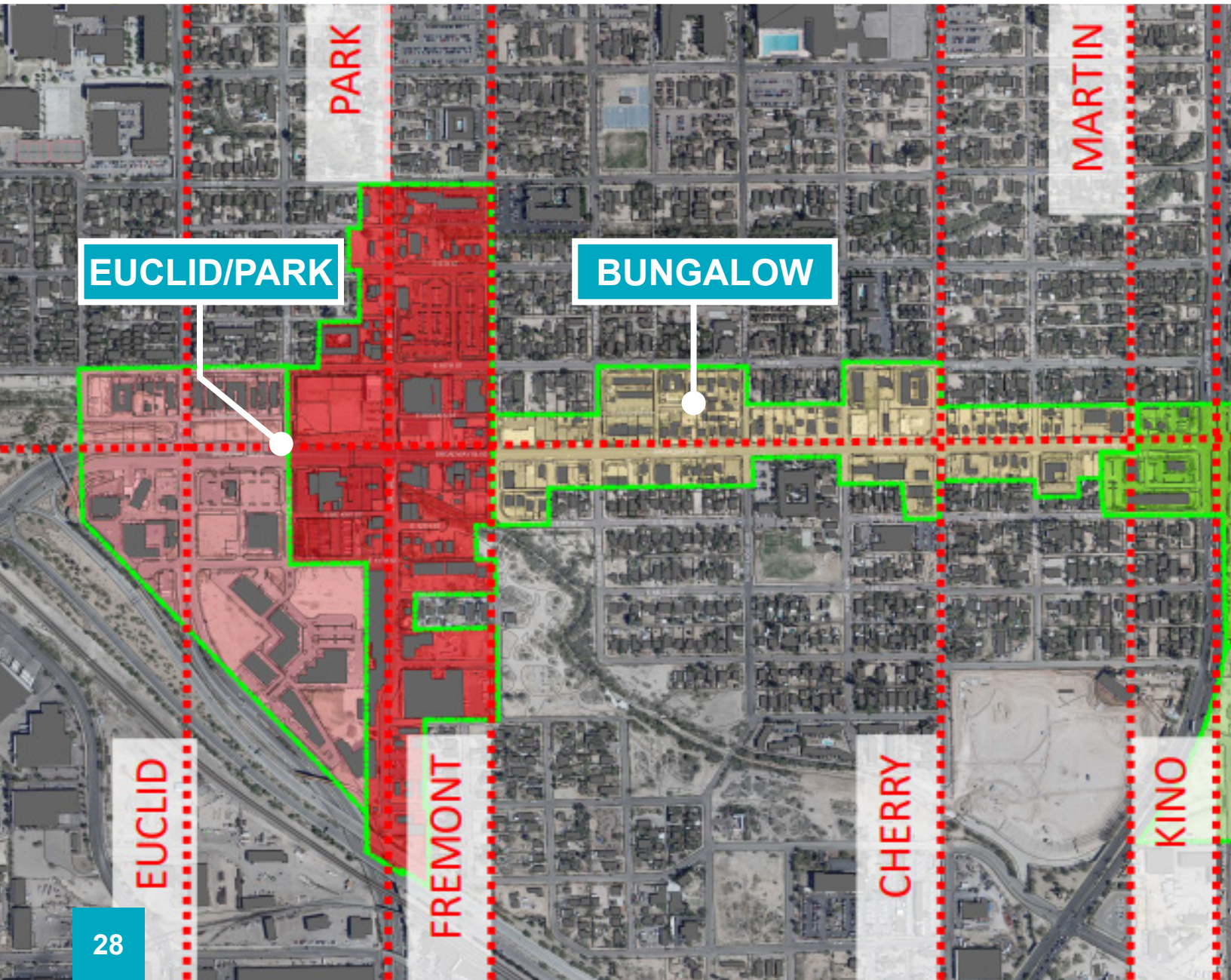
SUNSHINE MILE OVERLAY DISTRICT

In March of 2019 the City of Tucson's Mayor and Council initiated an urban design overlay district (UOD) planning initiative for the land along Broadway Boulevard from Euclid Avenue to Country Club Road, called the Sunshine Mile. This UOD is known as the Sunshine Mile District (SMD), and its primary purpose is to support economic vitality along the multi-modal transportation corridor while also supporting community values, embracing historic features, and enhancing the character of the Sunshine Mile.

The planned improvements to the Sunshine Mile include widening Broadway Boulevard to six (6) lanes and adding bike lanes, sidewalks, and landscaping along the corridor. Due to its specific planning scope, the curb space allocations for the SMD will likely differ from those in surrounding areas. Specifically, the draft UOD language prohibits on-street loading areas in some sub-districts and prescribes that they be located as far from residential land uses as possible.

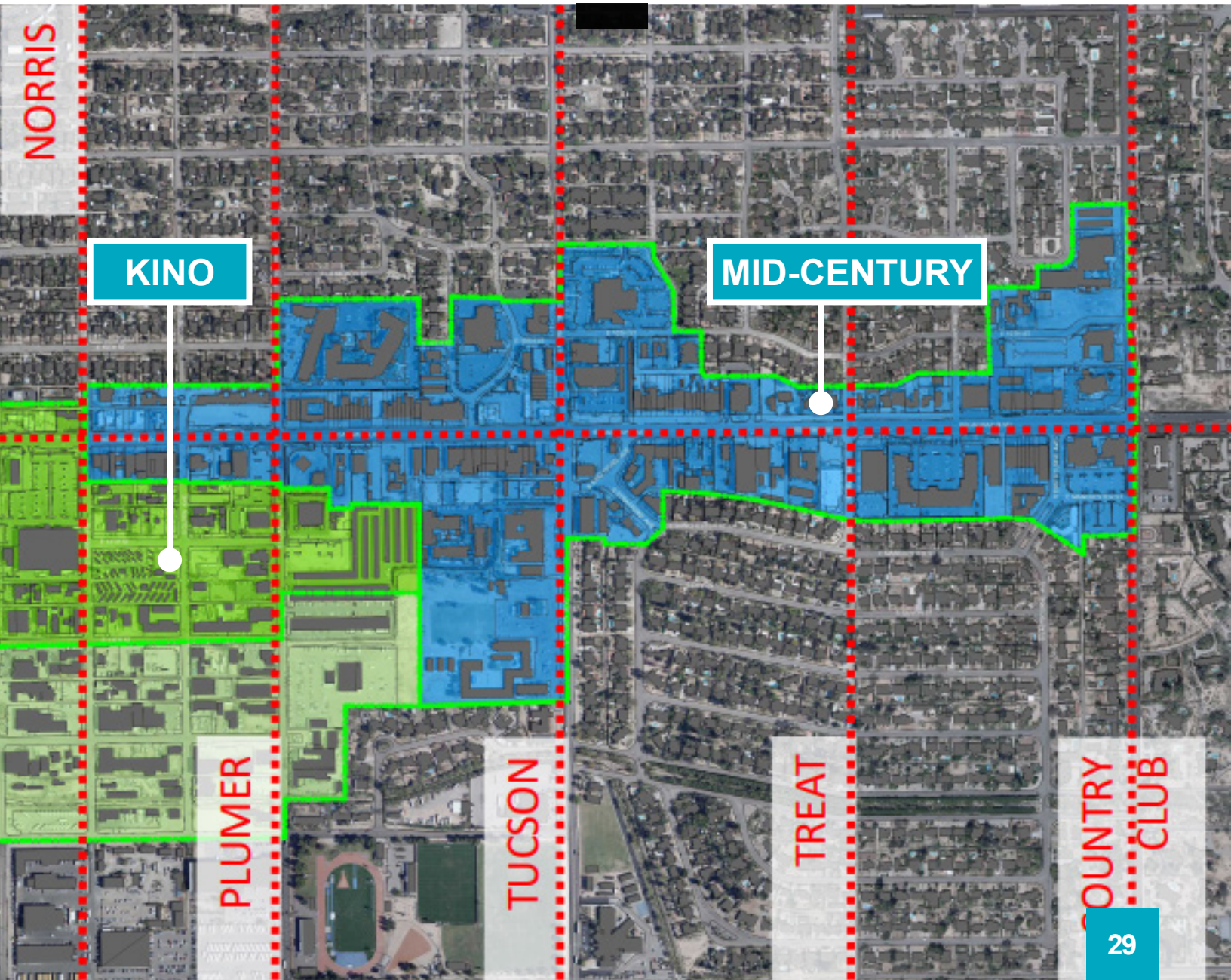


KEY TAKEAWAYS

Encourages sustainable, environmentally conscious, infill development that supports vibrant urban pedestrian-, bicycle- and transit-oriented neighborhoods.

Improvements to the Sunshine Mile include widening Broadway Boulevard to 6 lanes with bike lanes, sidewalks, and landscaping.

Promotes development that builds on existing and future transportation modes that are emerging in a community committed to reducing its carbon footprint.



DOWNTOWN TUCSON PARKING STUDY

In 2018, the City of Tucson conducted a parking study of downtown Tucson, including 4th Avenue and Mercado Business Districts. The study analyzed the current parking conditions and estimated how future growth would impact parking infrastructure management and needs. Using the Park+ modeling software, parking demand was calculated based on different land uses within the various downtown zones. Additionally, the study examined how large events in downtown Tucson affects parking demand.

As of 2018, the study found that parking is sufficient to meet current needs and will likely be able to accommodate future increases in demand. However, parking facilities near highly desired destination including 4th Avenue, Congress Street, and Broadway Boulevard, have high parking occupancies during certain times of the day giving the perception that parking is unavailable or hard to find. Conversely, parking infrastructure farther away from these desired locations are generally underutilized.

KEY TAKEAWAYS

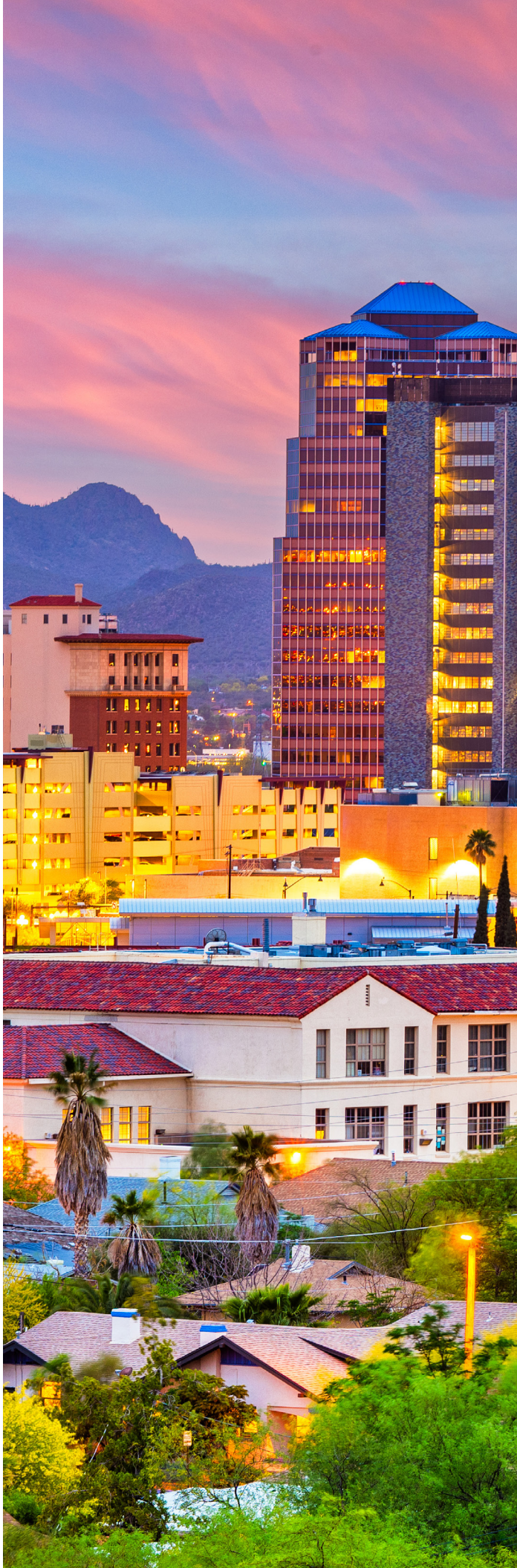
Encourages the use of underutilized facilities using tactics such as improving the streetscape, lighting, and sidewalks in areas further from the main streets.

Creating a safer environment will hopefully allow some parkers to feel more comfortable walking farther to get to their desired destination.

Encourage the use of the streetcar to provide connections between garages and different locations throughout the city.

Increase the number of managed parking spots and scale rates by time of day to facilitate parker turnover and encourage those staying for longer periods of time to use off-street parking facilities.

Extend hours of enforcement to manage parking during nights and weekends and implement demand-based pricing to distribute parking demand.



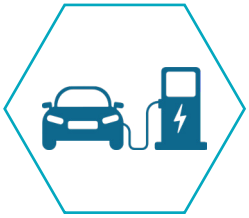
KEY TAKEAWAYS FROM PREVIOUS PLANS

Across Tucson's existing plans, there are seven (7) key curb uses that are frequently addressed:

Transit Accommodations (stops and idling lanes)

Pedestrian facilities (wide sidewalks and curb bump-outs)

Green infrastructure for stormwater capture and shade provisions



EV charging station infrastructure

Pick-up and drop-off space

On-street parking for vehicle storage and traffic buffering

Bicycle facilities (parking racks and bike lanes)

Of these seven uses, three stood out as top priorities: transit accommodations, green infrastructure, and on-street parking.

Transit Plans recommend locating transit stops at consistent intervals along the curb, making stops accessible for both traditional transit (buses and trains) and paratransit, and dedicating lanes for transit idling.

Green infrastructure Plans recommend dedicating curb lane space to construct dry swales, rain gardens, and other features that harvest and store rainwater, while simultaneously providing some heat relief by reducing impervious surface area.

On-street Parking Plans do not promote an over-provision of parking, but rather sufficient shared parking to meet the vehicle storage needs of all people using the immediate block, whether they be residents, visitors, or commercial drivers. The plans also consistently identify on-street parking as a convenient way to buffer pedestrians and cyclists from high-speed vehicular traffic, advancing safety for all roadway users.


111

BUSINESS OWNER SURVEY

Park Tucson surveyed forty-one business owners to gain insight into their parking and mobility needs. This online survey collected information on the travel behaviors of customers and employees and day-to-day business operations.

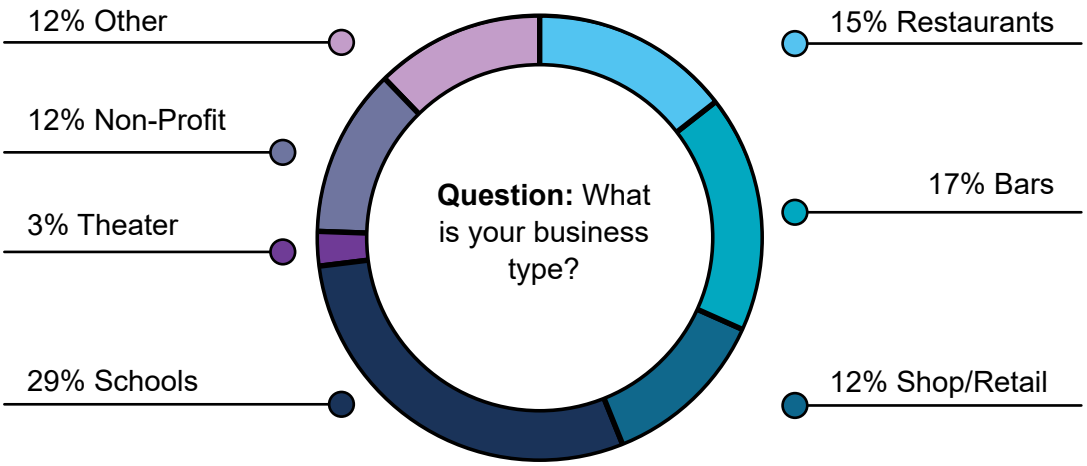
RESPONDENT PROFILE

41

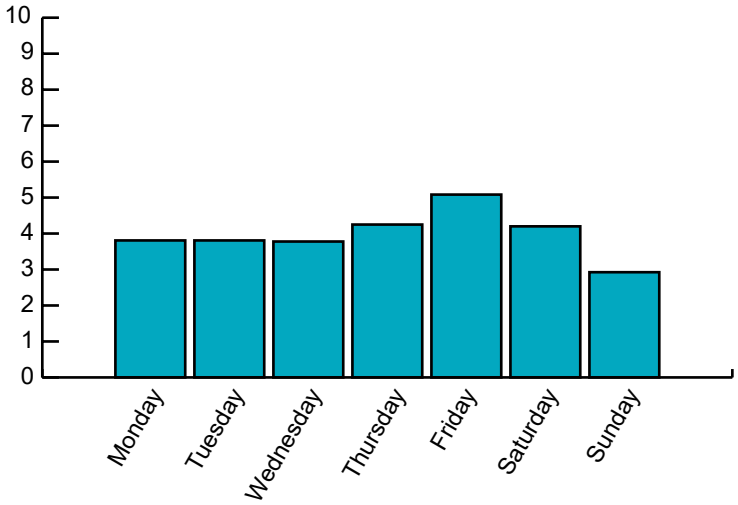
RESPONDENTS

Question: What district is your business in?

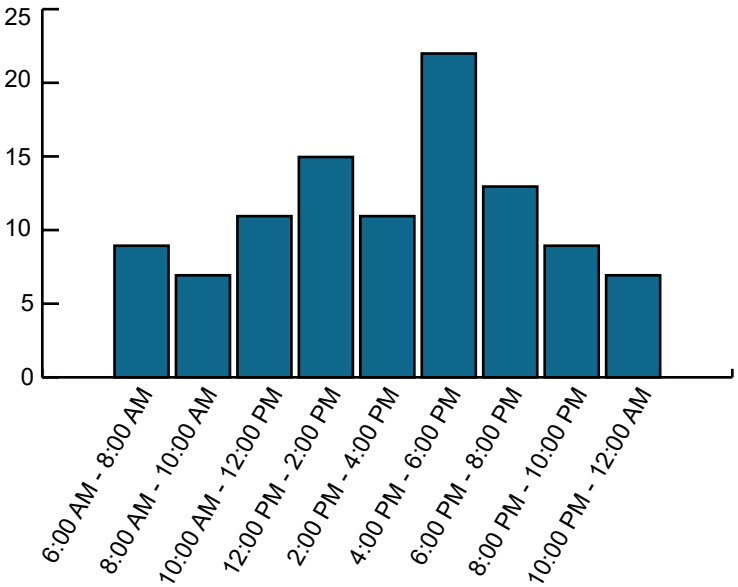
- **23** Downtown
- **14** 4th Avenue
- **1** Main Gate Square
- **3** El Presido Historic District



Question: Which days of the week are busiest for your business?



Question: What are peak business hours for your business? Select the top 3.

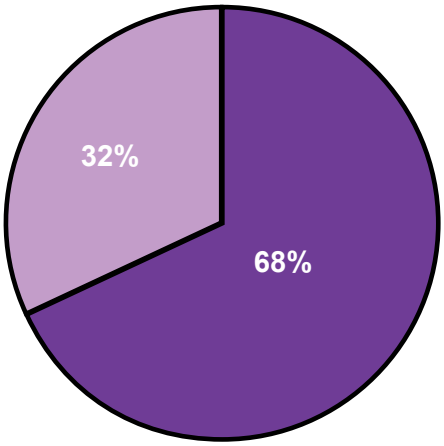


Respondents were asked to provide insight into their parking behavior and the parking behavior of customers and employees.

UNDERSTANDING PARKING BEHAVIOR

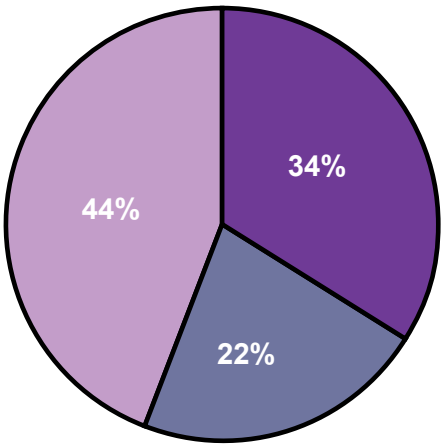
Question: Do you park in the same location each time?

- Yes
- No



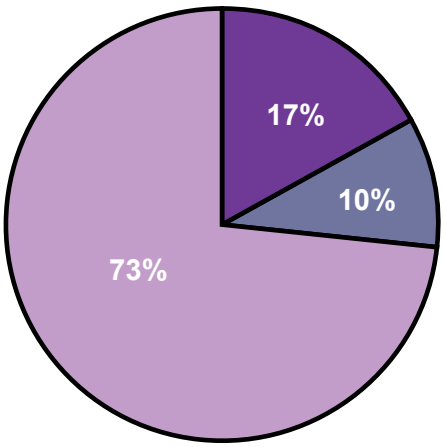
Question: Is the lot or parking garage available specifically for your business for employees and/or customers?

- Yes - For Employees Only
- Yes - For Employees and Customers
- No

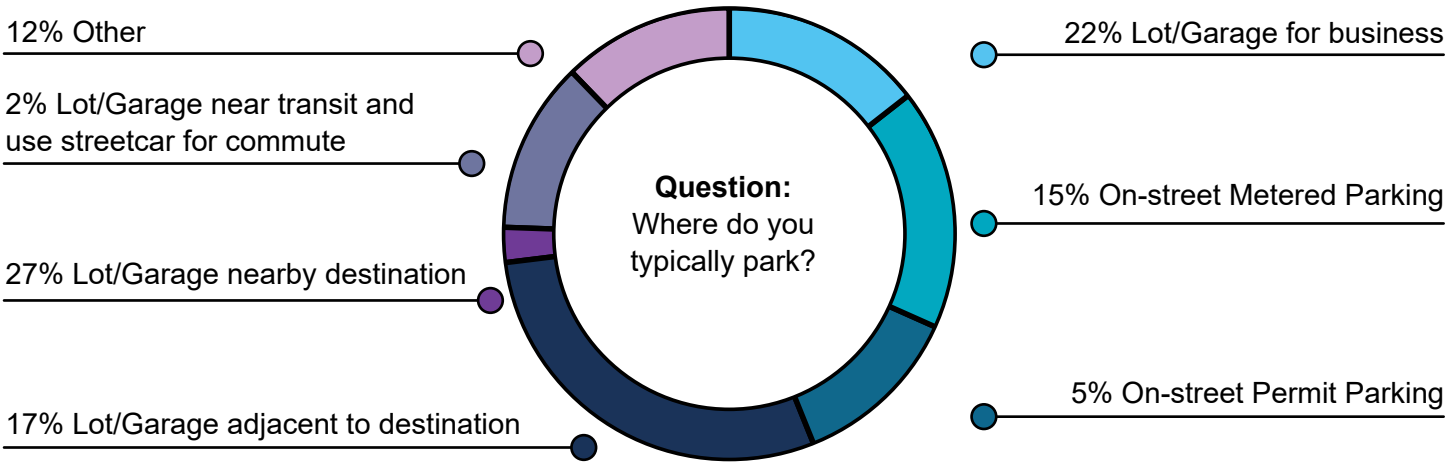


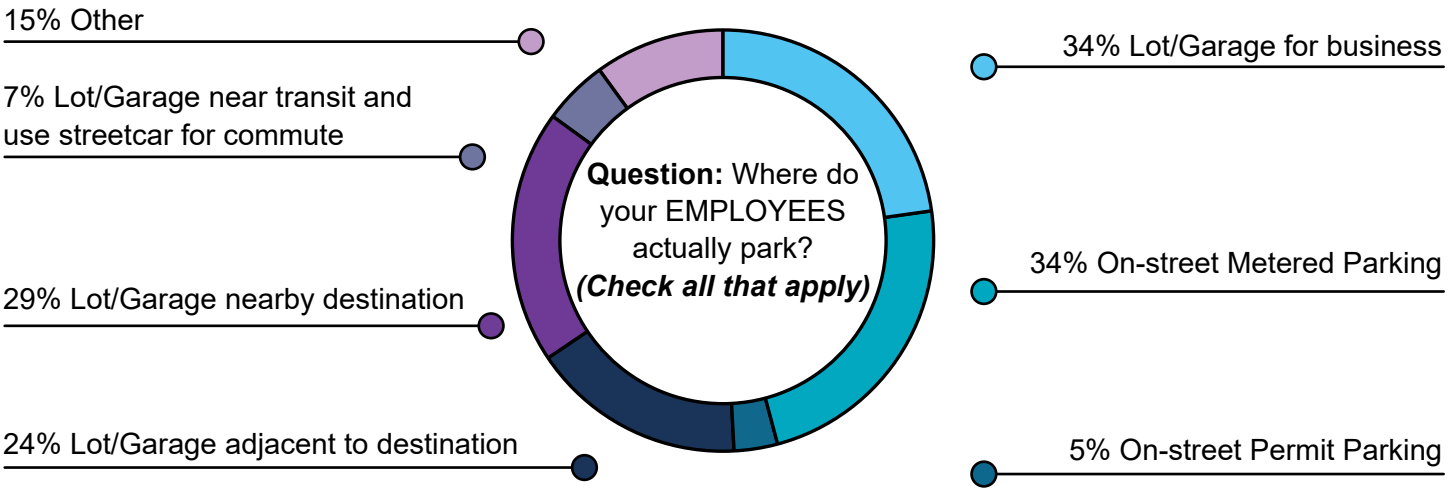
Question: Where do your CUSTOMERS/VISITORS typically park?

- Lot or garage at/or adjacent to your business
- Parking located at a nearby lot or garage
- Parking on the street

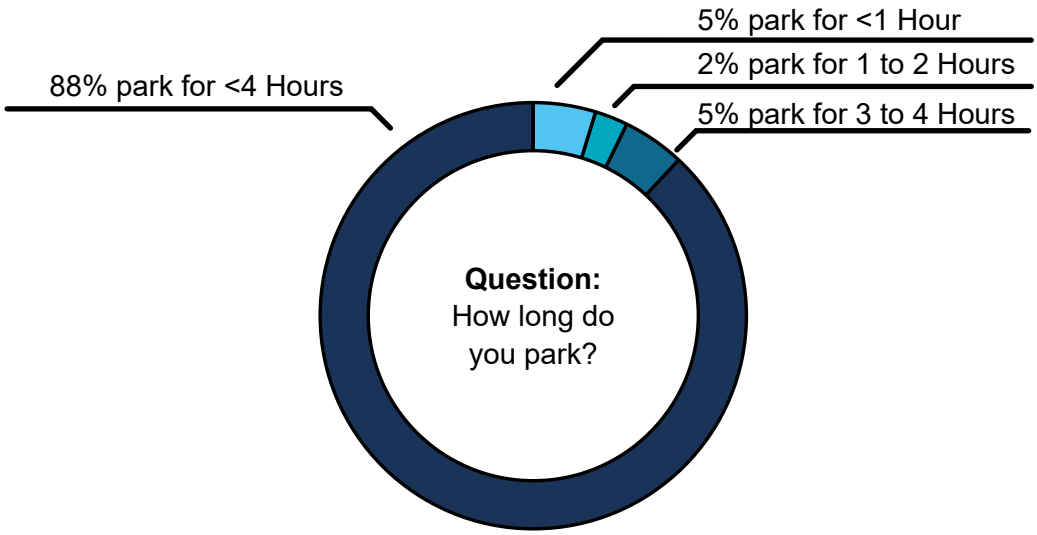


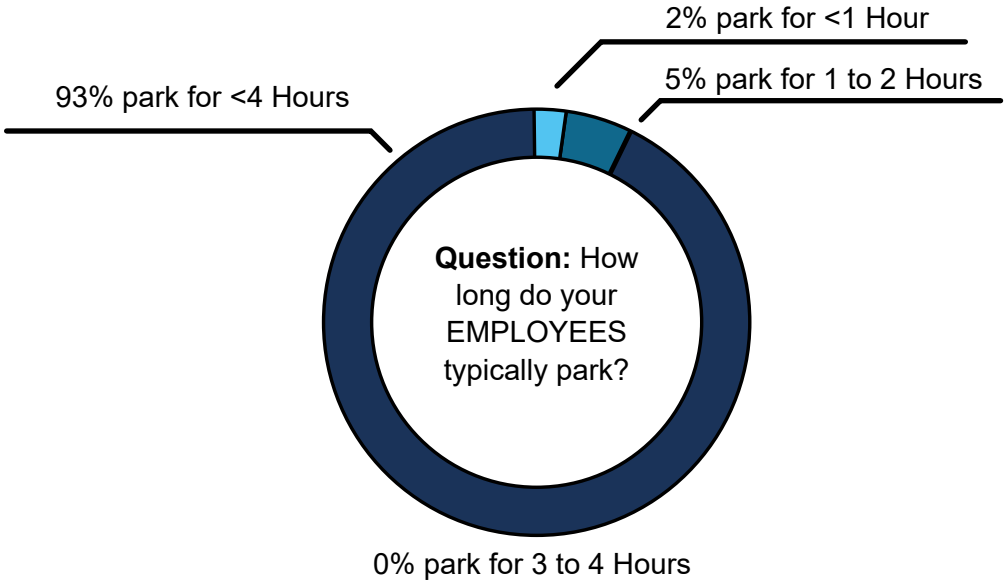
TYPICAL PARKING LOCATION

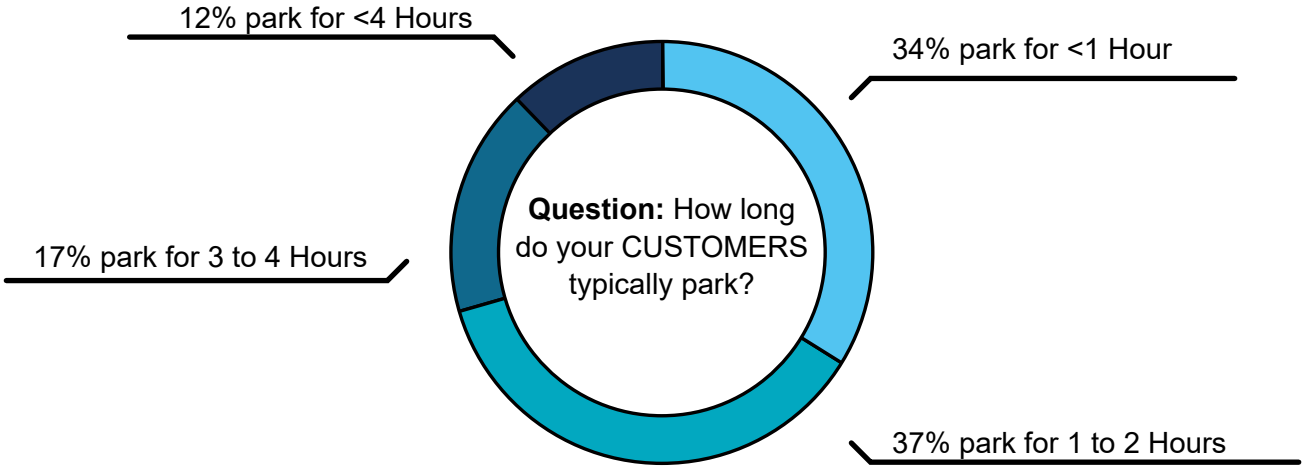




TYPICAL PARKING DURATION

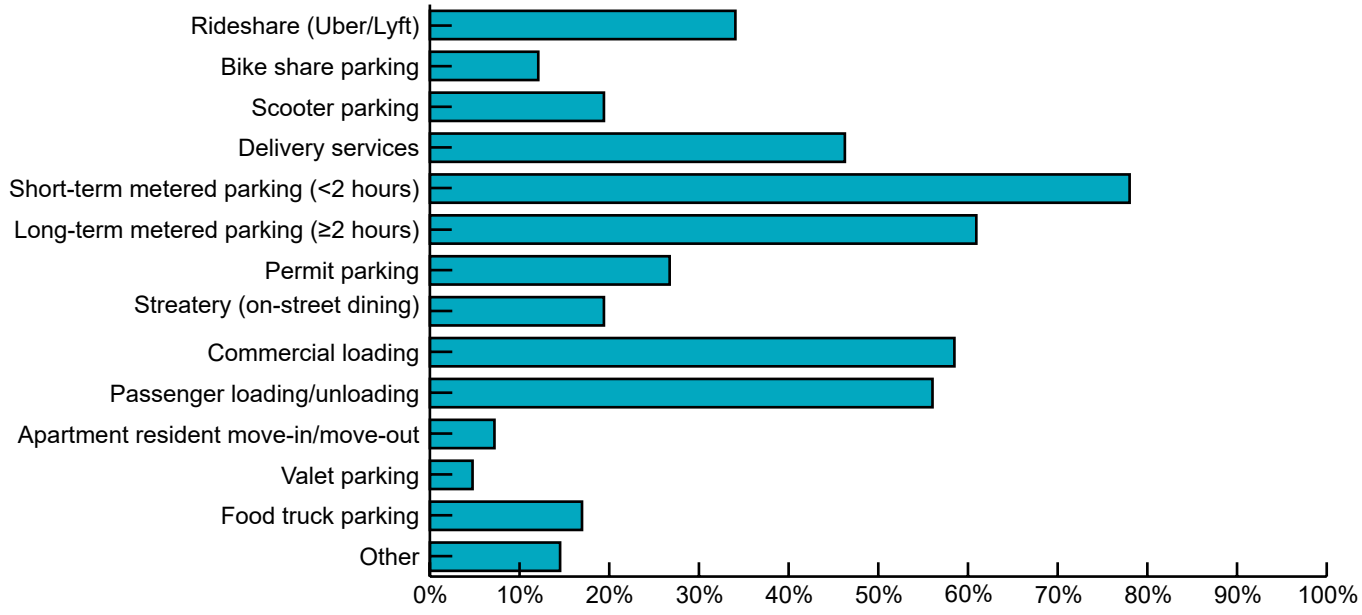




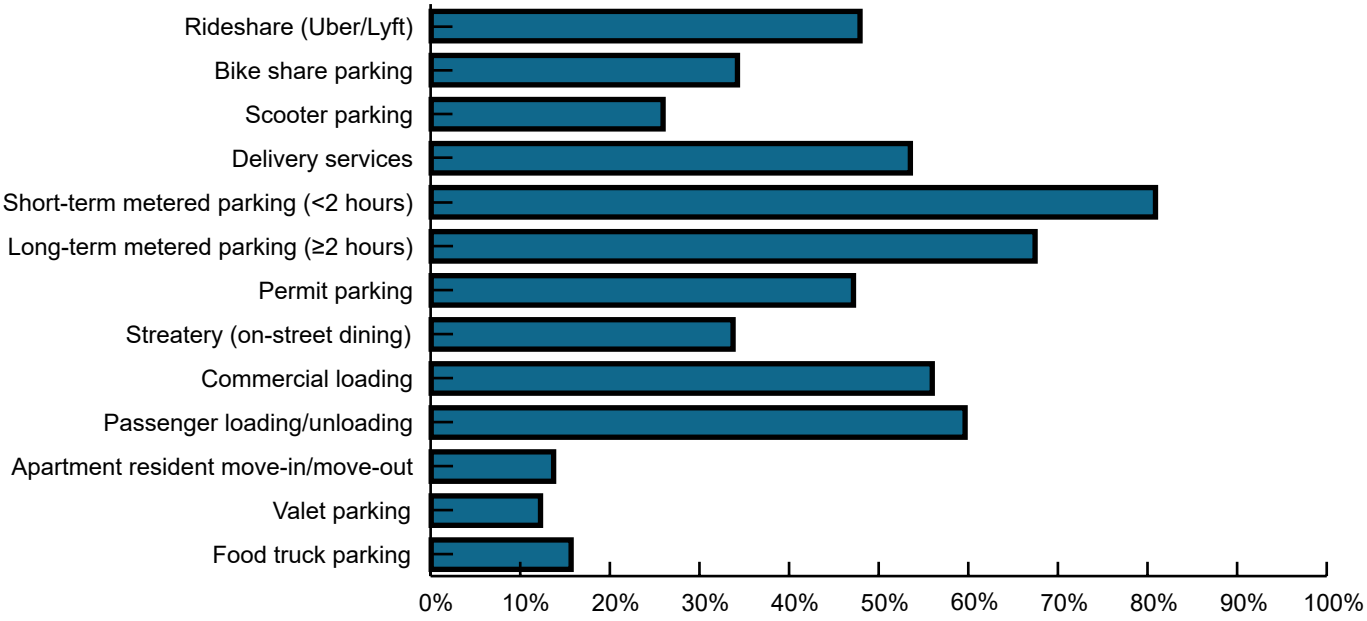


The business owner survey also investigated how business owners use curb space to support their business, their preferred distance to a particular curb use, and the time of day in which various curb uses are most active.

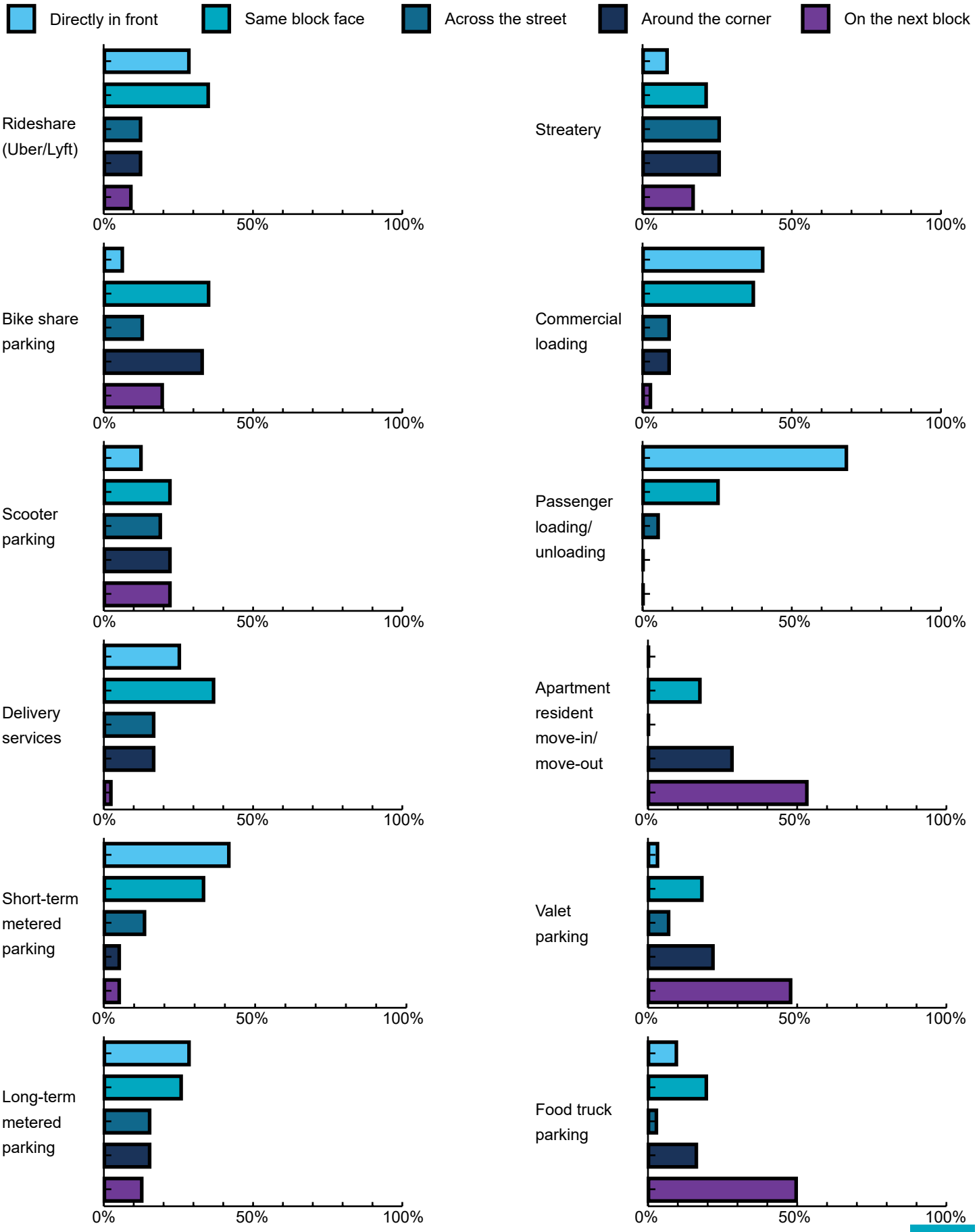
Question: Which curb uses do you, your customers, and/or employees use to support your business? ***(Check all that apply)***



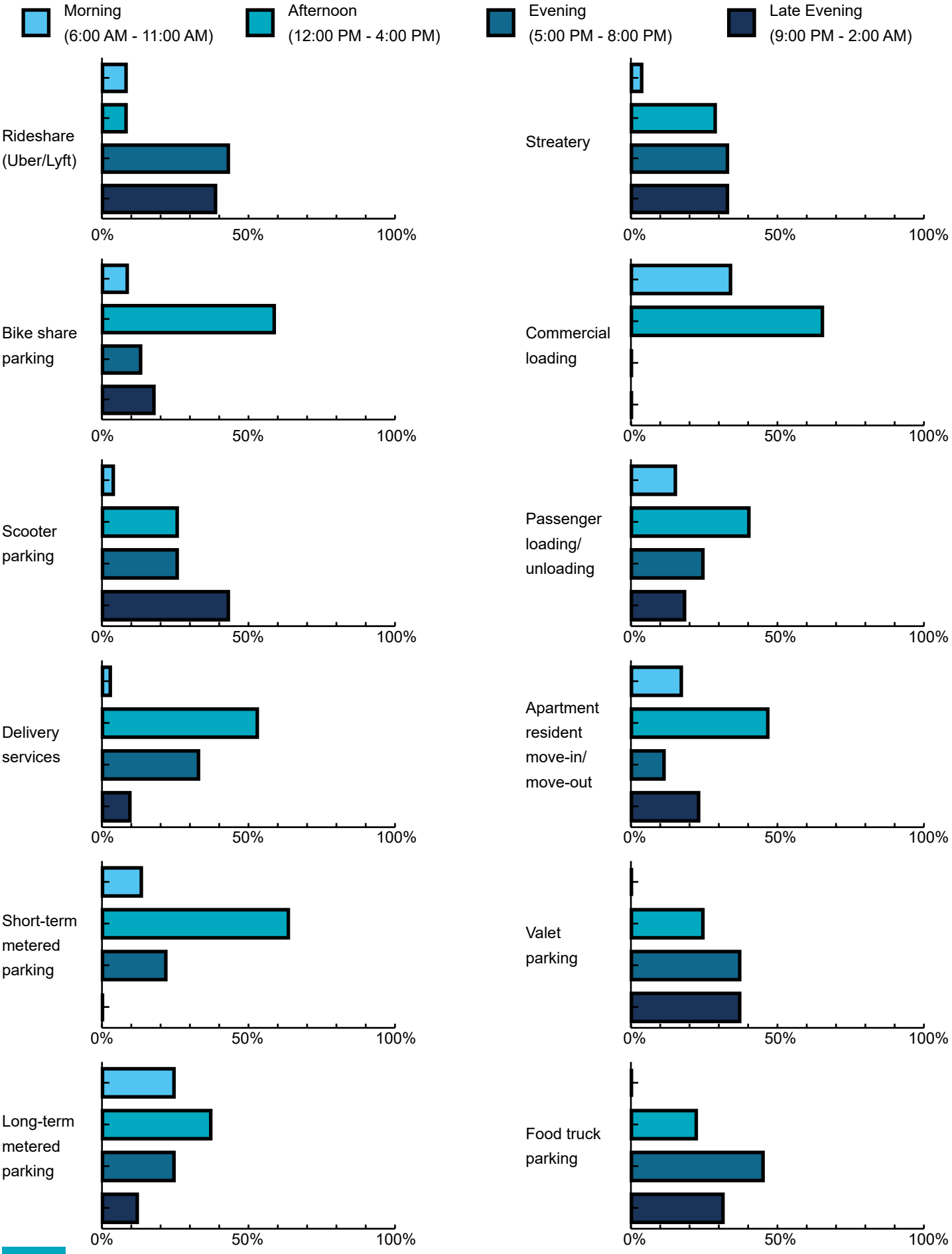
Question: Please rank the curb uses based on how important they are to the success of your business. ***(100% = Highest Priority, 10% = Lowest Priority)***



Question: State the preferred distance for each of the curb uses to support your business. Prioritize curb uses based on where they need to be in relation to your business, keeping in mind that not all curb uses can physically fit directly in front of your business.



Question: Indicate the time-of-day various curb uses are most active for your business.



KEY TAKEAWAYS FROM BUSINESS OWNERS SURVEY

1 Off-street parking is the ideal location for the long-term parking needs of employees and business owners.

2 On-street parking is the ideal location for the short-term parking needs of customers and visitors.

3 Employees and business owners typically park for over 4 hours.

4 Customers and visitors typically park for 2 hours of less.

5 Metered parking, commerical and passenger loading, delivery services, and rideshare (Uber/Lyft) are essential curb lane uses for supporting businesses.

6 Business owners prefer passenger loading/unloading, short-term metered parking, commercial loading, and rideshare in front of their businesses.

7 Apartment resident move-in/move-out, valet parking, and food truck parking can be located further from a business's storefront.

8 Commercial loading zones are primarily used before 4:00 PM, and rideshare is primarily used after 5:00 PM.

9 Short-term metered parking usage is expected to peak between 12:00 PM and 4:00 PM.

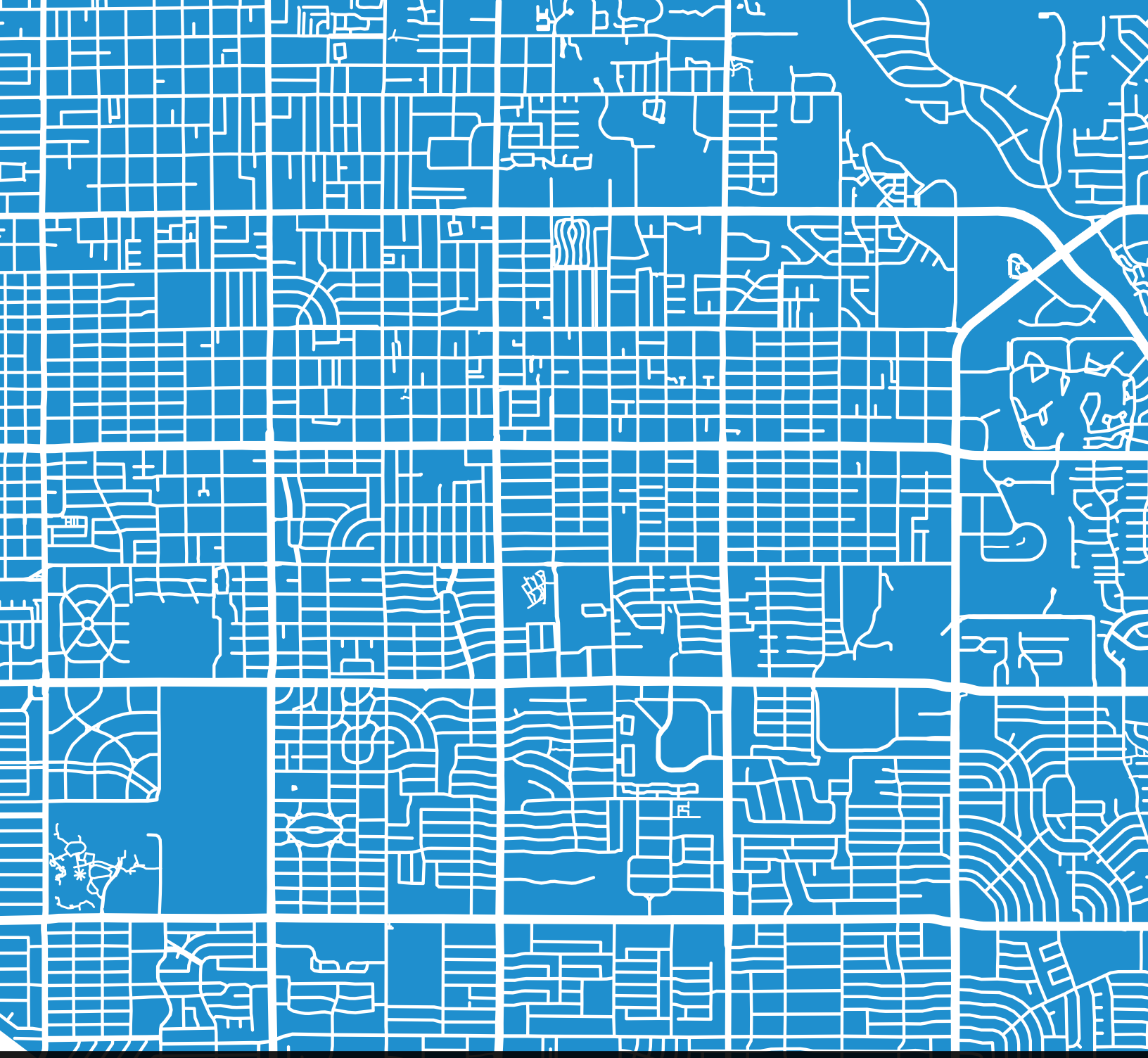
10 Outdoor dining uses are expected to occur from 12:00 PM into the late evening.

CHAPTER 2: CURB FRAMEWORK

Chapter Summary

Curb space allocation should be conducted strategically with a consistent order of operations. Although curb lane priorities are based on the neighborhood and land uses they serve, developing a comprehensive approach to curb space allocation can ensure that all roadway users are considered when allocating space.

As demand for the curb continues to grow, it's important to create an objective and transparent process for evaluating curb lane needs that is rooted in a data-driven decision making process. Rather than defaulting to on-street parking as the predominant use of curb space, relinquishing curb space for private uses, or repurposing curb space without a logical decision making process, cities should



ensure that they have a full accounting of their curb inventory and an understanding of the block and corridor specific curb lane needs. Although curb lanes may dedicate a higher percentage of linear feet to on-street parking, the prioritization of people over cars can be interwoven into a holistic curb lane ecosystem.

This chapter details the framework for evaluating curb space and provides objective thresholds for determining the feasibility of implementing various curb uses. The context of a curb lane is a key component to allocating curb space that meets the needs of adjacent land uses. Before dedicating space to a specific curb use, the trade-offs between different curb uses should be considered.

Curb Space Allocation Process

Allocating curb space at the block-face, block, or corridor level requires an understanding of the trade-offs between different curb uses. For instance, providing a protected bike lane or cycle track along a curb lane limits the amount of space that can be allocated for other curb uses such as bus stops, loading zones, and parking. The **Curb Decision Diamond** helps to evaluate curb space through a consistent order of operations and assess trade-offs between different curb uses. The general principles of this curb allocation decision process are detailed below.

1

ADA ACCESS

Prioritize creating a safe environment that can be navigated by persons with varying mobility needs (i.e., ADA parking spaces and curb ramps).

2

TRANSIT

Ensure curb space is available for transit stops along transit corridors and areas that use micro-transit.

3

ACTIVE MOBILITY

For corridors serving bikes and micromobility, consider the trade-offs between a curb lane dedicated to a single-use such as a bike or light individual transport lane versus a flexible curb lane that meets the needs of multiple curb user groups.

4

LOADING

Ensure commercial and passenger vehicles have clearly identified pick-up and drop-off locations to support nearby business' needs for goods delivery and convenient access for customers.

5

SHORT-TERM PARKING

Provide metered and managed parking as the back-bone of an efficient curb lane system.

6

NON-MOBILITY USES

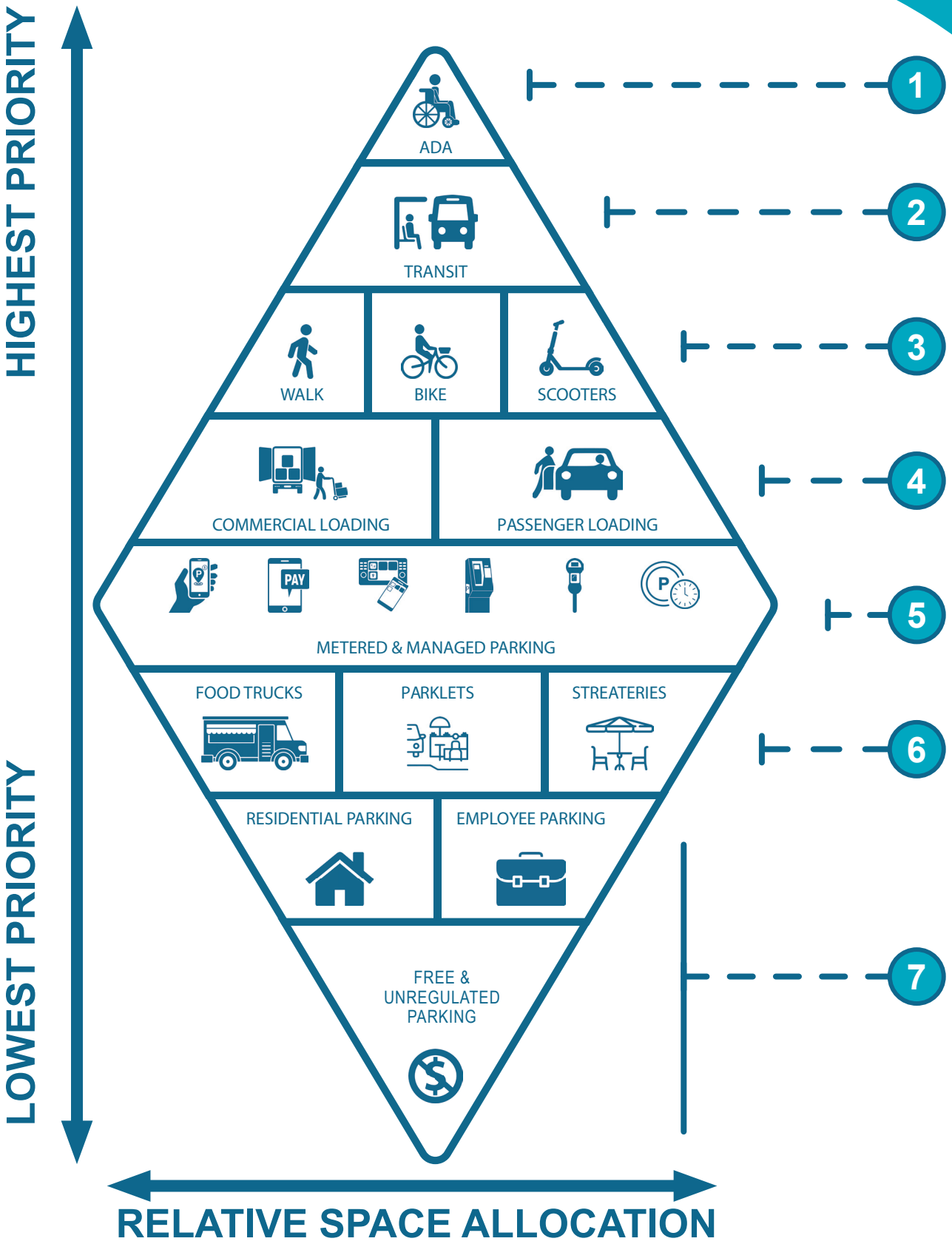
Allocate space for street activation only in areas that do not have sufficient sidewalk widths to accommodate those uses.

7

LONG-TERM PARKING

Limit residential, employee, and free parking to curb lanes that have a low demand for other curb uses.

CURB DECISION DIAMOND



Variations to the order of operations

BROADER MOBILITY GOALS

Conducting curb space allocation should align with your city's mobility landscape. The priorities for curb space allocation may vary based on the neighborhood typology or businesses on the block-face under evaluation. Additionally, broader mobility goals may reshape the order of operations to shift curb uses above others. A comprehensive understanding of a city's mobility goals relating to transportation, mode share, access, and curb lane management will help enhance the curb space allocation process.

NEIGHBORHOOD CONTEXT

The curb space allocation process should reflect the neighborhood context of the block-face under evaluation. The curb lane needs for a low-density residential area will differ from a curb in the urban core. This process should serve as a baseline for allocating space rather than a one-size-fits-all strategy for curb management. Steps and thresholds in the process should align with the neighborhood context and priorities of the businesses and residences they serve.

SPACE & TIME LIMITATIONS

The length of the block-face under evaluation will have an impact on potential curb space allocation. For instance, a 100-feet long block-face is not a suitable location for a bus loading area that needs to accommodate two buses simultaneously. Additionally, when allocating curb space, it's important to avoid oversubscribing the curb to multiple user groups. Although curb space can flex between different uses, the time, ease, and safety of transitioning space should be considered.

PRIORITIZE SYNERGIES

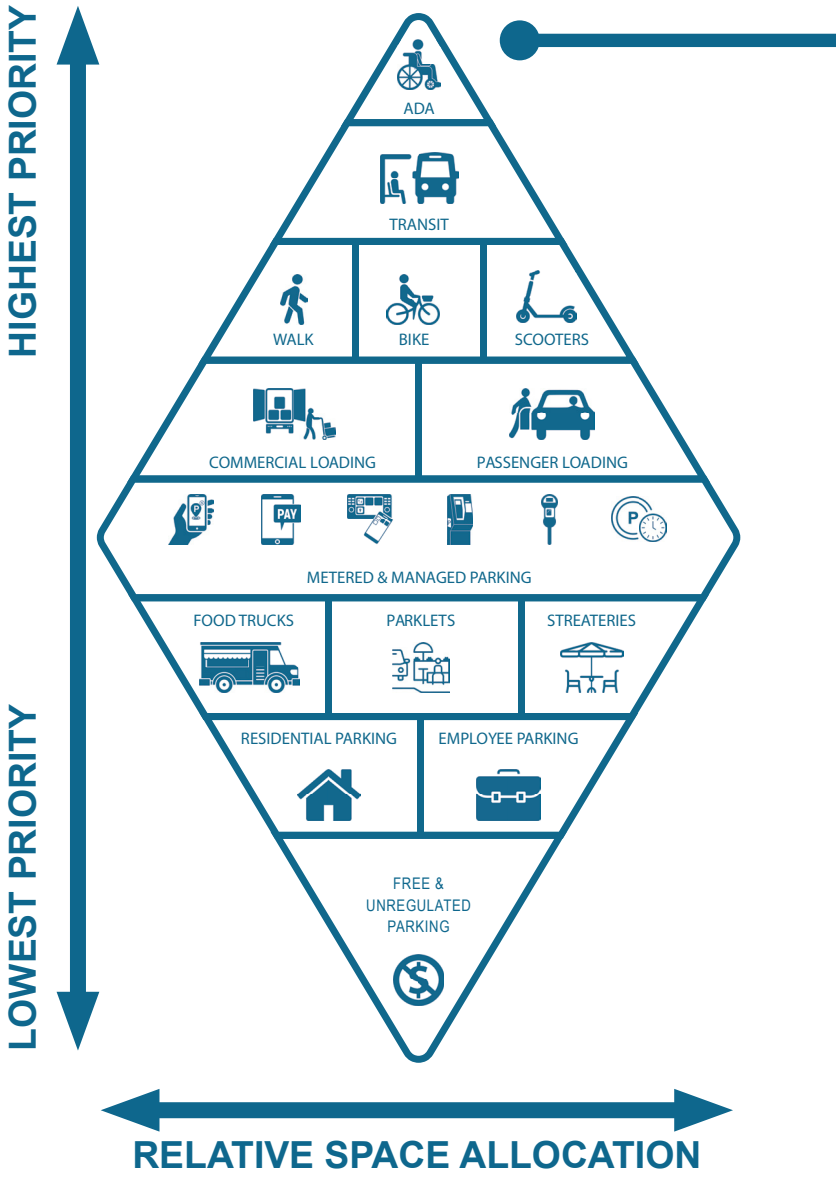
Traditionally, curb lane priorities reflect the desire to avoid conflicts at the curb rather than identifying strategies to pair complementary curb uses along a block-face. Curb space allocation should evaluate potential synergies across different curb uses to maximize efficiency while meeting user needs. An example of a complimentary curb use is a parking-protected bike lane that offers a safe bike lane for cyclists while providing a curb lane for vehicles and other curb uses. The curb allocation process should prioritize synergistic curb uses even if they don't meet curb utilization thresholds.

1 Allocating Space for ADA Parking Needs

The first step to allocating curb space should be to ensure equitable access to the curb for persons with varying mobility needs. While other user groups may **want** proximate access to their destination, proximate access is a **critical need** for this user group.

According to the Americans with Disabilities Act (ADA), ADA parking spaces should always be accompanied by ADA curb ramps, signage, and markings that align with ADA Standard of Accessible Design.

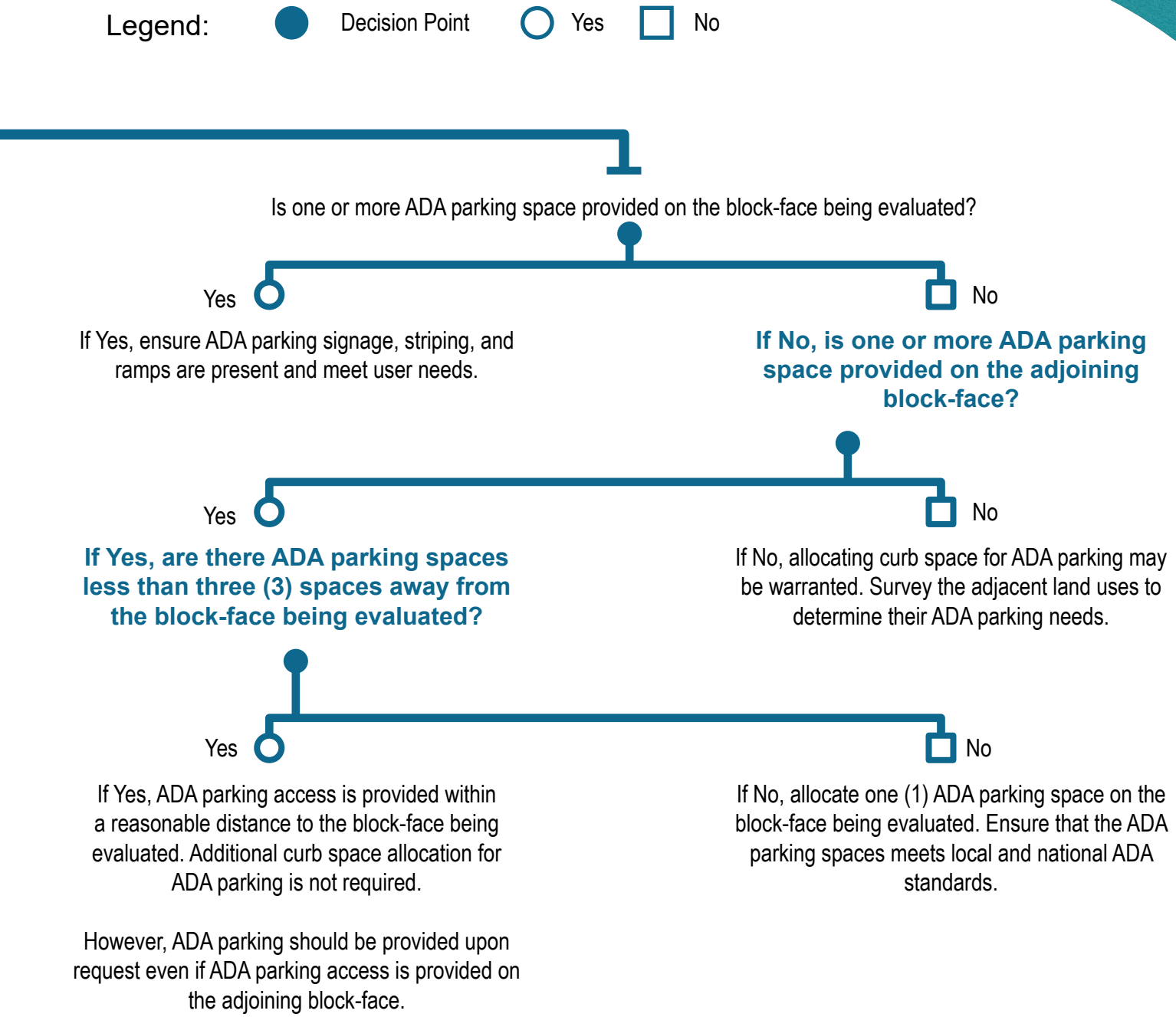
When locating ADA parking spaces on a public street, the parking space should be placed at the beginning or end of a block-face, or the area closest to the ADA curb ramp. The decision making process for allocating ADA parking spaces is provided on the next page.



Key Trade-offs

Compared to traditional metered on-street parking spaces, ADA parking spaces typically generate less revenue because they limit access to persons with ADA credentials.

ADA parking spaces can place additional pressure on traditional parking spaces to meet on-street parking demand.



Key Trade-offs

For all on-street ADA parking spaces, ensure that ADA signage, striping, and curb ramps meet federal ADA standards. If ADA parking is adjacent to a medical facility or senior housing, additional ADA parking spaces should be added as needed.

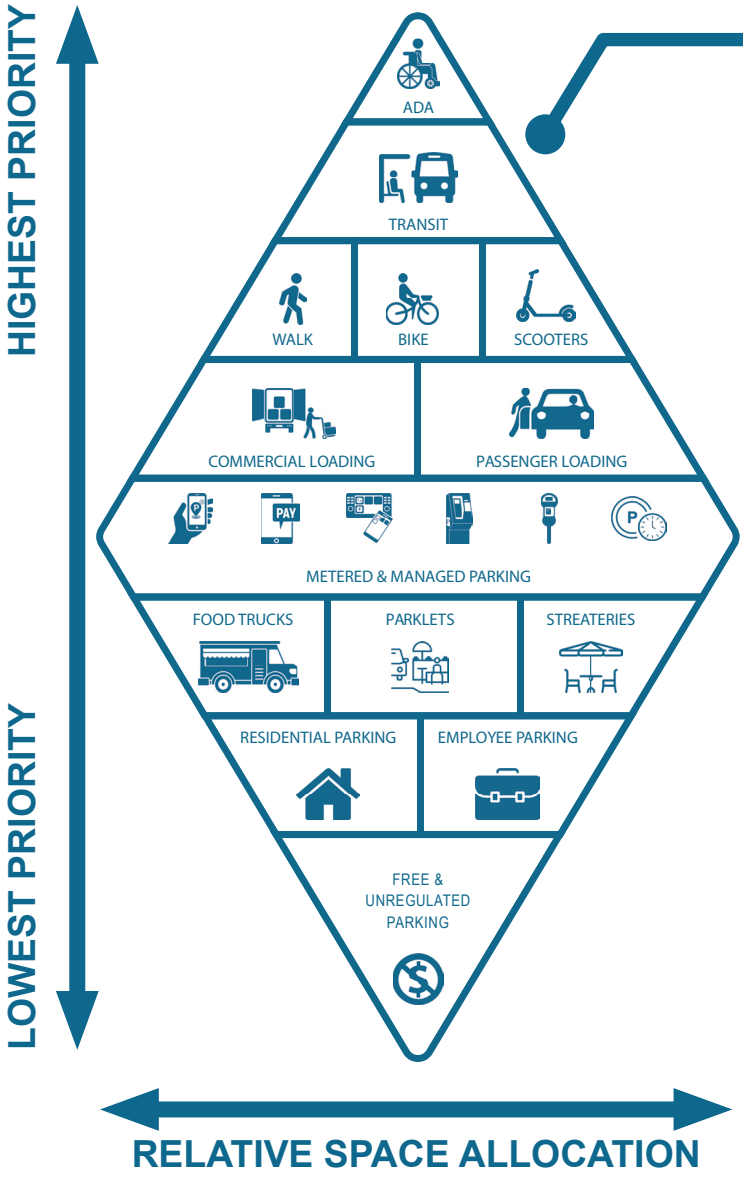
Expect to allocate two (2) traditional parking spaces for one (1) ADA parking space to accommodate ADA ramp access.

2 Designating Space for Transit

After determining your ADA parking space allocation, the next step in the curb space allocation process is to evaluate your transit access needs. Planning for transit access such as bus, bus rapid transit, and streetcar stops should be conducted in conjunction with the local transit provider.

For transit corridors that use the curb lane as a bus-only or streetcar lane, other curb lane uses should be prohibited on the block-faces with this designation. To minimize interruptions to transit service, transit corridors should leverage all sides of a block to meet its curb lane needs. The National Association of City Transportation Officials (NACTO) provides guidance on the placement of transit stops on a block-face.

The curb space allocation process for transit service without a dedicated lane is detailed in the diagram on the next page. For corridors without transit service, curb allocation can proceed to evaluating space for walking, biking, and scooters.



Key Trade-offs

Compared to traditional metered on-street parking spaces, transit stops can provide access to a larger number of customers,visitors, and employees per linear foot.

Transit stops at the curb lane can help to prevent double parking of transit vehicles, enhance access for people, and support economic development.

Legend: ● Decision Point ○ Yes □ No

Is there a transit stop on the block-face being evaluated?

Yes

If Yes, ensure that there is No Parking signage and striping at the transit stop. Additional coordination with the local transit agency is needed to determine if an in-lane stop or a pull-out stop is preferred.

No

If No, coordinate with the local transit agency to determine if a bus stop is needed on this block-face.

Based on the transit agencies feedback, is a stop needed on this block-face?

Yes

If Yes, coordinate with your local transit agency to determine if an in-lane stop or pull-out stop is preferred.

No

If no, continue the corridor assessment and evaluate the configuration of transit stops along the corridor.

In-Lane Stop

For in-lane stops, allocate curb space based on the minimum platform lengths displayed in **Figure 1** and detailed in **Table 1**.

Pull-Out Stop

For pull-out stops, allocate curb space based on the minimum platform lengths displayed in **Figure 2** and detailed in **Table 2**.

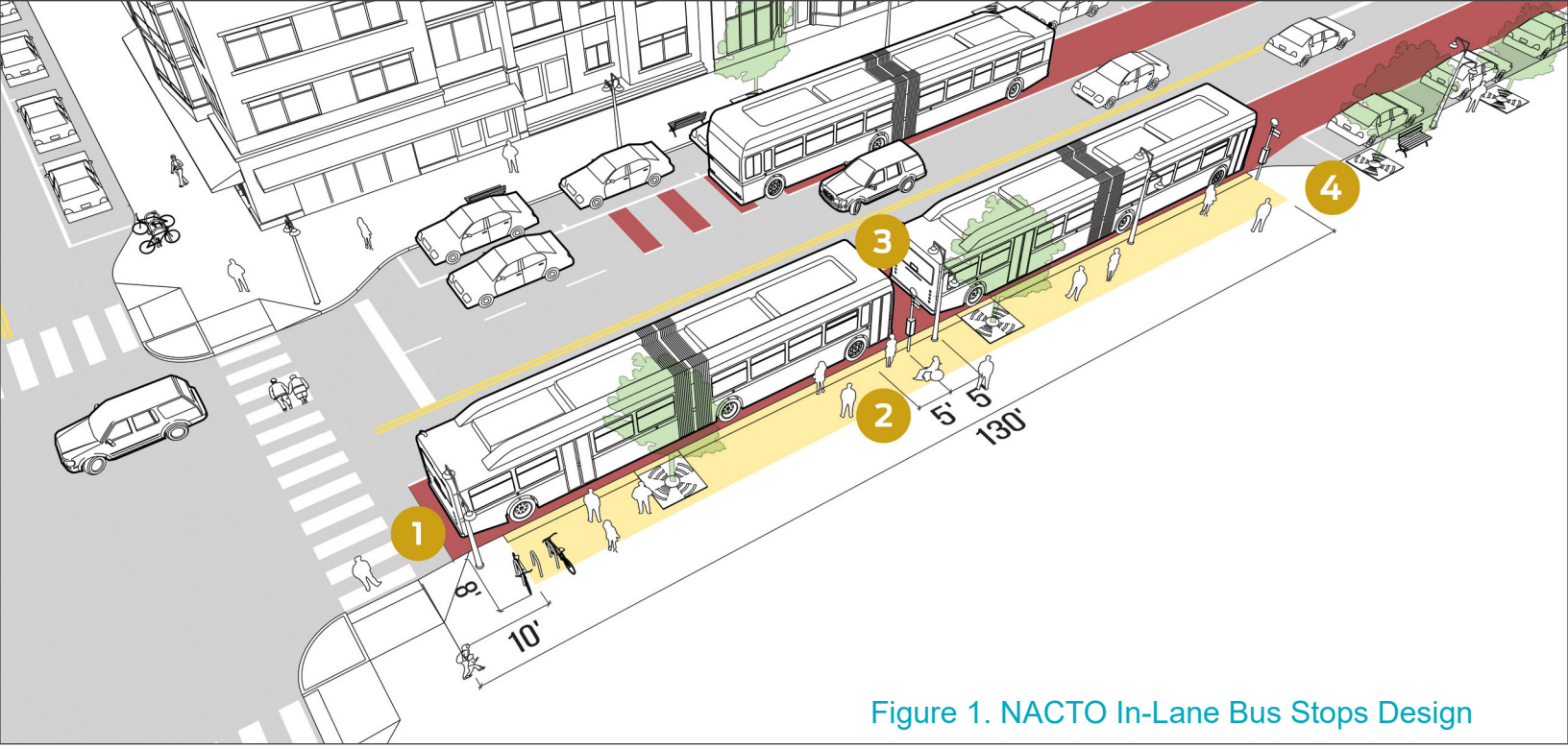


Figure 1. NACTO In-Lane Bus Stops Design

In-lane Stops

In-lane stops allow transit vehicles to pick up and drop off passengers without leaving the travel lane or transit lane. This increases transit system efficiency and prevents transit vehicles from needing to merge in and out of moving traffic.

Specific NACTO guidance for In-Lane Bus Stops include:

1. Locate platform with at least 10 feet of clear distance from crosswalk or curb return. Measure to transit stop pole at near-side, or rear of transit vehicle at far-side.

2. While 5 feet is the minimum curb length for a receiving facility at each boarding door (ADA Std. §810.2.2), design platforms to be continuous through all doors, and consider additional elements to improve passenger comfort.

3. Provide 5 - 10 feet of distance between each additional transit vehicle expected to dwell at the platform consistently throughout the day.

4. Design boarding bulbs and islands to accommodate proper draining and sweeping; tight radii may require maintenance agreements to ensure bulbs are properly cleaned and maintained.

In-lane stops limit the length needed for efficient transit stops, preserving space for other curbside uses.

Combining in-lane stops with curb extensions/boarding bulbs at the end of a block-face can help to improve the transit experience while shortening the crossing distance for pedestrians.

The curb space allocation dimensions for transit stops can vary based on local standards or a transit agency's specific transit needs. The dimensions detailed in **Table 1** and **Table 2** are based on dimensions recommended by NACTO for bus stops.

The curb space dimensions for other transportation vehicles, such as streetcars or bus rapid transit vehicles will be based on local conditions and design specific criteria determined by the local transit agency. Coordination with the local transit agency is critical to right-sizing the amount of curb space allocated to the loading and unloading of a transit vehicle.

Table 1. NACTO Recommended Curb Space Allocation for In-Lane Bus Stops

Stop Position	40' Bus	60' Bus	2 X 40' Bus	2 X 60' Bus
Near-Side	35'	55'	80'	115'
Far-Side	45'	65'	90'	130'
Mid-Block	35'	55'	80'	115'

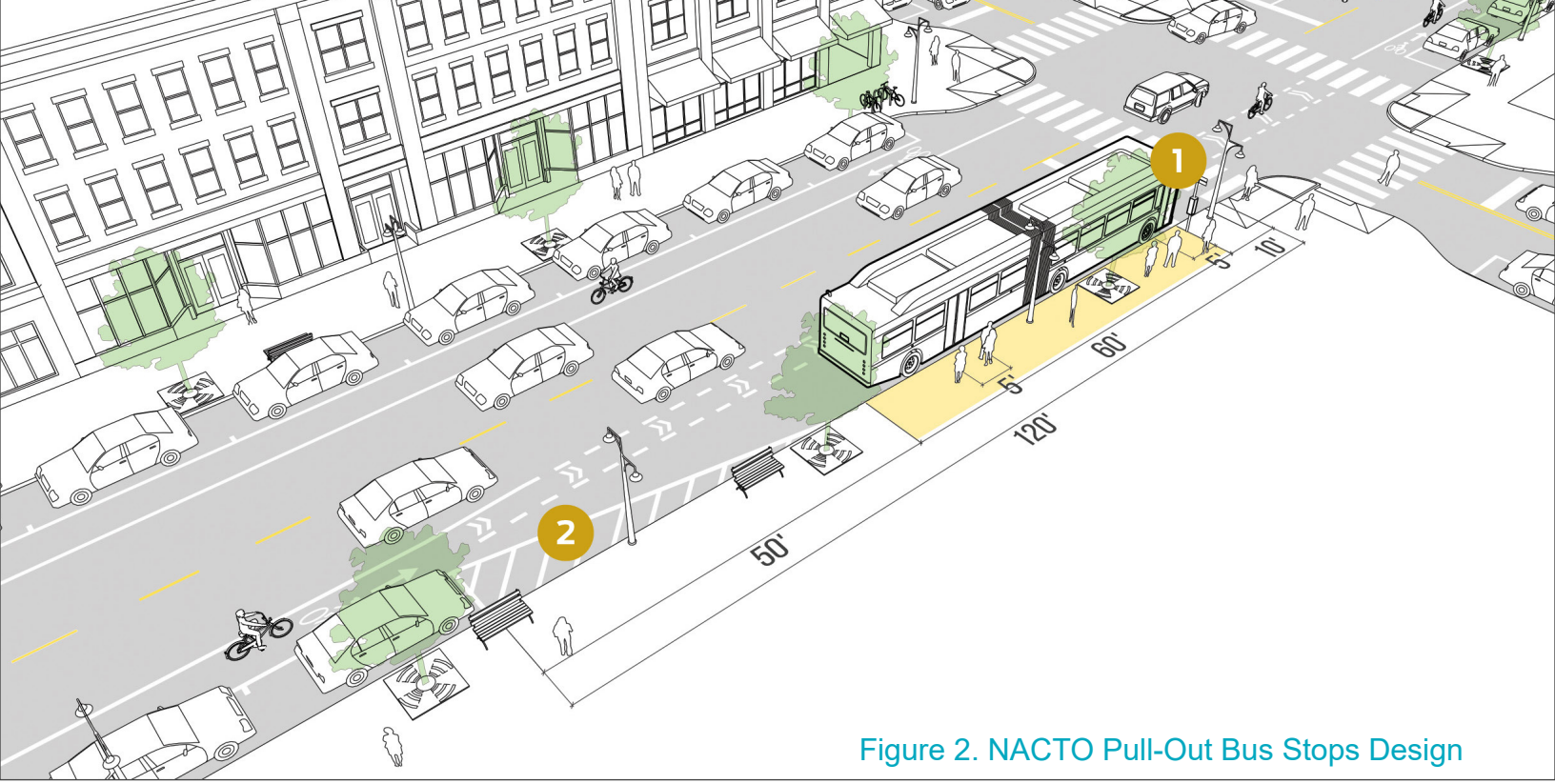


Figure 2. NACTO Pull-Out Bus Stops Design

Pull-Out Stops

Pull-out stops require transit vehicles to leave the travel lane and pull into the curb lane. This stop type avoids the need to provide a curb extension at the transit stop. However, transit vehicles must merge with moving traffic to continue transit service.

Specific NACTO guidance for Pull-Out Stops include:

1. Locate stop zone with at least 10 feet of clear distance from crosswalk or curb return. Measure to transit stop pole at near-side, or rear or transit vehicle at far-side.

2. White diagonal hatch line markings may be striped to delineate the entry and exit tapers and discourage blocking.

Table 2. NACTO Recommended Curb Space Allocation for Pull-Out Bus Stops

Stop Position	40' Bus	60' Bus	2 X 40' Bus	2 X 60' Bus
Near-Side	100'	120'	145'	185'
Far-Side	90'	100'	125'	165'
Far-Side (right turn)	140'	160'	140'	230'
Mid-Block	120'	145'	185'	210'

Enforcement is required to keep pull-out stops clear; vehicles standing or parking in the stop zone constrains the operator's ability to pull complete to the platform.

Pull-out stops should be combined with queue jumps, bus mounted cameras, and license plate recognition technology for automated enforcement.

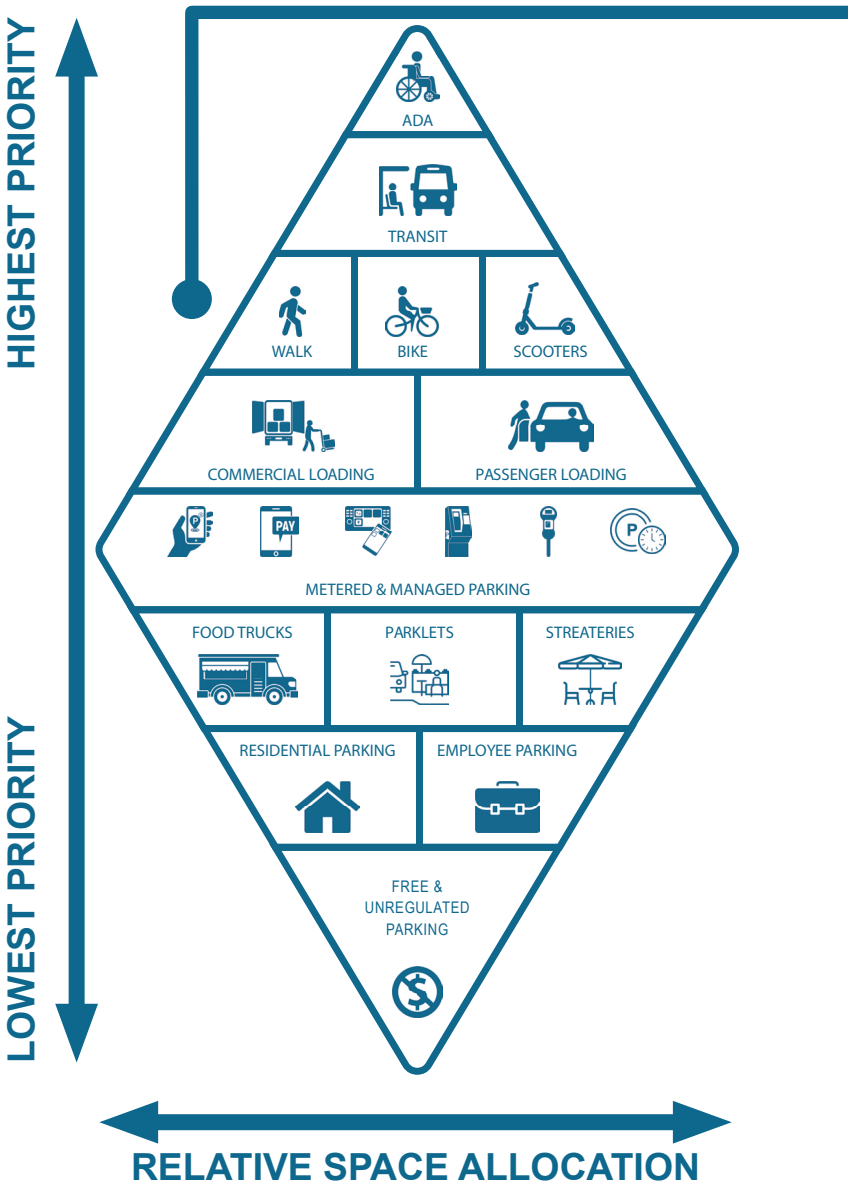
Figure 3. Sun Tran bus service in Tucson, AZ

3 Enhancing the Pedestrian Experience

Although traditionally not seen as a strategy to improve the pedestrian experience, effective curb lane management and curb space allocation can have a profound impact on how pedestrians interact with the public right-of-way.

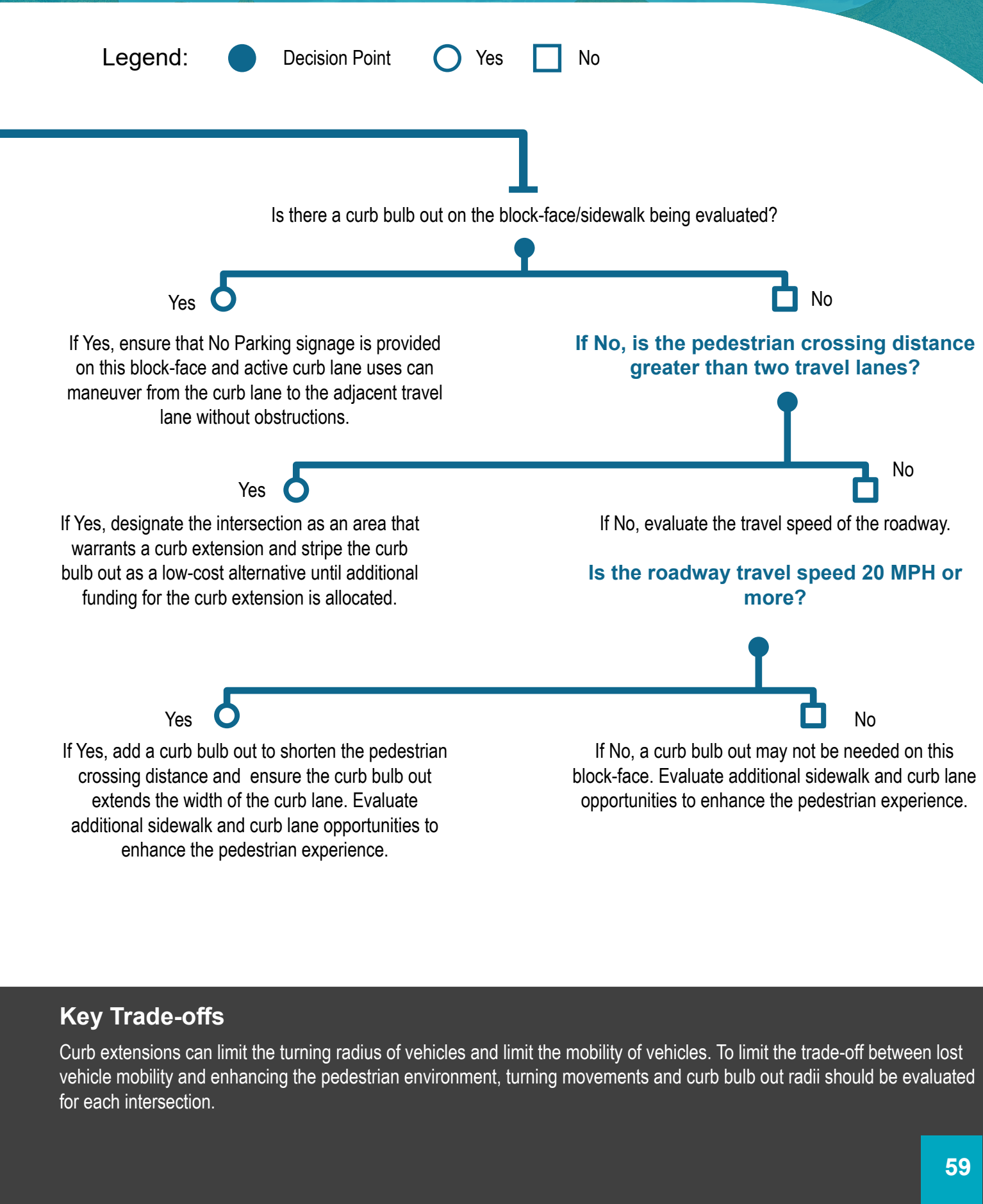
Allocating space for curb bulb outs that shorten street crossing distances or using on-street parking to serve as a barrier between moving vehicles and the sidewalk are two examples of how the curb lane can be used to enhance the pedestrian experience.

A decision diagram for allocating space for curb bulb outs is detailed on the following page. Typically, curb bulb outs are provided as a sidewalk extension, but roadway striping can serve as an interim and inexpensive strategy for adding curb bulb outs to an existing curb lane.



Key Trade-offs

Curb extensions enhance the pedestrian and curb lane environment by replacing No Parking areas at and near crosswalks with additional sidewalk space. When placed in No Parking areas, curb bulb outs do not result in a loss of on-street parking and there is not a trade-off between enhancing the pedestrian experience and providing storage for vehicles.



Key Trade-offs

Curb extensions can limit the turning radius of vehicles and limit the mobility of vehicles. To limit the trade-off between lost vehicle mobility and enhancing the pedestrian environment, turning movements and curb bulb out radii should be evaluated for each intersection.

Additional Pedestrian Considerations

As stated in NACTO's Urban Street Design Guide: The pedestrian through zone is the primary, accessible pathway that runs parallel to the street. The through zone ensures that pedestrians have a safe and adequate place to walk and should be 5 - 7 feet wide in residential settings and 8 - 12 feet wide in downtown or commercial areas.

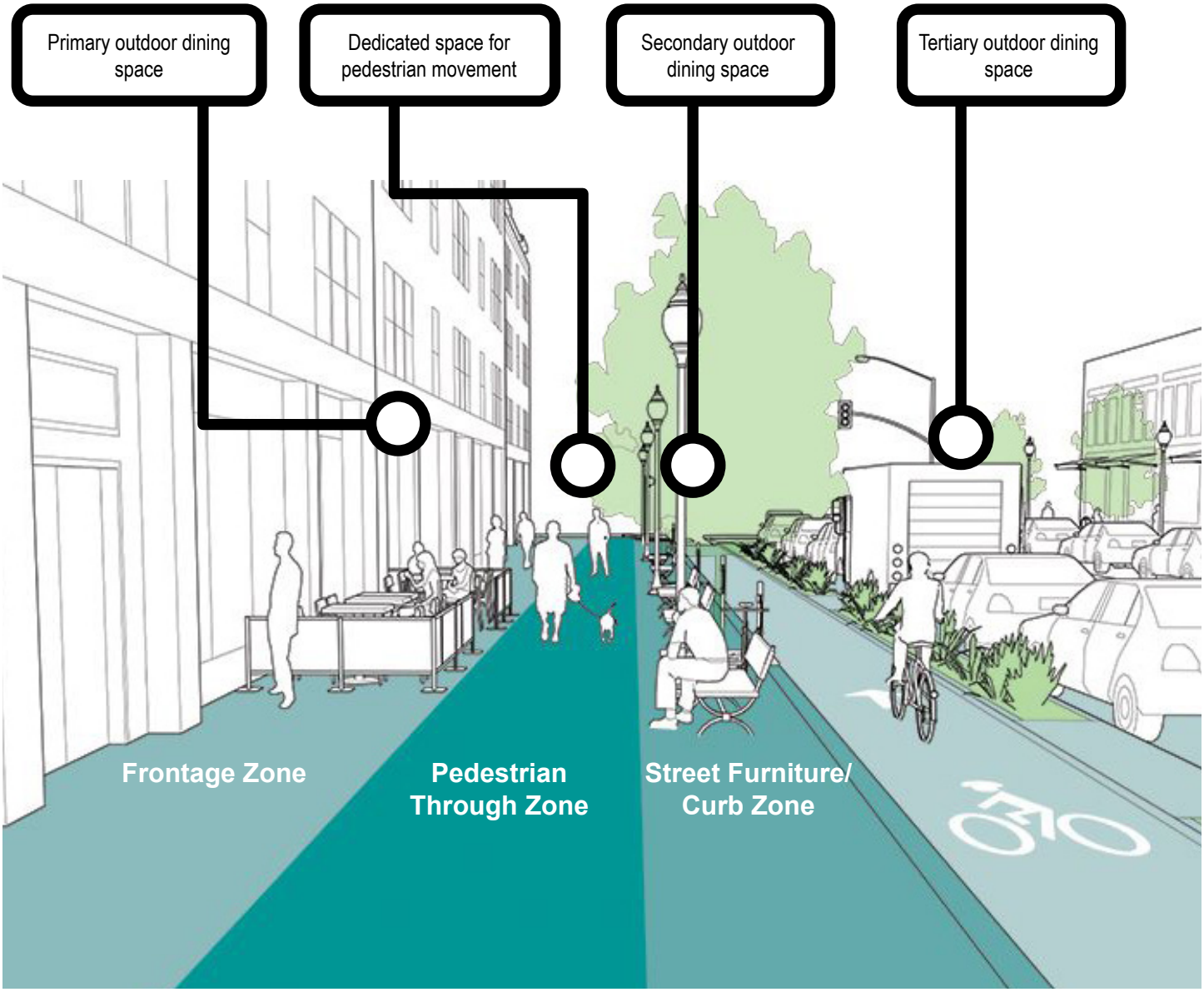


Figure 4. NACTO Sidewalk Zone Diagram

Sidewalk closures or obstructions to the pedestrian through zone should be minimized to ensure pedestrians can safely navigate the public right-of-way

Maintaining accessible sidewalks for pedestrians is a critical component of enhancing the pedestrian experience. Sidewalk closures or obstructions to the pedestrian through zones should be minimized to ensure pedestrians can safely navigate the public right-of-way. As one of the most vulnerable roadway users, pedestrian safety should be paramount.

In Tucson, the pedestrian through zone has been sacrificed to allow businesses to create outdoor dining for their customers. This has resulted in the creation of detours from the pedestrian through zone, requiring pedestrians to walk in the street rather than the sidewalk. All permitted outdoor dining that block pedestrian through zones and detour pedestrians into the roadway should be relocated to the curb lane and assessed to determine their value to economic development and an efficient curb lane environment.

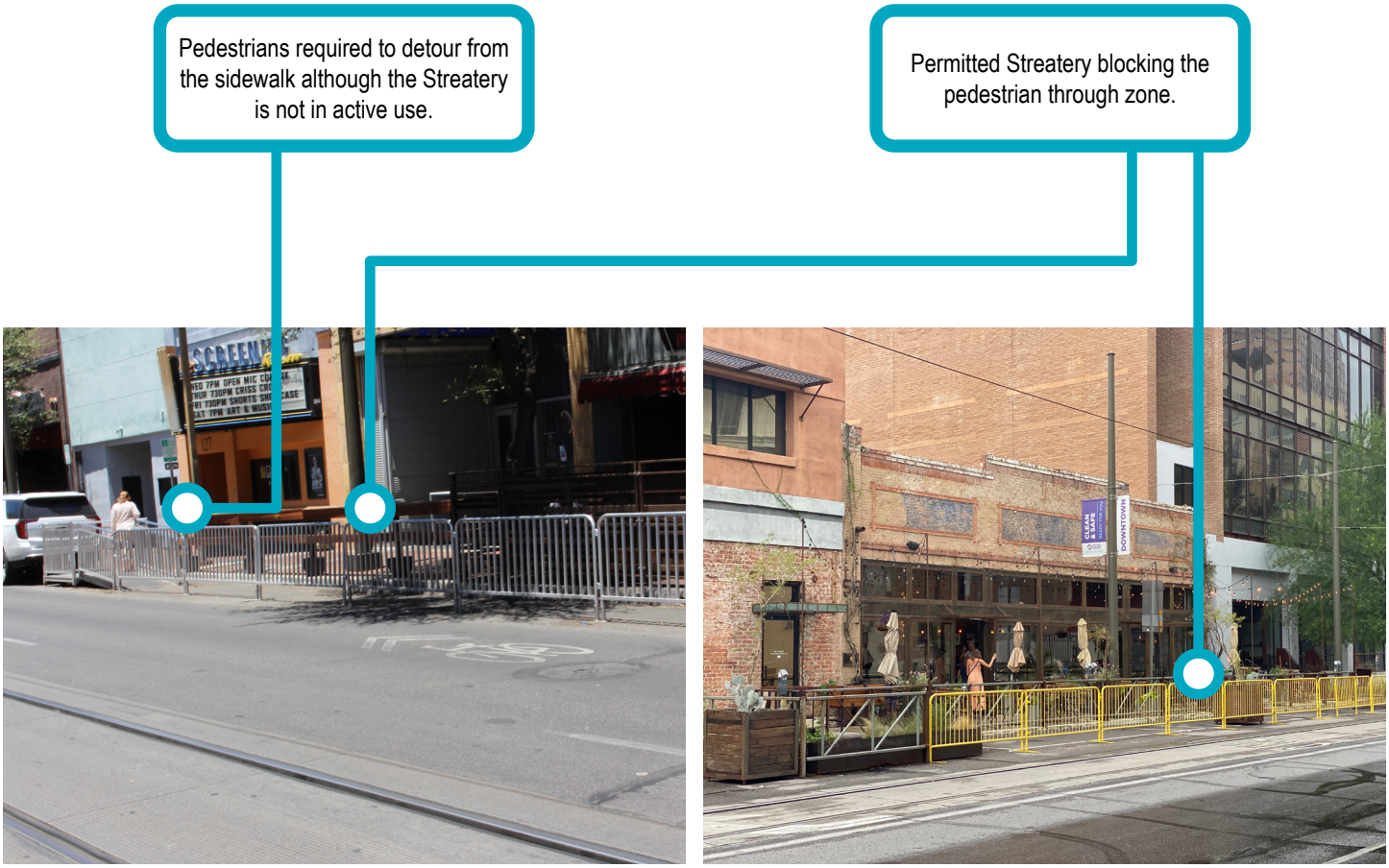


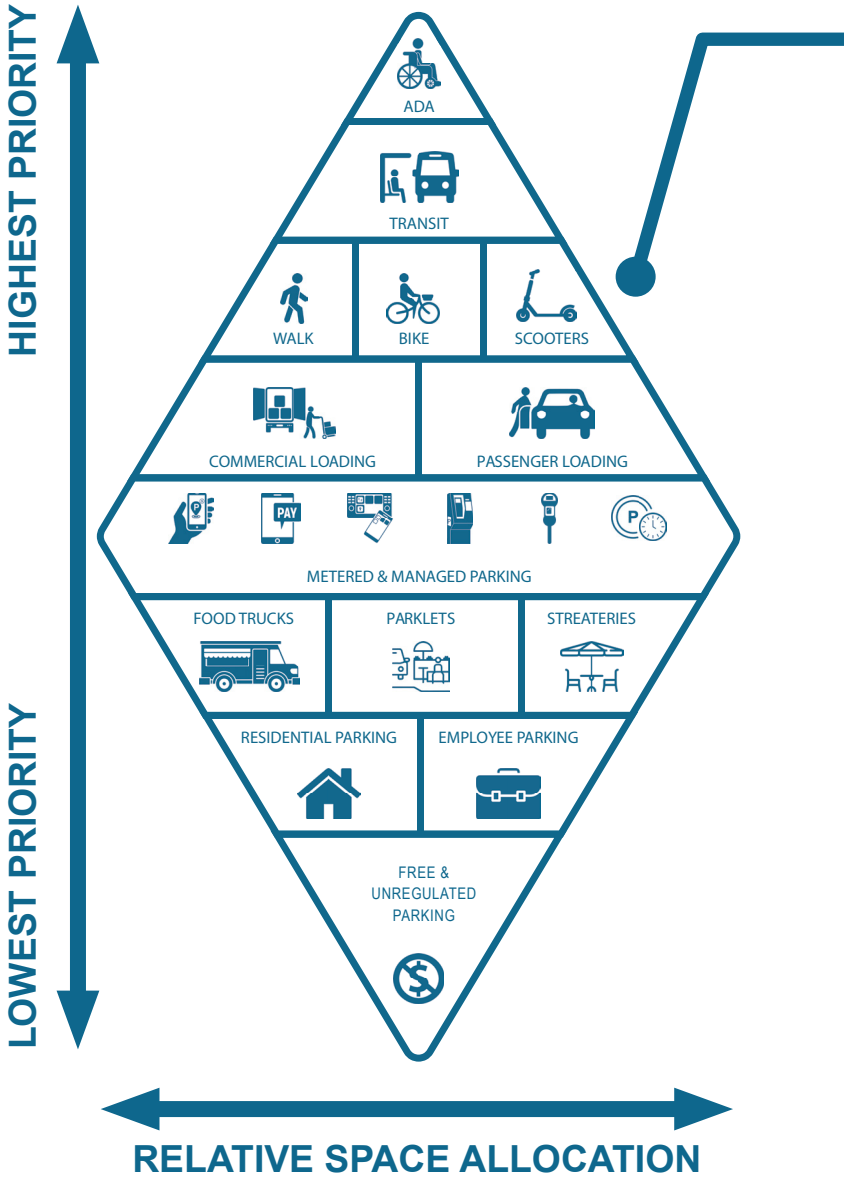
Figure 5. Sidewalk Detour due to Streatery Placement

3 Allocating Space for Bikes and Scooters

Bikes and scooters create unique demands upon the curb lane. Dedicating space for bikeshare, bike and/or scooter corrals, and other micromobility needs can help to activate the curb lane and close mobility gaps associated with first and last-mile connectivity.

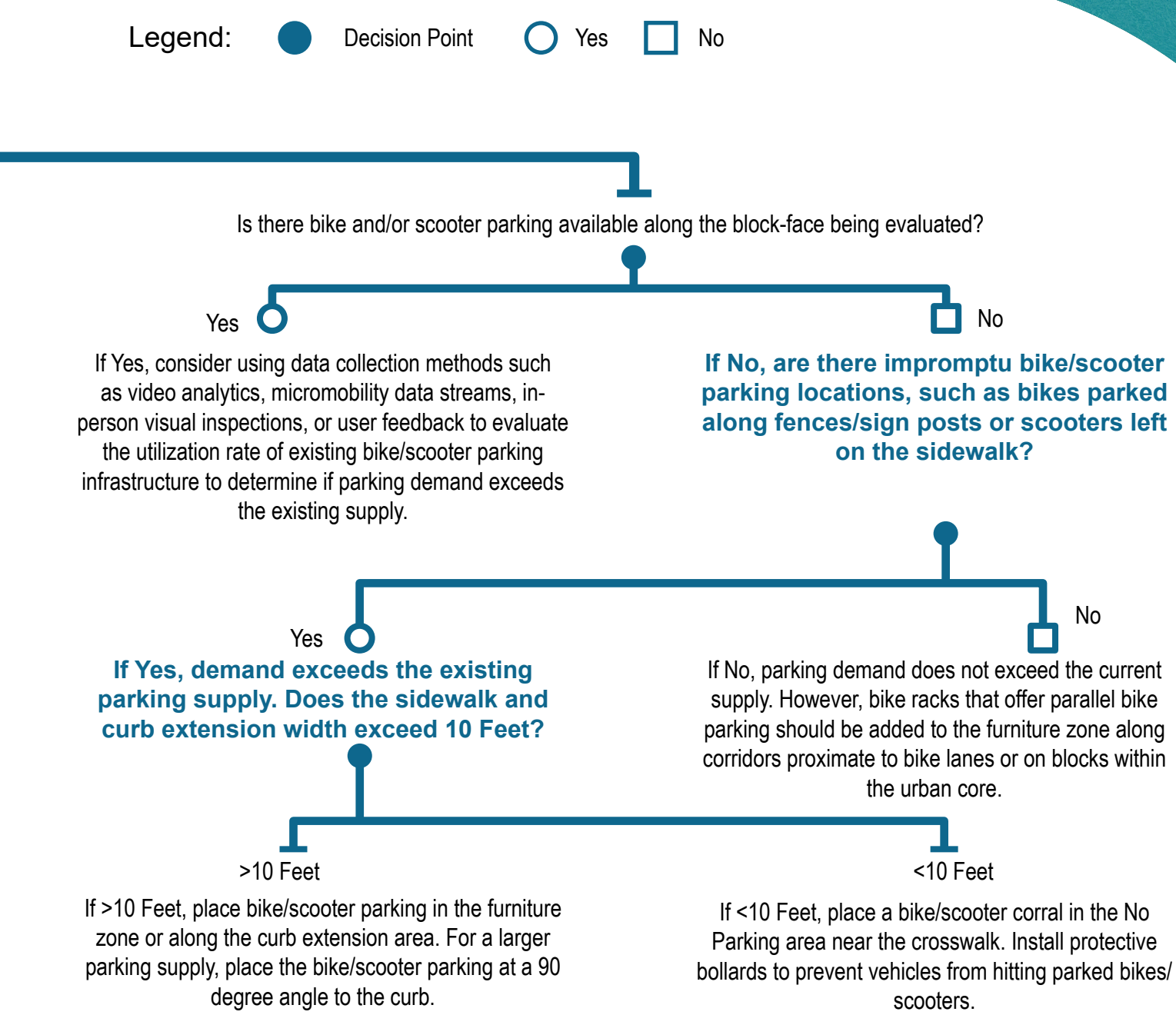
When allocating curb space for bikes and micromobility, it is important to make the distinction between providing space for bike and scooter parking versus dedicating the curb lane for the exclusive use of people using bikes and scooters. Bike lanes and light individual transport (LIT) lanes can create a one-dimensional use of curb space that reduces a block-face's ability to accommodate the curb lane needs of multiple user groups.

When allocating space for bike and scooter parking, it's important to evaluate the placement and visibility of parking infrastructure as well as cyclists and pedestrian safety.



Key Trade-offs

One on-street parking space can accommodate approximately ten bicycle parking spaces. Converting a parking space to bike/scooter parking results in a net increase to the City's parking supply and helps to support a City's sustainability goals. Conversely, a parked vehicle may bring multiple users to support a local business, furthering a City's economic development goals. Curb space allocation should be paired with the localized goals and priorities to support the land use needs.



Key Trade-offs

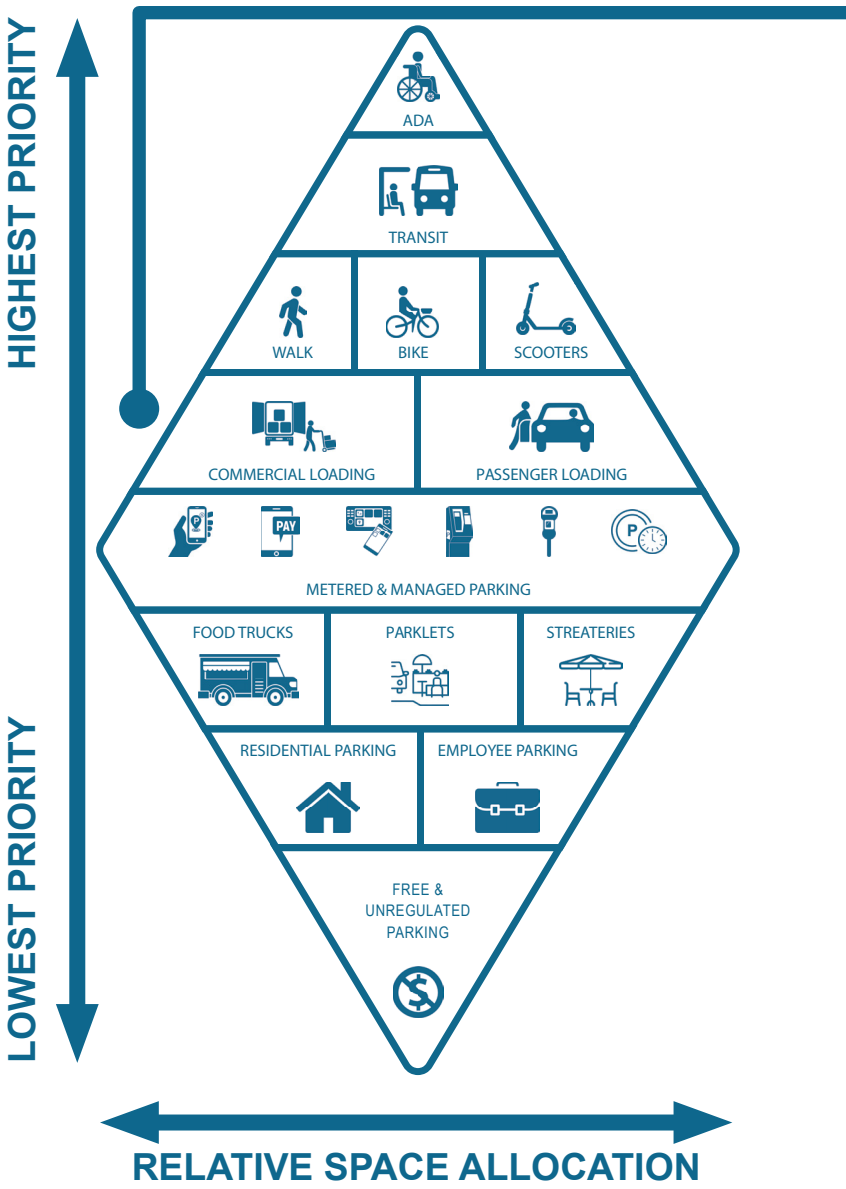
Removing metered parking for bikeshare/scooter parking can result in a decrease in parking revenue. Cities should investigate opportunities to charge micromobility companies for use of the curb space. Additionally, cities should require micromobility companies to provide real-time information to track the duration and location of parking sessions.

4 Providing Commercial Vehicle Loading Zones

Commercial vehicle loading is an essential curb lane use. The need for commercial vehicle loading is typically highest in areas with retail and restaurant land uses. These land use types often rely upon on-street loading zones to facilitate the delivery of goods.

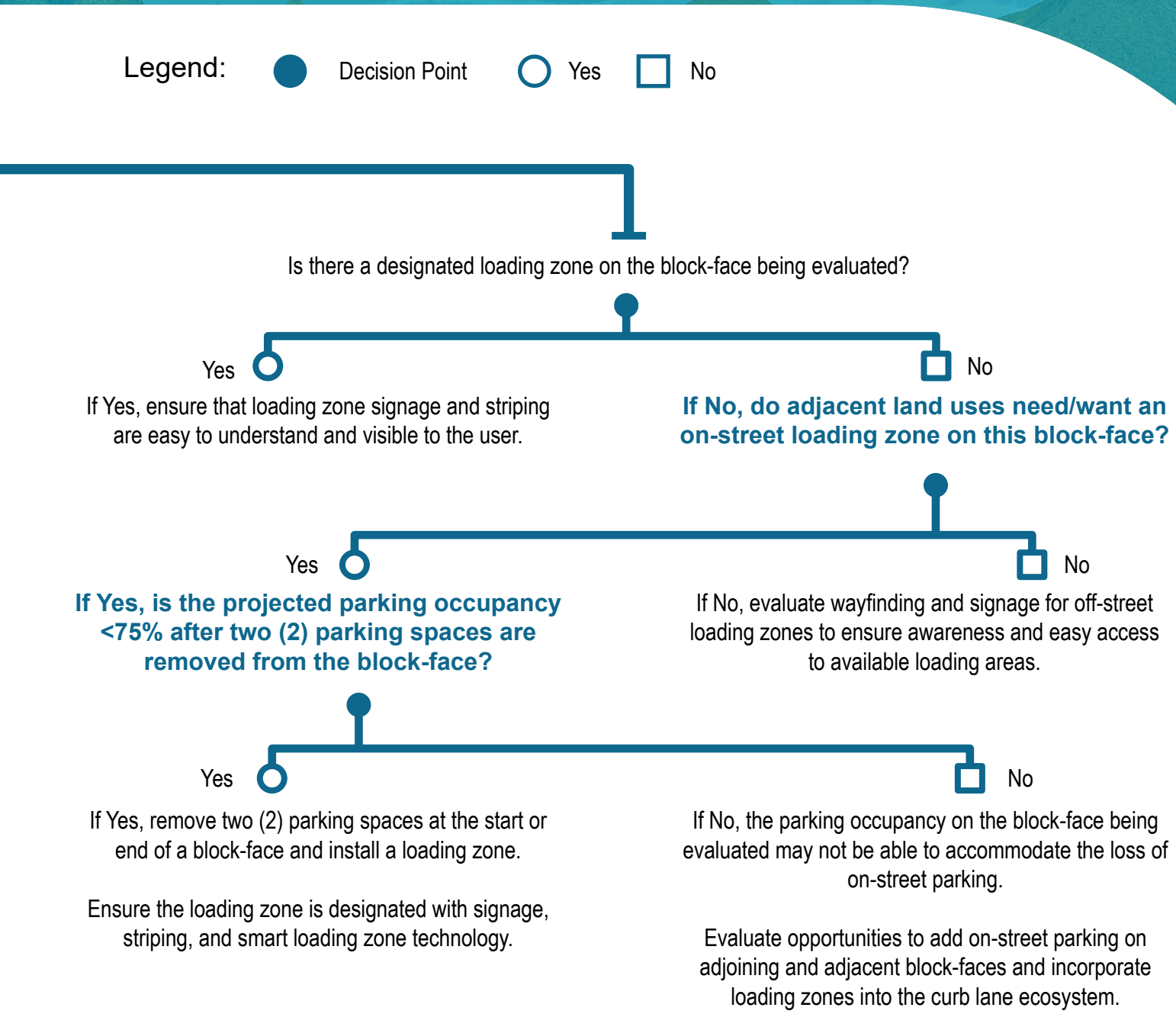
Additionally, demand for loading zones is typically high near office and multi-family residential land uses. These land use types generate demand for loading by parcel delivery services such as UPS, FedEx, and Amazon. Although office and multi-family residential land uses may provide off-street loading areas, logistics companies routinely avoid using off-street loading. Without the presence of on-street commercial vehicle loading, cities can expect a high rate of double-parked vehicles, resulting in increased congestion and decreased safety.

Commercial vehicle loading zones should be provided based on a business's need for loading and unloading. As a default, cities should install at least one (1) loading zone for every two block-faces. Additionally, cities should implement mobility platforms that track loading activity in real-time.



Key Trade-offs

The installation of a loading zone typically requires the removal of at least two (2) on-street parking spaces. Although a block-face's on-street parking supply is reduced, adding a loading zone to the block-face can enhance the customer experience by reducing the likelihood of double-parked vehicles and support economic development by increasing access for goods.



Key Trade-offs

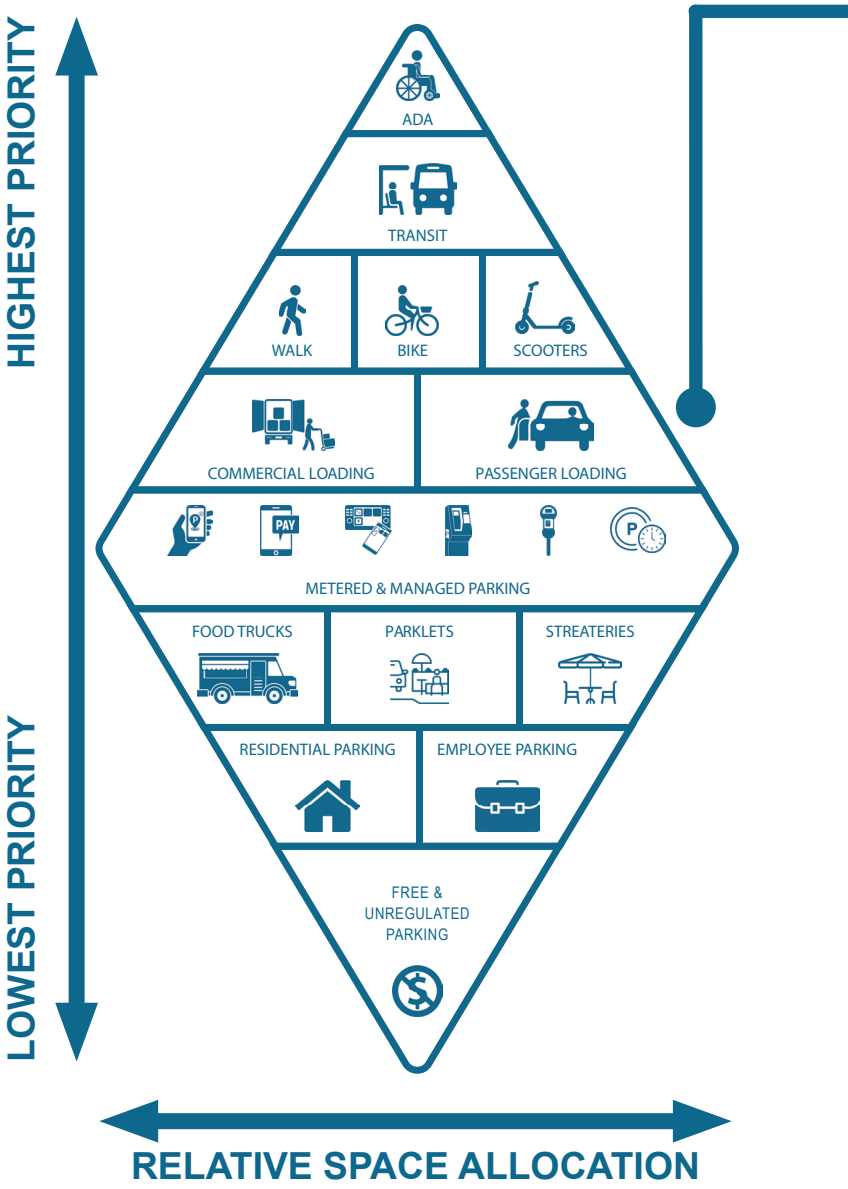
Removing on-street parking for the installation of commercial vehicle loading zones can increase the demand for parking on nearby block-faces and off-street parking facilities. Conversely, adding a loading zone to a block-face can help to decrease loading zone demand on nearby block-faces. Evaluating the trade-offs of removing on-street parking for the addition of loading zones should incorporate a full assessment of parking in the area.

4 Designating Passenger Loading Zones

Passenger loading zones help to increase access for people along a block-face. By incorporating short-term parking locations that allow for the pick-up and drop-off (PUDO) of passengers, cities can help to diversify curb lanes, decrease the likelihood of double-parked vehicles, and support local businesses.

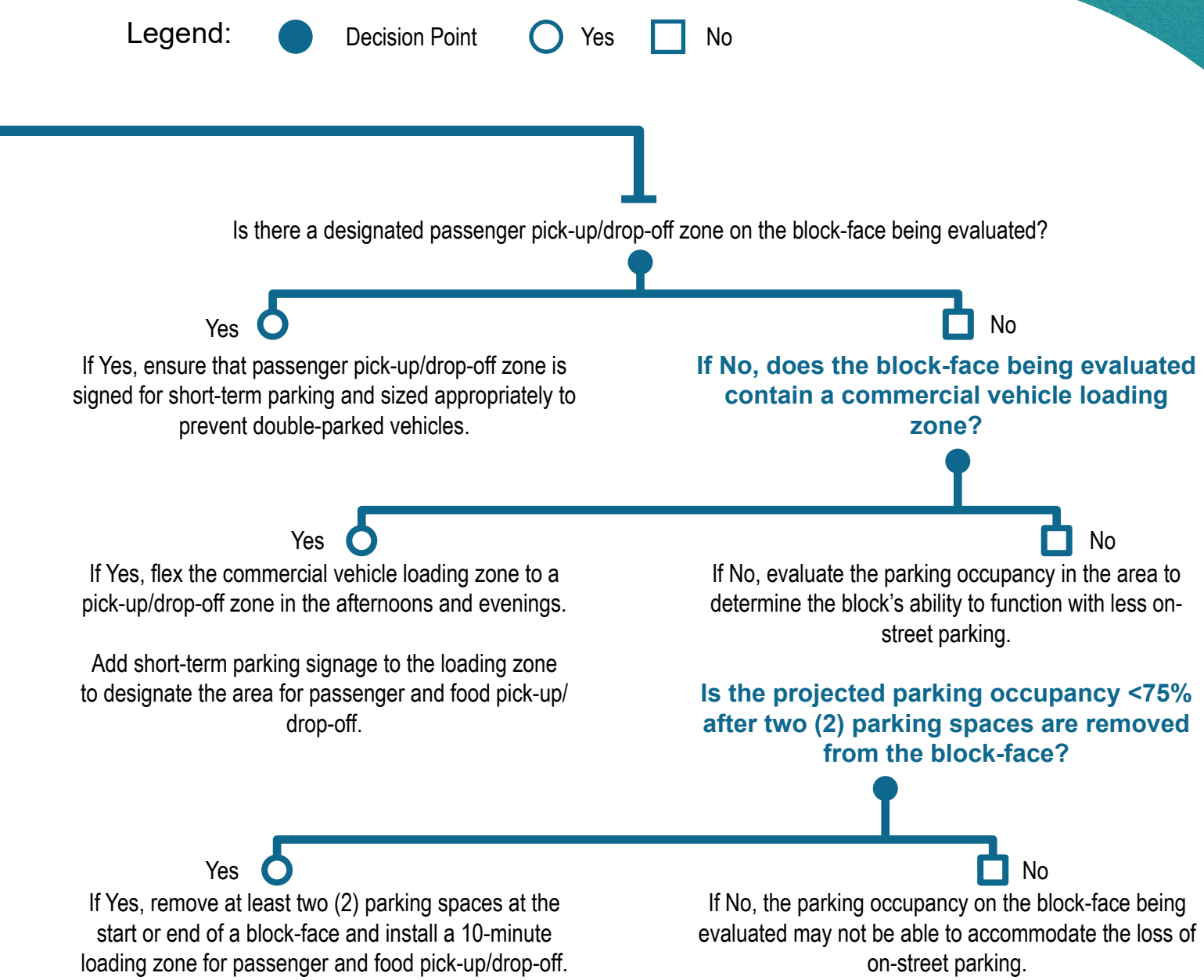
The use of transportation network companies (TNCs) such as Uber and Lyft has increased across the United States. Although TNC ridership decreased severely during the COVID pandemic, the ride share market is projected to increase over the coming years. Additionally, food delivery services such as UberEats, DoorDash, and Grubhub have increased the number of vehicles that need short-term access to curb space.

To increase access for people and access for goods, cities should expand their offering of short-term parking spaces dedicated to pick-up and drop-off. This can be accomplished by designating 10-minute loading zones and flexing commercial vehicle loading zones to short-term loading in the afternoons and evenings.



Key Trade-offs

The installation of a pick-up/drop-off zone typically requires the removal of at least two (2) on-street parking spaces. Although a block-face's on-street parking supply is reduced, adding a pick-up/drop-off zone to a block-face can support economic development by increasing access for people and diversify a business's customer base by facilitating food delivery services.



Key Trade-offs

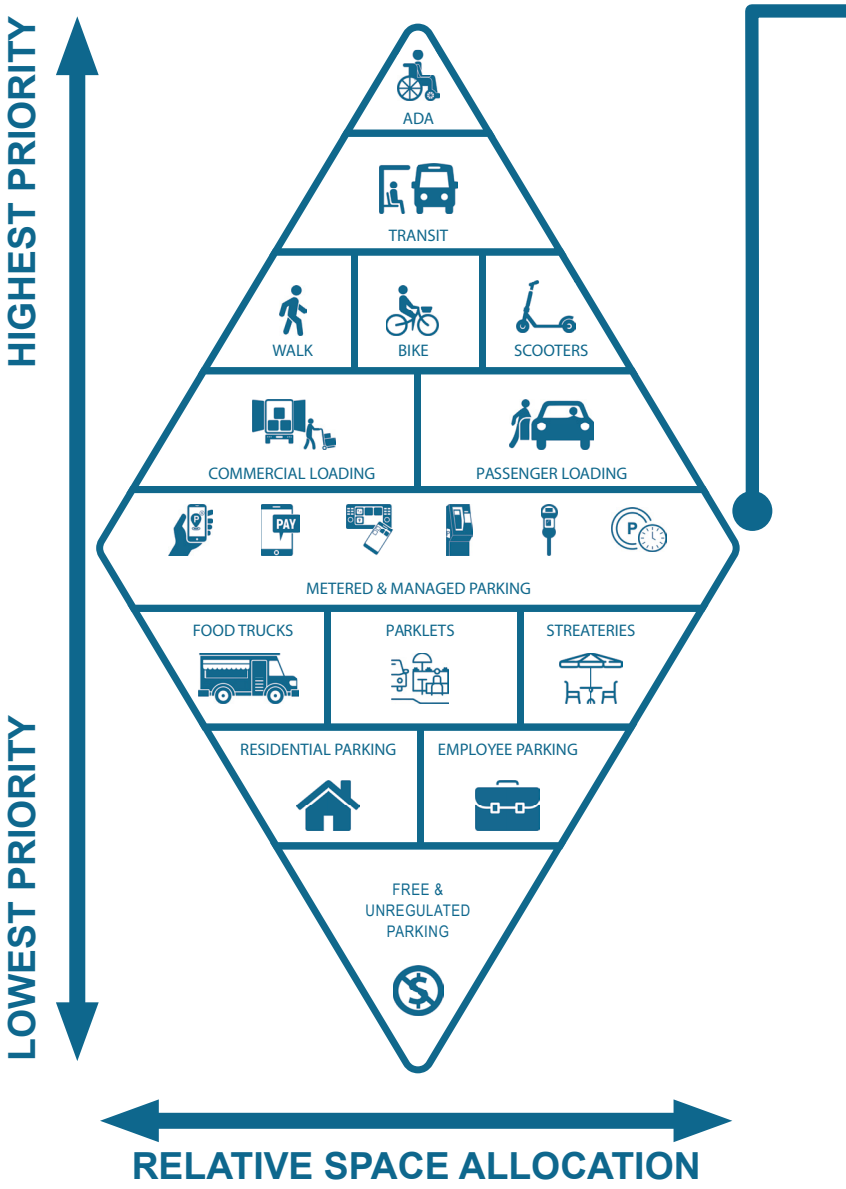
Although pick-up/drop-off zones for passengers and food delivery services can improve access for people and access for goods, designated areas for pick-up/drop-off should be limited to three (3) parking spaces per block-face. This allows safe access to the curb for short-term needs without sacrificing the curb's ability to accommodate parking sessions and access for other curb users.

5 Implementing Metered & Managed Parking

Typically, curb lanes are tasked with meeting the needs of multiple roadway user groups. To enhance the curb's ability to accommodate the diverse needs of pedestrians, cyclists, transit riders, and motorists, it's important to effectively manage the curb. For curb lanes that provide metered or managed on-street parking, a key metric of curb lane efficiency is parking turnover.

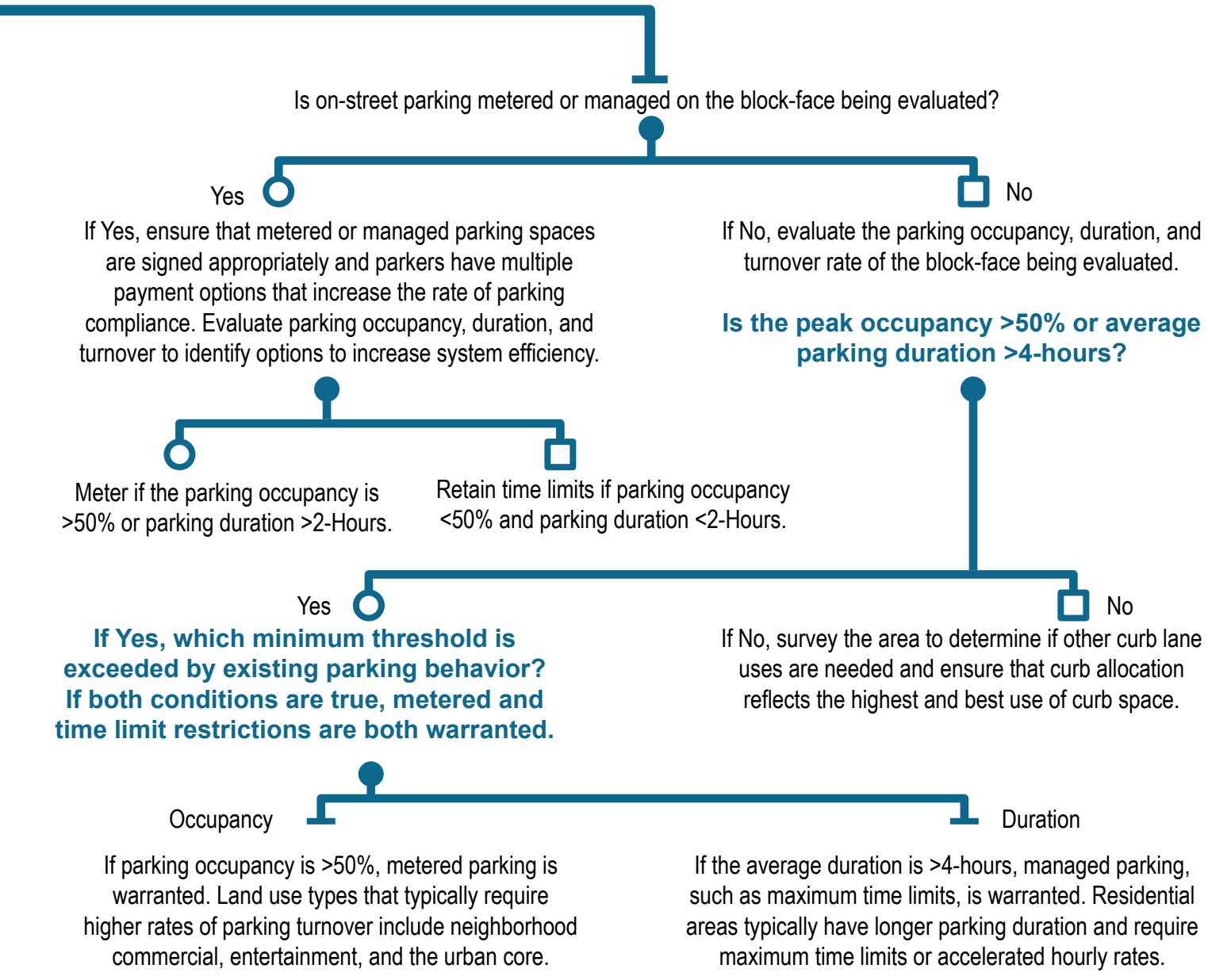
Metered parking places a value for time spent at the curb. On-street parking is a critical resource for supporting retailers and other businesses. It is usually the most convenient parking option for retail customers and employees. This convenience value should translate to a higher price per hour than nearby off-street parking. Metered parking also supports parking turnover by allowing parkers to use on-street parking, track their parking duration, and leave when their session has expired.

Managed parking spaces regulate the time, duration, and user groups that can access on-street parking. This helps to prevent vehicles from using limited curb space for their long-term parking needs.



Key Trade-offs

Converting unregulated on-street parking to metered or managed parking spaces requires additional oversight to ensure the rules and regulations are being followed. Although it requires additional resources by a city, implementing metered or managed parking is a powerful tool that helps to create parking turnover and increase the availability of on-street parking spaces.



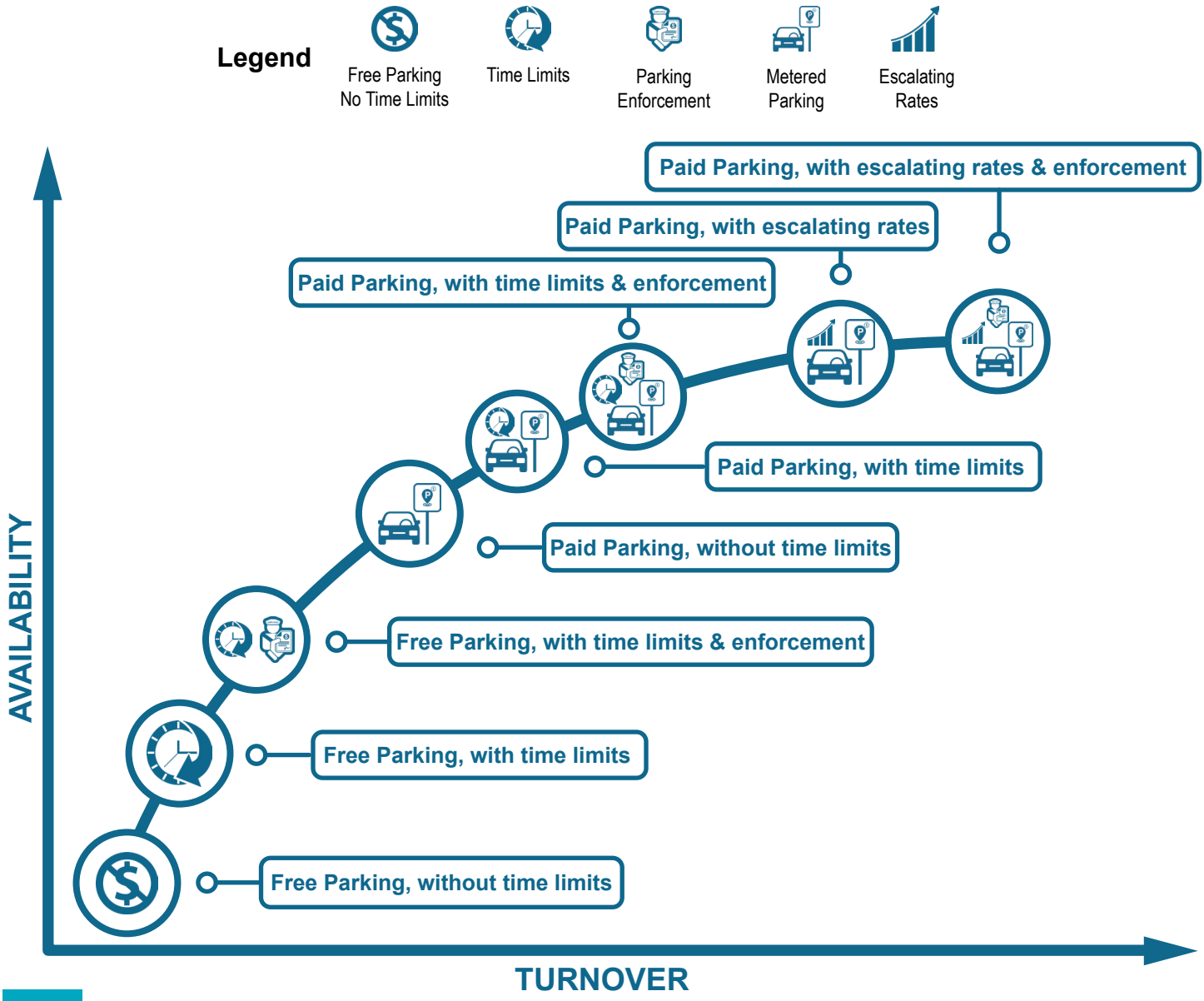
Key Trade-offs

Compared to free or long-term parking, metered and managed parking is typically a higher and better use because it creates parking turnover. The highest and best use of curb space should be determined by the adjacent land uses and the curb's ability to serve the needs of all roadway users. Metered or managed parking should not be treated as a one-size-fits-all solution for curb space allocation.

Figure 6. Metered Parking on University Boulevard in Main Gate Square

On-street Parking Management Strategies

An array of on-street management strategies are detailed below. These management strategies range from free non-time limited parking (lower turnover and availability) to paid parking with escalating rates and enforcement (higher turnover and availability).



A combination of approaches and strategies is necessary to achieve the vision and objectives for parking and access in the City of Tucson. These will vary based on each community/area. The purpose parking enforcement is to ensure compliance with posted restrictions so that access to the curb can be maintained and safety outcomes can be achieved. Generating parking revenue or attempting to ticket every violation are unwise goals for parking enforcement.

FREE PARKING, NO TIME LIMITS

Free, non-time limited parking has the lowest turnover rate.

PAID PARKING, WITH TIME LIMITS

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

FREE PARKING WITH TIME LIMITS

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

PAID PARKING, WITH TIME LIMITS & ENFORCEMENT

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

FREE PARKING WITH TIME LIMITS & ENFORCEMENT

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

PAID PARKING, WITH ESCALATING RATES

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

PAID PARKING, NO TIME LIMITS

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

PAID PARKING, WITH ESCALATING RATES & ENFORCEMENT

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

Table 3. Key Utilization Measures and Ranges

Utilization Measure	Target Ranges
Metered Occupancy	75% - 85%
Non-Compliance Rate*	5% - 7%
Capture Rate**	33% - 40% (in urban core)
Duration	67% - 140% of regulated duration

*Non-compliance rates should not exceed 7% of total parking sessions.

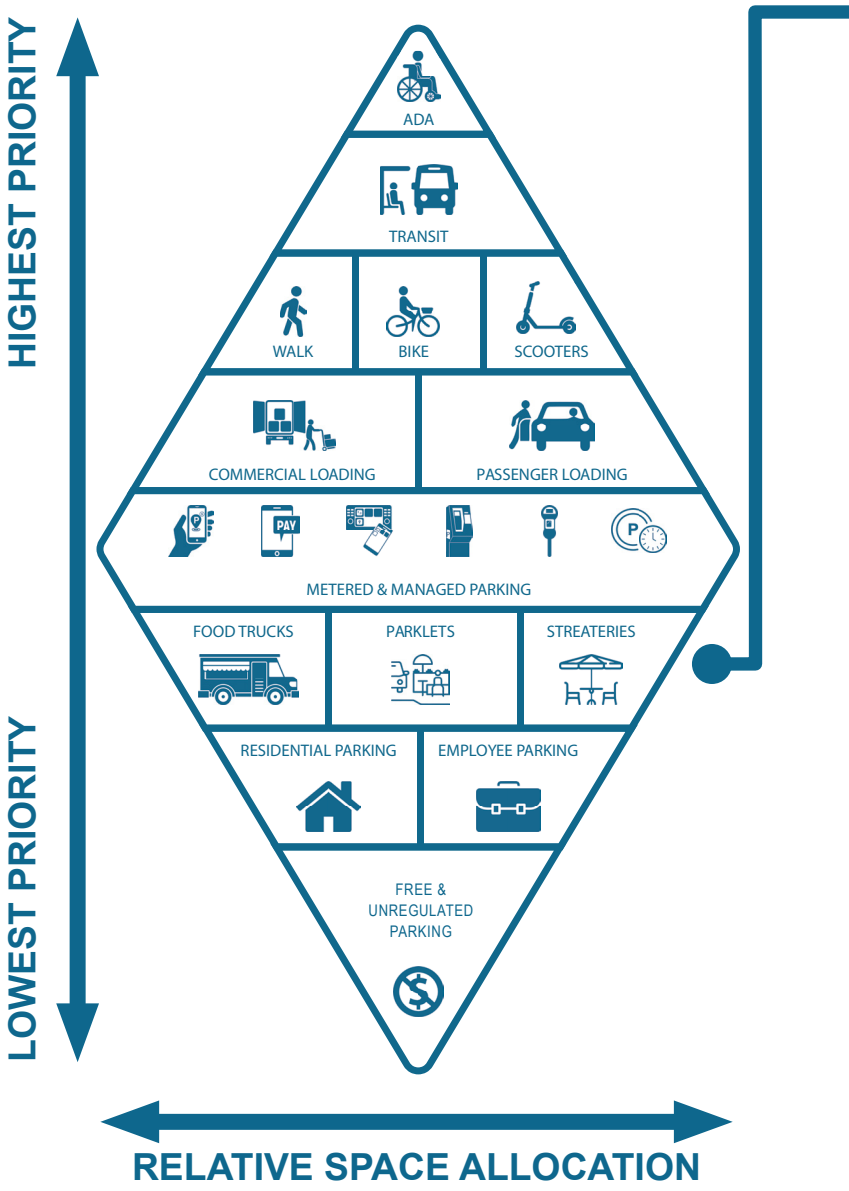
**Percentage of total parking occurrences that use the on-street parking system rather than off-street parking facilities.

6 Public Activation in the Curb Lane

Providing public space and space for activation can increase the overall vibrancy of an area. Curb uses such as food truck parking, parklets, and Streateries allow people to enjoy the public realm, increase the number of eyes on the street to enhance public safety, and support economic vitality.

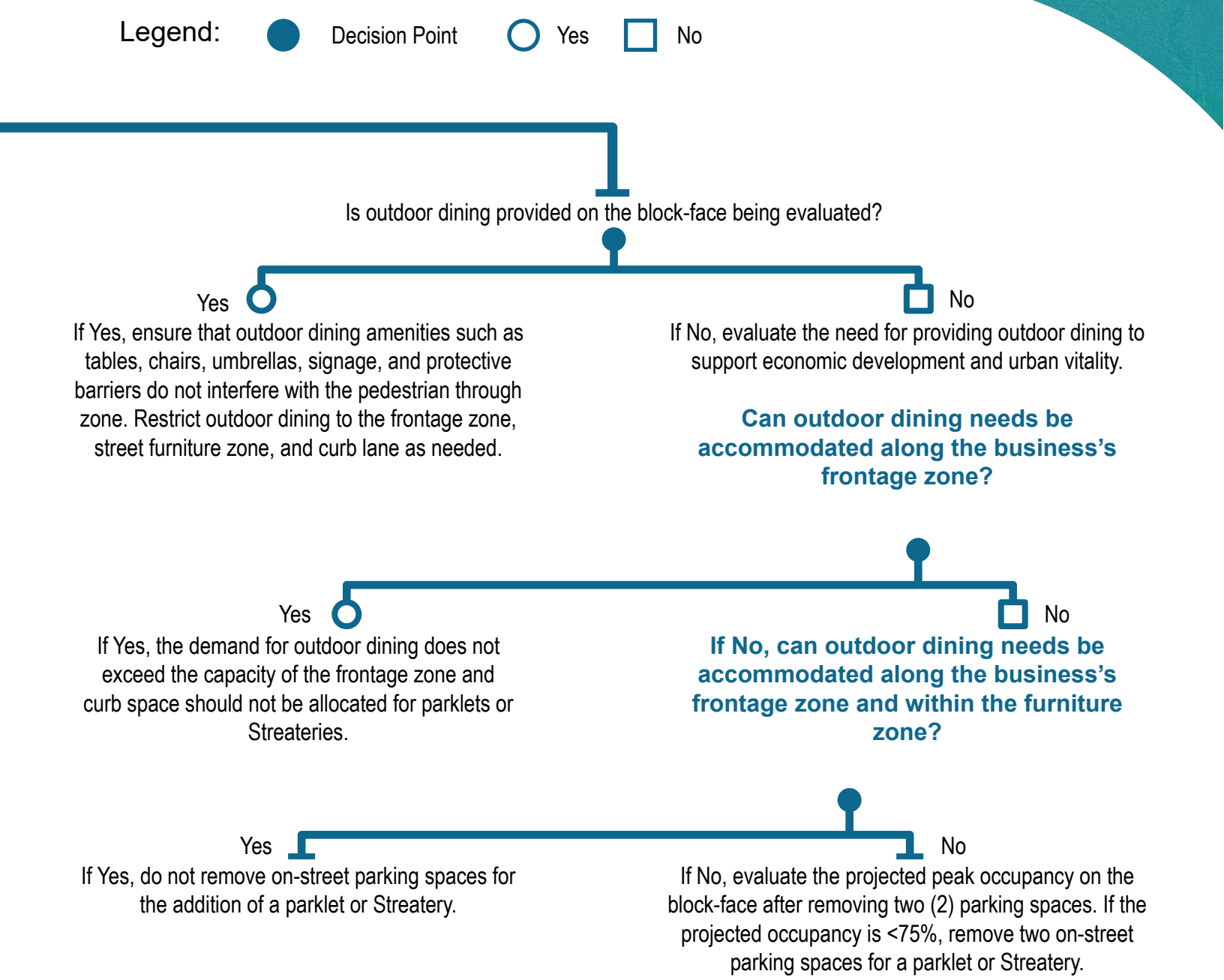
When considering the addition of public space and activation, it's important to understand the difference between space that is available for all users and space that is a quasi-privatization of the public right-of-way. Parklets that are a part of a city-sponsored street activation program provide open access to all users and do not restrict access to customers of a particular business. Whereas, Streateries are typically controlled by businesses that want additional outdoor space for their patrons.

Additionally, the placement of food truck parking spaces, parklets, and Streateries should enhance activation of the places people want to go while maintaining essential roadway functionality, such as the safe movement of pedestrians.



Key Trade-offs

One parklet or Streatery requires the removal of at least two (2) on-street parking spaces. Dedicating curb space for the exclusive use of a business allows a property owner to privatize the public right-of-way at the expense of curb space that serves as a pooled resource for multiple transportation uses.



Key Trade-offs

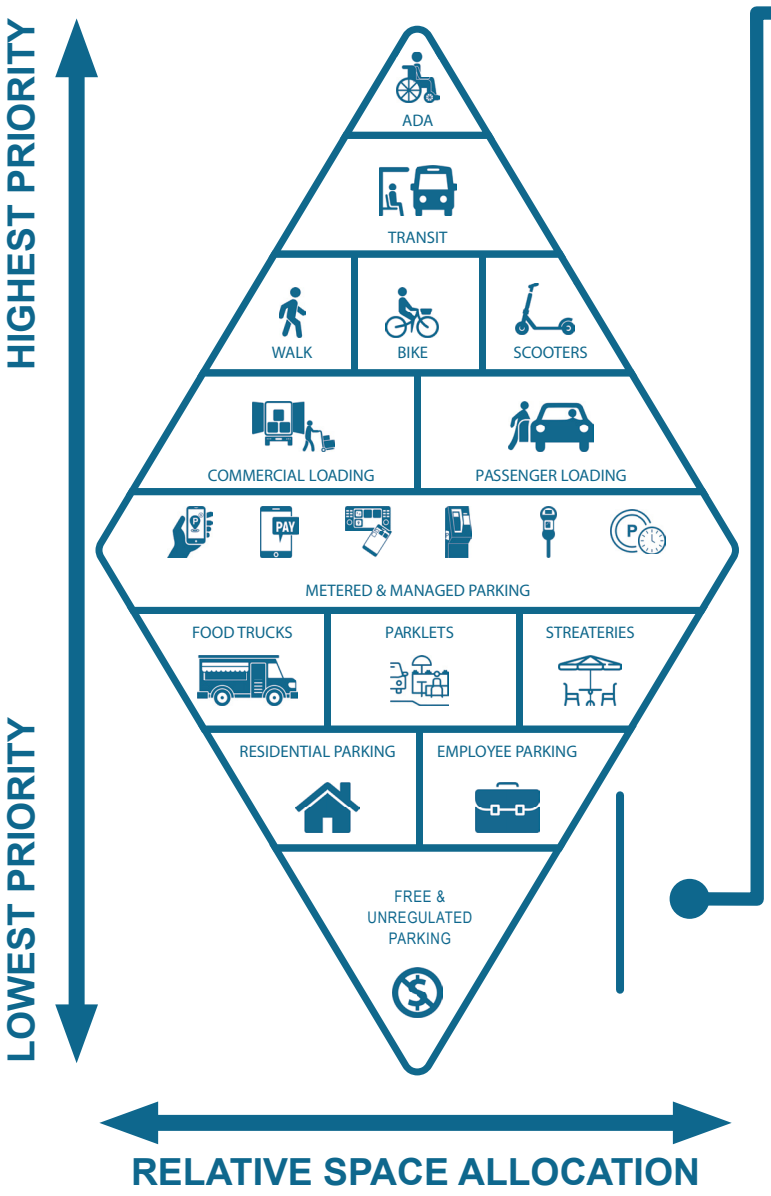
Allocating curb space for food truck parking allows the curb lane to support a local business while maintaining the flexibility to use the curb to meet other needs. Food truck parking should be located in the urban core or in mid- to high-density residential areas that do not have competing restaurants.

7 Allowing Long-term Parking at the Curb

After evaluating the need for short-term curb lane uses and supporting economic development, curb lanes can be used to meet long-term parking demand for residents and employees. In neighborhoods that do not require parking turnover or in areas where non-residential parking diminishes the likelihood that residents will be able to access on-street parking near their home, curb allocation for residential parking may be warranted.

Additionally, in areas near employment centers or transit stations that do not have demand for other curb lane uses, employee permit parking may serve as the highest and best use of curb space during business hours.

Providing free, non-time limited parking is the lowest priority for the curb lane. Cities should ensure that the demand for all other curb lane uses is fully addressed before allocating space for free parking.



Key Trade-offs

Designating areas for long-term parking, such as residential, employee, or free parking decreases the likelihood of parking turnover. These curb uses serve a lower number of vehicles per day.


Legend:
Decision Point
Yes
No
Is long-term parking currently provided on the block-face being evaluated?
Yes
If Yes, survey the adjacent land uses to ensure that block-faces with long-term parking also address their curb lane management needs.
No
If No, assess the adjacent land uses' needs for parking turnover.
Is the block-face's peak parking occupancy <50% and parking durations <4-hours?
Yes
If Yes, evaluate the potential need for residential or employee permit parking by surveying adjacent land uses and assessing future growth.
No
If No, continue to monitor parking occupancy and duration to determine if demand for curb access exceeds the minimum thresholds for a metered/ managed parking system.
Is there growth potential in residential or office land uses nearby?
Yes
If Yes, implement residential or employee permit parking as needed based on future growth.
No
If No, designate the curb as a potential area for non-parking related curb uses such as a bike lane, transit lane, or outdoor activation.

CHAPTER 3: INDUSTRY IMPACT ASSESSMENT


GOODWILL
Retail Store
METRO
DONATIONS
FOAM & FABRIC
PLACE
4TH
AVENUE

Chapter Summary

Modernizing Tucson's curb lane management system can provide additional insight into the needs and behaviors of curb lane users. By understanding key metrics such as parking occupancy, duration, and user groups, Park Tucson can diversify its curb space and measure curb performance against thresholds identified in the Curb Framework. Implementing technology solutions and using parking analytic methodologies can ensure Park Tucson can make data-driven decisions while meeting the needs of its customers.

This chapter highlights the existing technology used in the Park Tucson program and identifies strategies for leveraging Tucson's existing curb lane infrastructure to gain better insight into curb performance. Additionally, this chapter notes additional technology that Park Tucson should explore to plug identified data gaps, enhance curb management for loading and unloading, and provide customers with more control over their parking and curb lane experience.

Tucson Curb Framework Study - Peer City Survey

Sixteen cities participated in the peer survey as part of the Tucson Curb Framework Study. The peer communities include similar geographies, similar sizes, similar program sizes, and aspirational peers. The goal of the exercise was to learn how communities are addressing active and diverse curbside environments and to define best practices for consideration in the Curb Framework study.

Seattle, WA · Bellevue, WA · Portland, OR · Oakland, CA · Los Angeles, CA · Las Vegas, NV · Tempe, AZ · El Paso, TX · Denver, CO · Omaha, NE · Oklahoma City, OK · Houston, TX · Detroit, MI · Columbus, OH · Lexington, KY · Raleigh, NC

ORGANIZATIONAL & OPERATIONS INFORMATION

65%

65% of respondents have implemented a designated curb management program, policy, or practice.

75%

75% of respondents have designated staff dedicated to curb lane management.

75%

75% of respondents operate paid parking and enforcement on weekends

45%

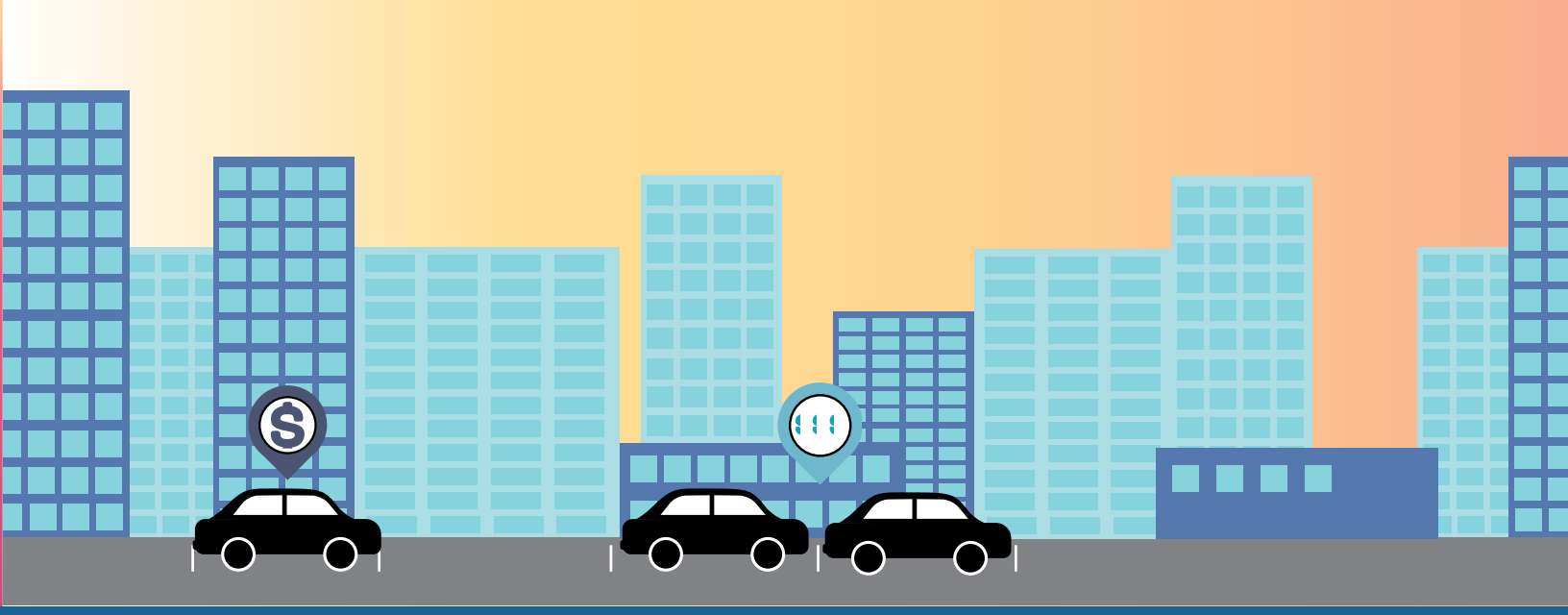
45% of respondents enforce paid parking after 8 pm. Average hours of enforcement are 8 am - 8 pm

75%

75% of respondents set paid parking hours at rates differently based on district-based needs.

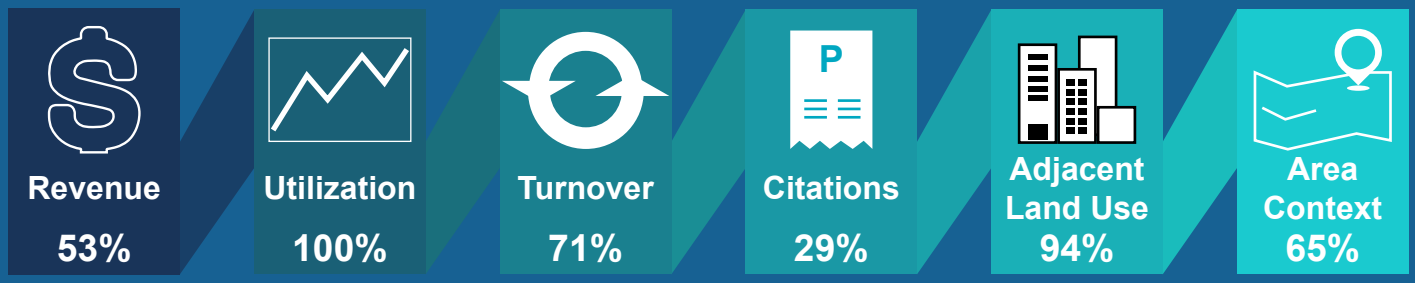
6,500

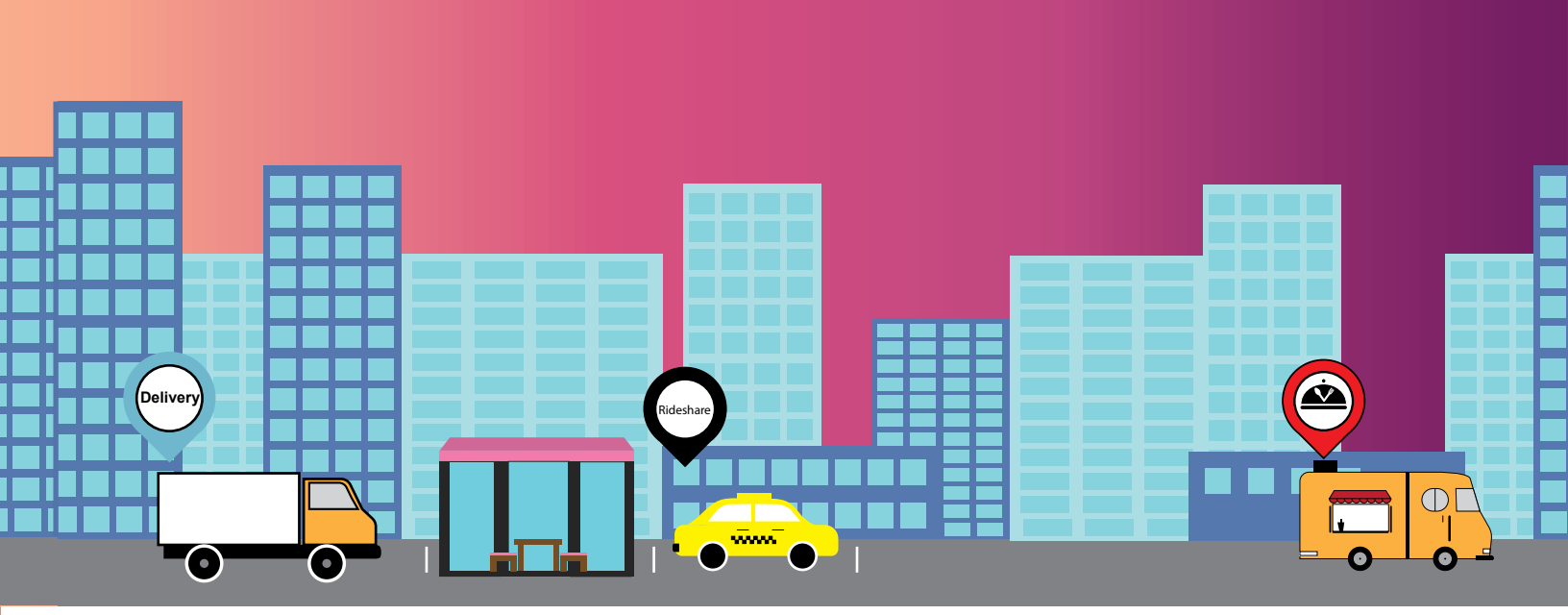
6,500 average number of paid parking spaces (Tucson has 1,600 parking spaces)



Dynamic Payment Programs

Respondents were asked to define which data types were most regularly used to determine the value of a curb space and how to allocate spaces in a context-sensitive manner. The responses are below show a heavy concentration on examining how space is used and who should be using it based on the needs of businesses, residents, and the surrounding community.





Respondents were asked how their community makes decisions about curbside priorities and space allocation. Highlights of the responses include:

Several of the communities are in the process of defining a more formal curbside management plan, complete with data-driven decision making components. These respondents plan to use these planning documents to formalize a more transparent and consistent decision-making process.

Several of the respondents indicated that prioritization functions and curb management functions reside in different departments, muddying the process for decision-making.

For those respondents who already have a plan in place, the criteria defined in those planning documents are used to define decisions and help follow the goals of the program.

Many of the communities take a granular approach to curbside planning, focusing on the needs of the space or block driven by adjacent land use needs.

From Denver, CO: We have a near-term planning process called the, Curbside Access Plan, that we look at areas of the City to determine the needs and make adjustments to on-street policies in a more comprehensive manner.

From Raleigh, NC: We treat each section of curb in Raleigh first as a microenvironment and then within the broader context of our transportation system. So we're looking to match regulations with local needs and then expand out to the surrounding blocks to ensure we're not duplicating uses or causing behavior changes that will adversely effect the broader area.

Considerations for Defining Curb Space

Seven of the survey respondents indicated that they have implemented elements of dynamic payments for their on-street parking system. Many of the respondents have the elements of a demand-driven program, as evidence by district based policies and regulations. These seven respondents have gone a step further and are using demand-responsive tools to drive curb access and user behavior.

Time of Day

70%

Progressive Pricing

30%

Zonal Pricing

60%

Seasonal Pricing

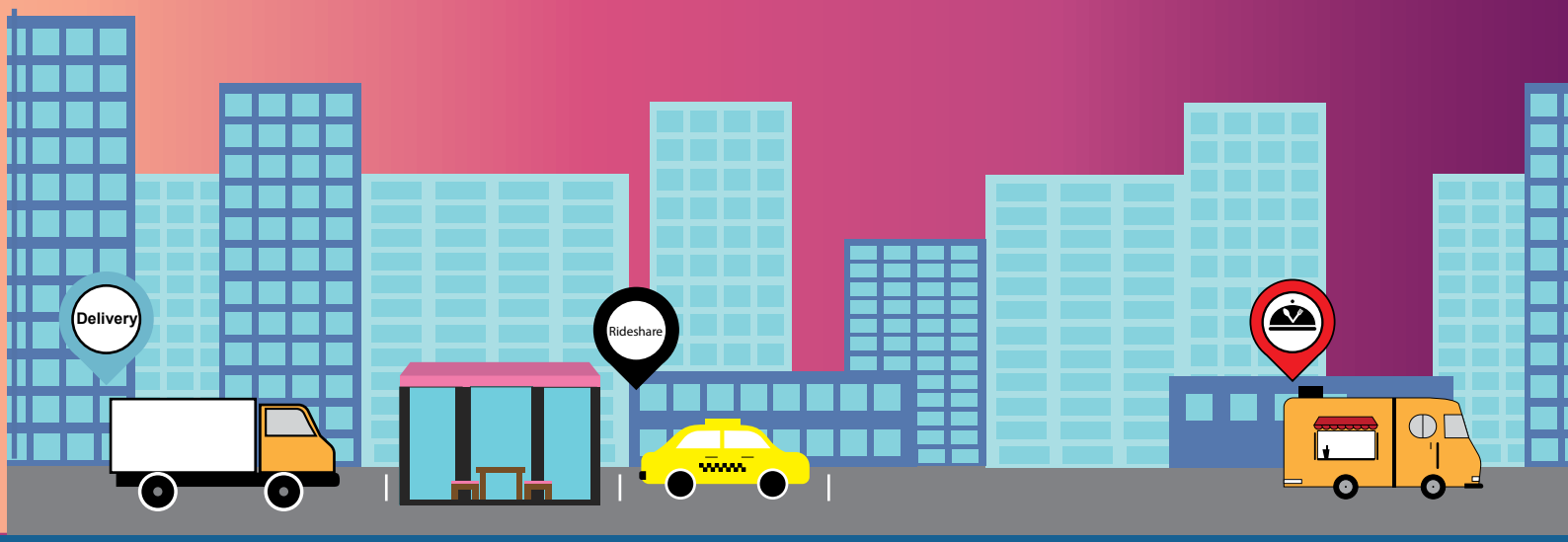
30%

Data Collection For Dynamic Pricing

Managing a dynamic pricing program requires consistent and reliable data to define program and rate changes. Respondents indicated the following types of data:

- Parking occupancy observations
- Parking meter transaction data
- License plate recognition data
- Video and sensor data
- Internally developed parking occupancy models (using all of the above)

Most respondents indicated that data was collected and evaluated monthly, with some collecting real-time data and others evaluating annually. In terms of communicating the results of data collection, the responses were mixed. Some publish regular reports while others simply provide data on request.



Program Elements:

Dynamic pricing programs consistently have governing elements to help define when, how, and at what level to adjust prices.

$4.50

$0.75

Average Floor and Ceiling

The floor and ceiling serve as guideposts for the lowest and highest prices and provide flexibility to adjust based on data.

$2.40

$1.00

Average lowest and highest on-street parking prices (*Tucson is $1*)

$0.50

Adjustment Increment

The adjustment interval defines how much rates can change with each adjustment period.

Adjustment Interval:

Responses varied for the interval for assessing data and implementing new rates, including:

- **Quarterly**
- **Bi-annually**
- **Annually**
- **Every few years**

Typical Curb Lane Elements	 Vehicular Parking	 Commercial Loading	 Passenger Loading	 Restaurant Pick-Up	
Which current elements are found within your current curb management structure?	**100%**	**94%**	**94%**	**69%**	
How would you rank each use based on the current space allocated to it?	**1st**	**2nd**	**5th**	**6th**	
Do you charge for each curb use? If so, how is it structured?	Pay per use	Free, with a few using permit or pay per use	Free	Free, with some using pay per use	
Do you actively collect data related to each curb use? If so, what are the predominate tools you use?	Meter data, LPR data and/ or real use data	Real use data	Real use data	None	
Do you communicate curb changes for various uses? If so, what are the predominate tools you use?	Web, news, social medial, or outreach	Web or none	None	Temporary Signs	

	Package/ Meal Delivery	Micromobility Area	Streatery	Parklet	Non-vehicular Travel Area	Transit Lanes/ Loading
	19%	**50%**	**81%**	**63%**	**100%**	**100%**
	8th	**10th**	**7th**	**9th**	**4th**	**3rd**
	Free, with some using pay per use	Free, with a few using a permit	**Permit**	**Permit**	**Free**	Free
	None	None	None	None	None	None
	None	Web or social media	Web	None	Web	Web

Do you charge for each curb use? If so, how is it structured?

Types of Uses / Categories	Vehicular Parking	Commercial Loading	Passenger Loading	Restaurant Pick-Up	Package/ Meal Delivery	Micro-Mobility Area	Streatery	Parklet	Non-Vehicular Travel Area	Transit Lanes/ Loading
Free	25%	80%	94%	79%	75%	57%	13%	14%	93%	87%
Permit	31%	20%	0%	7%	8%	36%	87%	86%	13%	20%
Pay per Use	94%	20%	19%	29%	33%	14%	7%	7%	0%	0%

Several of the respondents are beginning to implement pay-per-use options beyond the traditional parking space, including:

- Seattle is beginning to use mobile payment (in addition to permits) to manage commercial loading spaces
- Houston uses parking meters (in addition to permits) to manage commercial loading
- Omaha is using Automotus to begin to manage commercial and passenger loading, as well as restaurant pick-up and meal delivery

Do you actively collect data related to each curb use?

Types of Uses / Categories	Vehicular Parking	Commercial Loading	Passenger Loading	Restaurant Pick-Up	Package/ Meal Delivery	Micro-Mobility Area	Streatery	Parklet	Non-Vehicular Travel Area	Transit Lanes/ Loading
None	0%	27%	31%	50%	50%	50%	67%	71%	53%	47%
Manual	56%	53%	44%	36%	29%	29%	33%	36%	33%	33%
Meter Data	94%	0%	0%	7%	7%	29%	0%	0%	0%	7%
Sensors	13%	7%	13%	0%	0%	0%	0%	0%	7%	0%
Cameras	13%	13%	19%	14%	14%	7%	0%	0%	13%	20%
LPR	44%	13%	19%	7%	7%	0%	0%	0%	7%	0%
AI	0%	13%	13%	7%	7%	14%	0%	0%	13%	13%

Do you communicate curb changes for various uses?

Types of Uses / Categories	Vehicular Parking	Commercial Loading	Passenger Loading	Restaurant Pick-Up	Package/ Meal Delivery	Micro-Mobility Area	Streatery	Parklet	Non-Vehicular Travel Area	Transit Lanes/ Loading
None	0%	50%	47%	40%	71%	46%	44%	62%	38%	47%
Temp Signs	38%	29%	33%	47%	29%	15%	13%	8%	25%	27%
Website	88%	36%	27%	47%	14%	46%	50%	38%	56%	47%
Social Media	69%	14%	27%	40%	14%	46%	38%	23%	44%	40%
Annual Report	50%	7%	0%	0%	0%	0%	6%	0%	0%	0%
News Media	56%	7%	13%	33%	7%	15%	31%	15%	38%	33%
Community Outreach	63%	21%	20%	33%	14%	15%	38%	15%	44%	33%

Key Takeaways

Based on this study process, the following key takeaways should be considered as the approach to managing the City of Tucson's curbside environment:

Most respondents are using some form of data-driven analytics to set prices, enforcement hours, and operations based on the needs of distinct districts.

Pricing and operational hours are determined from demand and used as a tool to balance curbside parking and support turnover based on the needs of the adjacent districts.

Many of the programs are using dynamic pricing to better manage curbside parking at different times of day.

Parking continues to be the number one use consistently, but other uses like loading and delivery are quickly gaining more space along the curb.

Many of the programs are beginning to look for ways to monetize these expanding uses.

Data collection and analytics vary from community to community, but most are investing in these tools to better support program needs.

Peer Expert Panel

Following the completion of the peer survey, the consultant team facilitated a peer expert panel with a smaller subset of the peer survey group. That smaller subset included:

- **Mary Catherine Snyder, Curbside Policy Lead Seattle Department of Transportation (Seattle, WA)**
- **Hannah R. Adeponu, CAPP, Assistant Parking and Mobility Manager, Park Omaha (Omaha, NE)**
- **Colleen Mossor, Parking Operations, Portland Bureau of Transportation (Portland, OR)**
- **Robert Ferrin, CAPP, Kimley-Horn Parking & Mobility Practice Lead (formerly of Park Columbus, Columbus, OH)**

This group was selected for their similarity in scope and scale as well as their recent and ongoing innovations in curbside management. The panel process was conducted with City of Tucson staff from various departments with an interest in the curbside decision-making process. Some key lessons learned included:

1

Data collection and evaluation at the curbside takes many forms

Columbus, OH	Seattle, WA	Portland, OR
Columbus uses a combination of traditional data resources (meter and mobile pay transactions) with some limited data collection technology (sensors)	Seattle uses a combination of manual data collection and a community-specific parking activity model (calibrated to the manual data) to help predict curbside and pricing changes	Portland uses a combination of manual data collection and is slowly transitioning to the use of parking transaction data
Omaha, NE	**All Respondents**	**Future Needs**
Omaha is trying to compile dashboards that include transaction/ occupancy data with citations, turnover, and commercial activity data	All respondents indicated that having a well-developed inventory of curbside uses is critical to successful management	Many of the respondents were beginning to look to adjacent land use patterns as a means of defining particular curb use needs, including a deeper understanding of delivery times and needs

2

Communicating curb decisions (both internal and external) requires transparency and thoughtful messaging

Each stakeholder, whether a business or a colleague in the City staff, has a vested interest in the curb lane decision process

Using well designed community engagement to evaluate curb space needs provides a much more balanced decision process

Developing push notifications through technology investments helps to alert curbside users of issues and changes

Giving yourself flexibility in the legislative authority (rates, hours, policies) will help to make the adaptation process more streamlined

Creating targeted interactions between City departments helps to reduce confusion and guess work in the decision-making process

3

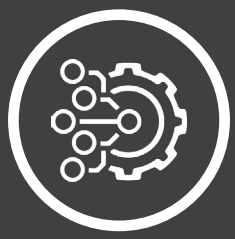
Technology investments vary by community, with the main takeaway that the investment needs to meet the purpose of the program

Use Pilots

Omaha has taken a robust approach to testing technologies through pilots and limited engagement testing

Share Data

Creation of shared databases that help define existing and proposed curb use can streamline discussions between departments



Go Asset-Lite

Seattle and Columbus have both looked at a more tech-lite and asset-lite approach that minimizes collection technology, meters, and clutter at the curb

Gather Data

Portland is using micro-mobility data reporting, license plate recognition trends analyses, and transactions to build out a dataset for decision making purposes

4

The curbside decision process requires both proactive and reactive planning with the changing curbside environment

Prioritize

Each community defined a prioritization process that was rooted in the needs of the adjacent businesses and community districts

Align

The curb prioritization and decision-making process needs to be consistent with the goals of the community and the definition of what type of city we want to be

Consolidate

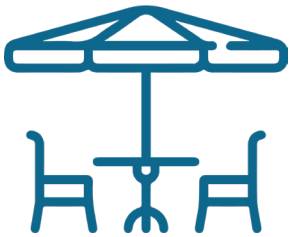
A balanced combination of data analysis and human interaction has the highest ability to define realistic curbside structure

Evaluate

Measuring and communicating trade-offs clearly helps to inform some of the tougher decisions

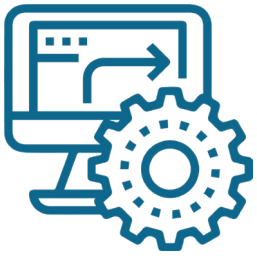
5

Pandemic era policies are slowly being phased out in most locations



Re-evaluate Outdoor Dining

While restaurant and food delivery pick-up/drop-off zones are here to stay, the widespread implementation of outdoor dining is starting to be re-evaluated

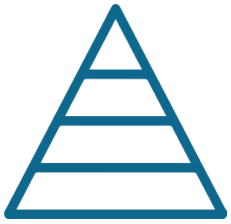


Define Metrics

Clearly defining data-based metrics for decision making helps to convey the reality of losing curbside space for non-prioritized uses

Move to Pay-per-Use Model

In any case, moving to a paid use model for curbside activities is becoming more prevalent the further we get from the heights of the pandemic



Prioritize Curb Space

Thoughtful consideration needs to be given to the privatization of curbside space for increased business use

Technology Review

System Overview

Park Tucson's parking and curb lane technology infrastructure consists of a mixture of technology solutions. The on-street parking system primarily uses single-space IPS M5 meters which accept coins, credit cards, and smart cards with stored value. Additionally, Park Tucson offers payment through the GoTucson Parking app and QR codes powered by Passport and uses one (1) multi-space IPS meter within the on-street parking system. Park Tucson uses Gtechna hardware and software solutions for parking enforcement. Additionally, Park Tucson uses Passport OpsMan, IPS Data Management System, and Gtechna Officer Command Center as its back-office management platforms. Lastly, Park Tucson uses Populus for micro-mobility management.

SYSTEM TECHNOLOGY SNAPSHOT:

1,600+

SINGLE SPACE METERS

Park Tucson's on-street meter infrastructure

20%

MOBILE APP USAGE

Payment through single-space meters is the preferred payment method, with only 20% of transactions occurring through the GoTucson app.

4G CONVERSION

Park Tucson is actively converting all single space meter infrastructure to the 4G network, with projected completion this year.

CONTACTLESS PAYMENTS

The GoTucson Parking app and associated QR codes are Tucson's only form of contactless payments for the curb.
Text-2-Pay will be implemented in the next year.
Tap-2-Pay is not a part of Tucson's system.

Finding the Right Tech Tool

Implemented technology solutions should serve a purpose and meet an essential need. Key technology needs include:

DATA COLLECTION

Technology used to monitor parking and curb behavior and collect key data points such as occupancy, duration, and user group.

Data Collection Sources

Parking Meters
LPR Cameras
In- or Above-Ground Sensors
Video Camera Sensors
Transactions
Open APIs/Live Data Feeds

DATA ANALYSIS

Data analysis should be conducted through an integrated back-office platform that automatically evaluates data from digital data collection sources.

Data Analysis Platform Examples

Conduent Merge
Flowbird
Passport

REPORTING

Data visualization software can help to streamline the decision making process and provide insights into user behavior.

Data Visualization Examples

PowerBI
Tableau

EXPERIENCE

Enhancing the customer experience through technology is a key characteristic of a modern curb lane system.

Customer Experience Tools

Mobile App Payments
Text-2-Pay
Occupancy Signage
Variable Messaging
Pre-Booking/Reserved Parking

EFFICIENCY

Technology can be leveraged to increase operational efficiency, automate enforcement, and optimize curb utilization.

Efficiency Tools

LPR Cameras
Video Camera Sensors
Multi-space Meters
Mobile App Payments
Pay-by-Plate Systems

ACCURACY

Having accurate data and using technology to improve the accuracy of enforcement helps to improve awareness of user behavior at the curb.

Accuracy Tools

Pay-by-Plate Systems
Mobile App Payments
LPR Cameras
Automated Analytics

Curb Lane Technology

As the City of Tucson continues to modernize its parking and curb lane management system, it's important to ensure that the city is getting the most of the technology they use. Curb lane technology can vary, and having the right tool for the job will help to create a smart curb lane environment that operates efficiently. Additionally, technology can be used to improve our understanding of user behavior and assist the city in creating data-driven decision making process.

There are many forms of curb lane technology that have different levels of capital or operational costs. To get the most out of their curb space, a city should have a comprehensive understanding of three key metrics: parking occupancy, parking duration, and user identification.

PARKING OCCUPANCY

Measures the utilization rate of a curb lane. Occupancy compares the use of the curb over a certain time period to the number of on-street parking spaces provided in an area. This metric provides a snapshot of demand for the curb and helps to understand how curb space should be prioritized.

PARKING DURATION

Measures the length of a parking session or loading occurrence. Duration tracks the time spent at the curb and is a key attribute for determining parking turnover rates.

USER IDENTIFICATION

Determines the various user groups at the curb. This can be accomplished by using technology such as license plate recognition cameras, mobile applications, or video analytics.

Measuring Curb Activity

To measure curb activity with respect to parking occupancy, duration, and user identification, there are different strategies a city can use. These strategies are manual observations, sensor technology, or data analytics.

MANUAL OBSERVATIONS

Manual observations require a city to conduct an in-person evaluation of curb lane activity. This is conducted on a block-by-block level and the information gathered is limited to the observations of the person reviewing the block-face.

BENEFITS

- Flexible data collection strategy
- Ability to gather information in a context-sensitive manner
- Qualitative data collection
- Ability to provide detailed parking occupancy information

DRAWBACKS

- Little standardization, which can result in inaccurate information
- Difficult to evaluate across multiple block-faces because of lack of standardization
- In-person curb lane evaluation is difficult to scale to larger areas
- Area of observation is limited by the number of people available to conduct observations
- Calculating parking durations or user identification is limited to the ability of the observer
- High operations/personnel costs limit the ability of in-person observations to cover a large study area

SENSOR TECHNOLOGY

Sensor technology, such as in-ground, meter mounted, or pole mounted sensors, can provide detailed curb utilization information. Sensors are able to detect the presence of vehicles at the curb lane. In-ground and meter mounted sensors detect vehicles on a space-by-space level whereas pole mounted sensors such as cameras can detect curb lane activity across multiple spaces. Camera sensors equipped with video analytic software and license plate recognition technology are capable of identifying users if they are integrated with information from the department of motor vehicles.

BENEFITS	DRAWBACKS
⊕ Can provide accurate information on parking occupancy and duration	⊖ Limited to block-faces where sensor technology is installed
⊕ Low overhead costs once sensors are installed	⊖ Installation process is expensive, disturbs traffic and results in road closures
	⊖ Can sometimes have ineffective readings that result in unreliable data and lost revenue

DATA ANALYTICS

Data analytics leverages information for multiple technology sources and infrastructure to put together a picture of curb activity. The analytics process typically ingests information that tracts parking transactions rather than the presence of a vehicle at the curb. Transaction data can be sourced from smart meter technology and mobile app payments to identify the start of a parking session. Transaction data also allows a city to estimate the duration by the amount of time paid in a given transaction.

BENEFITS	DRAWBACKS
⊕ Provides a comprehensive assessment of paid parking behavior	⊖ Limited to parking behavior that is tracked through transaction data or capture through LPR cameras
⊕ Has a lower cost than manual observations and sensor technology	⊖ Requires coding and data analytics expertise
⊕ Analysis routines can be updated to provide new queries of parking data	⊖ Large data sets can be difficult to visualize or identify trends in parking behavior

TRANSACTION DATA

Using transaction data as the sole source of data analytics is limited in its ability to tell the full story of curb lane behavior.

1. Transaction data is limited to paid parking and loading areas. If payment is not required, then transaction data is not a feasible source of curb activity.

2. Transaction data is limited to the people who comply to parking and loading zone payment regulations. People who are non-compliant with curb regulations cannot be tracked using transaction data and therefore are missing from data analytics.

3. Transaction data is limited to the hours of operation for a curb lane. Activity that occurs outside of the paid hours of operation are not tracked by this data source and therefore provide limited insights into curb behavior.

LPR TECHNOLOGY

To supplement transaction data, cities can use automated license plate recognition (LPR) technology. This data source uses cameras that can read a license plate and digitize the plate number to a unique identifier. As the LPR equipment captures a license plate, it associates a geo-tag (latitude and longitude) with the license plate and checks the license plate against a database of authorized users.

Handheld LPR

LPR is conducted on a handheld device. Primarily used for enforcement purposes to assist enforcement officers with entering license plate data.

Fixed LPR

A camera is installed on a (semi) permanent location that tracks vehicles as they drive by. Pole mounted camera sensors are a form of fixed LPR that is used in the curb environment.

Mobile LPR

Cameras are affixed to a moving vehicle and captures license plate information along a parking enforcement route. Using Mobile LPR is a standard practice for parking enforcement across the county and is also used by law enforcement agencies.

As curb technology continues to evolve, it's important to ensure that the information gathered at the curb can be used to shape user behavior and improve curb lane efficiency. This requires clear communication of curb lane activity across multiple platforms. To facilitate the exchange of curb lane information the Open Mobility Foundation has established curb data standards. The Curb Data Standards (CDS) version 1.0 provides a uniformed lexicon of curb data variables to streamline the data integration process and ensure variables have the same meaning across various data streams. Based on CDS there are application programing interfaces (APIs) that cities should leverage to communicate curb activity with users:

Curb APIs

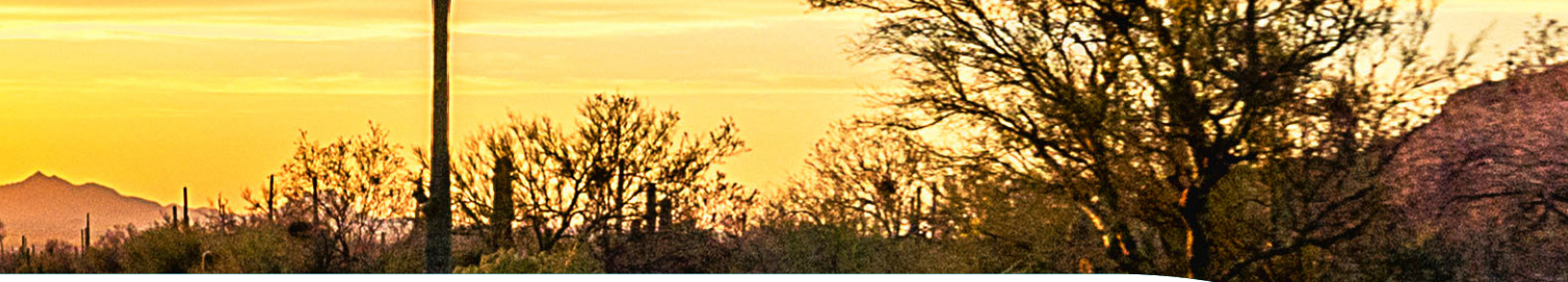
A standard way for cities to digitally publish curb locations and regulations, which can be shared with the public and with companies using curb space. It defines curb policies, curb zones, parking spaces in zones, and areas around curbs, and is used by Events and Metrics.

Event APIs

A standard way to transmit real-time and historic commercial events happening at the curb to cities. Event data can be derived from company data feeds, on-street sensors, session payments, company check-ins, in-person parking personnel, and/or other city data sources. Connected to Curbs and used by Metrics.

Metrics APIs

Track curb usage session details and define common calculation methodologies to measure historic dwell time, occupancy, usage and other aggregated statistics.



To align with CDS and provide critical information to help shape curb behavior, cities should utilize software and hardware solutions as a part of their technology suite. Technology solutions that align with these three APIs are detailed below.

STEPS TO CREATE CURB APIs

1. Conduct a comprehensive inventory of curb space allocation with details on the rules and regulations that govern curb lane restrictions and access. At a minimum, this inventory should collect information on the latitude and longitude of curb zones. Additional details on the curb space, area, and policies associated with the curb zone should also be collected.

2. Ensure variables used in the data collection process align with CDS variable names. Variable names for Curbs API can be accessed here.

3. Develop a digital map of curb zones and regulations using a GIS-based platform. This can be accomplished by using platforms such as ESRI ArcPro, Pebble (formerly Coord), Populus, etcetera.

4. Incorporate Curbs API query language into the mapping digital platform to allow curb data to be shared with Events and Metrics APIs.

Reference: https://www.openmobilityfoundation.org/announcing-curb-data-specification-version-1-0/

Mapping the curb and conveying the rules and regulations that govern curb use is only the first step in creating a connected curb environment. Tracking curb activity is essential to understanding how curbs are used and which user groups are served.

STEPS TO CREATE EVENT APIs

1. Ensure Curbs API is made available to Events API by working with a technology vendor. The Events API should have access to all curb zones, spaces, areas, and policies included in the Curbs API.

2. Coordinate with technology providers to ensure that their back-office system uses CDS variables and queries. Curb Data Standard source types are detailed on the next page.

3. Track curb activity by monitoring the following data objects: curb event, event type, source type, vehicle type, propulsion type, event purpose, lane type, and curb occupants.

4. Ensure Events data gets pushed to Metrics API for further analysis.

Reference: https://www.openmobilityfoundation.org/announcing-curb-data-specification-version-1-0/

CDS SOURCE TYPES

SOURCE TYPE	VARIABLE NAME	DESCRIPTION
Data Feed	data_feed	Directly from a provider data feed sent to the agency
Camera	camera	Video or static image processing source
Above Ground Sensor	above_ground	Sensor deployed above ground
In Ground Sensor	in_ground	Sensor deployed in the ground
Meter	meter	A smart parking meter
Payment	payment	From payment system or app
In Person	in_person	An individual or site recording the event digitally or otherwise
Other	other	Sources not enumerated above

STEPS TO CREATE METRIC APIs

1. Define the desired analysis to be performed in the Metrics API for a given session. Based on CDS, a session is information about an activity that occurs near, at, or within a pre-defined curb area. Sessions is a subset of items from the Events API.

2. Determine the sample data set needed to develop metrics related to curb behavior and identify the sources of data within your curb environment.

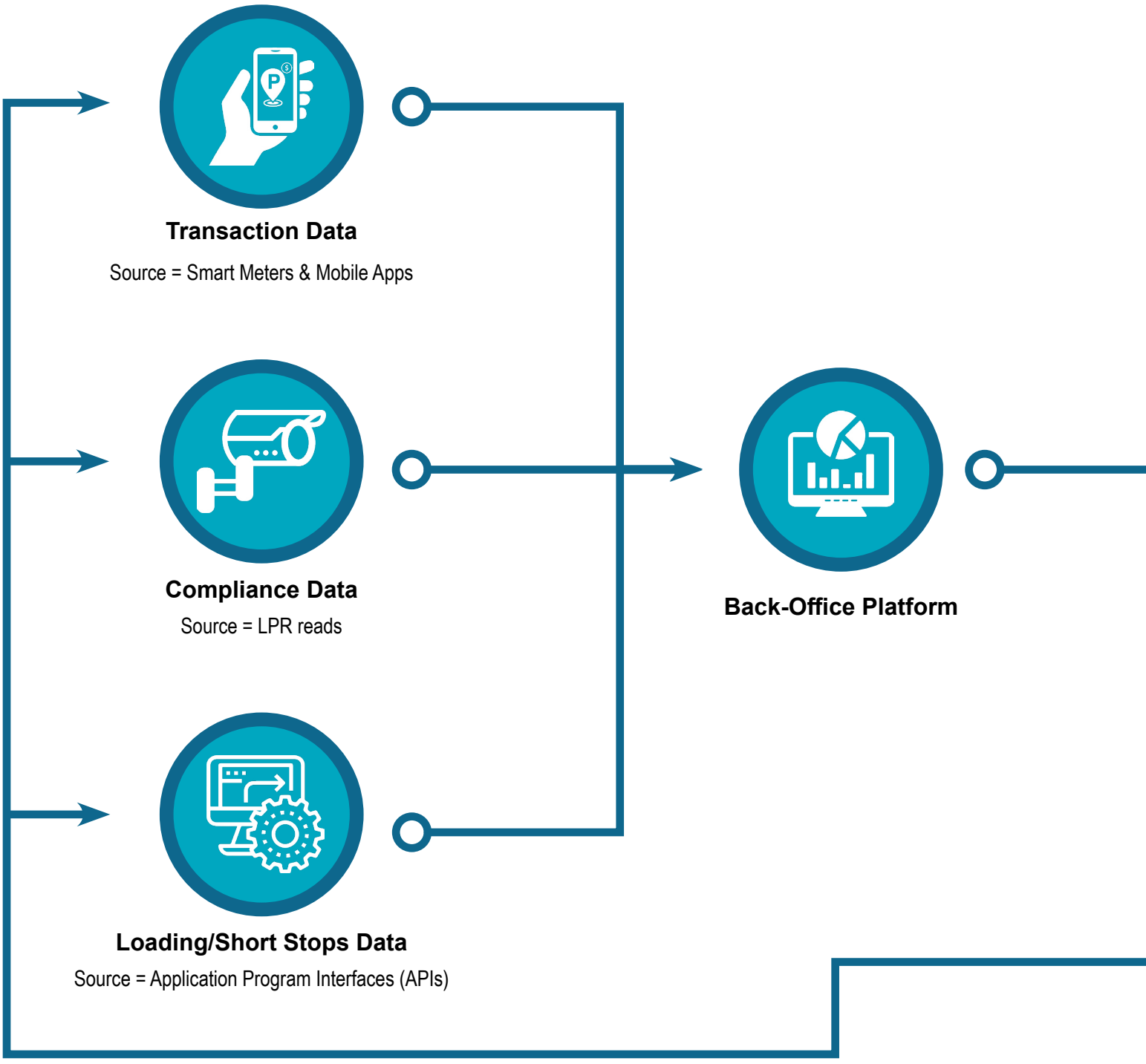
3. Evaluate the quality of data from your Events API and refine data to ensure that information from various sources can be cross-comparable and combined to provide a better picture of curb activity.

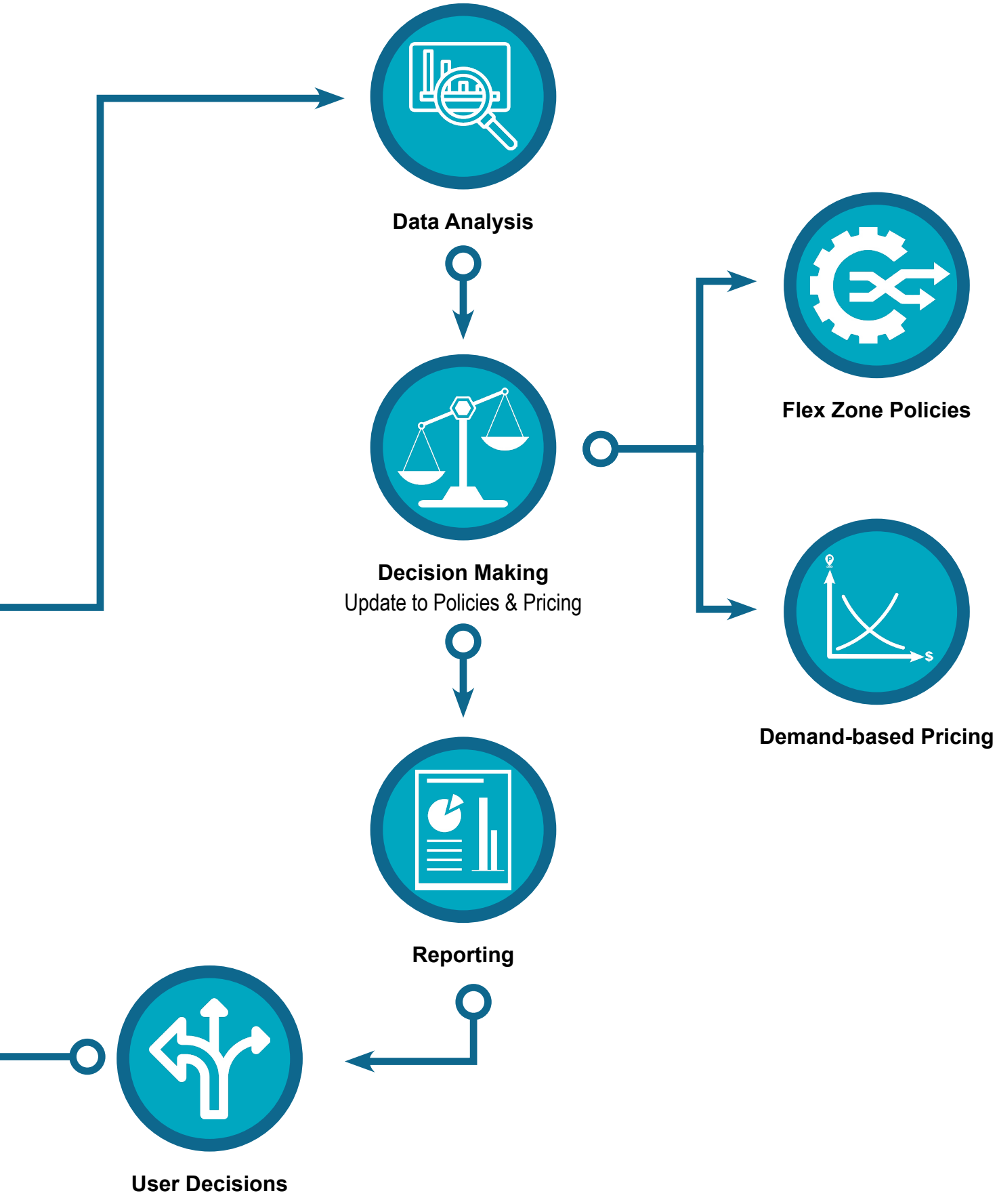
4. Structure metrics into a reporting system to develop reports that can be used to make policy and operational decisions and inform customers of the curb lane ecosystem.


PAY WITH THE APP
ZONE
5201
SPACE
167
2 HOUR TIME LIMIT PARKING
ENFORCED
8 AM
TO
5 PM
MON - FRI
PAY WITH THE APP
ZONE
5201
STOP
ALL WAY
ONLY

Flow of Information

Leveraging data to make policy decisions and shape user behavior can help to enhance curb lane operations while ensuring customers have accurate and up-to-date information to decide how and when they travel. The flow of information from curb technology to the user is detailed below.




Data Analysis
Decision Making
Update to Policies & Pricing
Flex Zone Policies
Demand-based Pricing
Reporting
User Decisions

OUTDOOR DINING

Of all the curb uses reviewed as a part of this Curb Framework, allocating curb space for outdoor dining presents one of the most significant challenges. Although other curb users require limited access to the curb, and their demand for curb space can be shared and flexed with other uses over the course of the day, outdoor dining typically requires long-term and exclusive use of curb space. Removing curb space that can be shared to meet the demand of various groups and providing exclusive access to non-mobility related demand should be conducted in a limited and strategic manner. As detailed in the Curb Decision Diamond space allocation process, outdoor dining may be implemented along the curb when the following criteria are met:

- Demand for higher priority uses such as ADA parking, transit access, pedestrian, cyclist, and micromobility safety, commercial and passenger loading, and metered or managed parking must be met before allocating curb space to a stationary and long-term curb use.
- Outdoor dining cannot be provided along the business' frontage zone.
- Peak parking occupancy on the block-face being evaluated does not exceed 75% parking occupancy.

During the COVID-19 pandemic, demand for curb space by high priority users was reduced, allowing for the reallocation of curb space to outdoor dining. This practice resulted in unstandardized allocation of curb space and reduced regulation of implemented streateries and parklets. In Tucson, this reduced regulation is best exemplified by the installation of streateries that block pedestrian through zones and detour pedestrians to the roadway. To develop a strategic approach to allocating curb space for outdoor dining, an evaluation of municipal programs related to food truck, parklet, and streatery permitting was conducted.

Outdoor dining during the COVID-19 Pandemic, New York, NY

ALLOCATING SPACE FOR FOOD TRUCKS

Allocating curb space for mobile food establishments, or food trucks, can provide a more pedestrian friendly environment, add vibrancy to the community, and promote economic development. However, it is important to establish policies on when and where mobile food establishments can park and serve customers. Two peer cities were examined as examples of how the City of Tucson can structure its own food truck policy.

CASE STUDY: AUSTIN, TX

Location and Hours

The City of Austin permits food trucks to park in all commercial and industrial zoning districts except in a neighborhood office, limited office, or general office zoning districts. However, food trucks may not park within 50 feet of a property that contains residential and commercial use or within 20 feet of a restaurant. Food trucks are allowed to operate from 6:00 AM until 3:00 AM. If the establishment plans on being at one location for more than two hours, a written agreement from a business within 150 feet must provide flushable restrooms for the food truck employees to use during the hours of operation.

Food trucks can also be permitted in urban family residential districts but must be at least 50 feet away from a property. Food trucks parked between 50 – 300 feet from a property can operate from 6:00 AM until 10:00 PM. If it is parked over 300 feet, it can operate until 3:00 AM.

Permitting

Mobile food establishments need two types of permits, one from Austin's Environmental Health Services Division and one from Austin's Transportation Department. For the Environmental Health Services Division, the Mobile Food Vendor Permit application and permit fee ranges from $300 - $400 per unit depending on the type of food/beverages sold. There are additional fire inspection and food manager certificate registration fees.

Through Austin's Transportation Department, mobile food establishments must also apply for a Right of Way Permit. This permit requires the food truck to already have an up-to-date Mobile Food Vendor Permit and provide a vending location sketch detailing where along the right of way the food truck is planning to be located. If the requirements have been met, Austin's Transportation Department will notify the adjacent businesses and coordinate a review of the location with its Area Transportation Engineer to examine vehicular and pedestrian traffic and ADA clearances. The cost of the Right of Way Vending Permit is $320 for the application with an additional $715 for an annual space rental fee.

Right-of-Way Access Requirements

The following are criteria that the mobile food establishment's location must meet:

1. The affected sidewalk area must be a minimum of sixteen (16) feet wide
2. The affected sidewalk area must allow for ten (10) feet by ten (10) feet of unobstructed space, taking into consideration the placement of the cart/stand
3. Allow for a pedestrian clearance zone of a minimum of six (6) feet wide, taking into consideration the placement of the cart/stand
4. CANNOT be placed within twenty (20) feet of another vending location
5. CANNOT be placed within twenty (20) feet of a driveway or pedestrian crosswalk
6. CANNOT request a location that is within one thousand (1,000) feet of another location held by the same person or company
7. UNLESS the adjacent business provides written approval
    - a. CANNOT be placed within ten (10) feet of an entryway/doorway to any business
    - b. CANNOT be placed within twenty (20) feet of an entryway/doorway to any business selling comparable merchandise
    - c. CANNOT obstruct or block a display window

City of Austin, TX - Municipal Code Reference

https://library.municode.com/tx/austin/codes/code_of_ordinances?nodeId=TIT25LADE_CH25-2ZO_SUBCHAPTER_CUSDERE_ART4ADRECEUS_DIV2COUS_S25-2-812MOFOES

Permitting Details

https://www.austintexas.gov/health/mobile-food-vendor-permit-guide

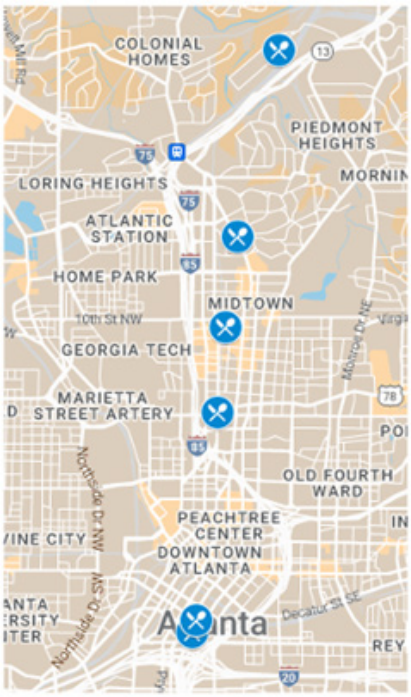
CASE STUDY: ATLANTA, GA

The City of Atlanta has a dedicated program, called Street Eats Atlanta, that provides guidance for food trucks wishing to operate in the city

Location and Hours

The Commissioner of the Department of City Planning establishes designated food truck areas. All zoning classifications are permitted except for single- and two- family residential zoning districts. All designated food truck areas must be at least 200 feet from these residential zoning districts. All designated areas are on City of Atlanta owned streets and must comply with any other applicable governmental parking restrictions.

Currently, there are six (6) designated locations where food trucks can operate. To reserve a location, the vendor must register and book through www.streetfoodfinder.com prior to operations. Each designated location has separate days and times during which food trucks can operate. The Department of City Planning adds more locations and times as needed. The locations are:



1. Armour Yards
2. Atlanta City Hall - Mitchell Street and Trinity Avenue
3. Peachtree Street and 17th Street
4. Peachtree Place between Cypress Street and West Peachtree Street
5. West Peachtree Street and North Avenue

Food trucks are allowed to operate between 7:00 AM and 12:00 AM. In addition to the designated areas, food trucks must not be within 600 feet of any public or private school or within 200 feet of a brick-and-mortar business selling the same or a similar product.

Permitting

Food trucks operating in Atlanta are required to have two permits; a mobile food unit permit from the Fulton County Board of Health, Environmental Health Services Division and public vending permit from the City of Atlanta. The Fulton County Environmental Health Services Division permit ranges from $400 - $700.

The City of Atlanta's public vending permit costs $145 for the initial application. Renewal of the permit costs $125.

Right of Way Access Requirements

Food trucks must operate within the following right-of-way criteria:

1. May be in the right of way adjacent to all City of Atlanta parks and MARTA (transit) rail stations, regardless of zoning classification
2. Must have at least 5 feet of pedestrian space between the sidewalk curb and any building exterior doors
3. Must be at least 15 feet from a fire hydrant
4. Food trucks can only open and serve customers from the side of the truck facing the sidewalk
5. May only vend from metered parking spots available to the public, with up to two spots allocated per spot. The trucks must pay the meters for the duration of its operation, but time limits are waived.
6. Cannot take up more than one third of the metered parking spaces on each street on a block.
7. Vending operations cannot obstruct vehicular traffic for more than 15 minutes to load and unload

City of Atlanta, GA - Municipal Code Reference

https://library.municode.com/ga/atlanta/codes/code_of_ordinances?nodeId=PTIICOORENOR_CH30BU_ARTXXIIIVEPURI-WPUPRVE_DIV2PELI_S30-1431LO

Permitting Details

https://sf.gov/step-by-step/get-shared-spaces-permit-your-sidewalk-or-parking-lane

ALLOCATING SPACE FOR PARKLETS

Allocating curb space for outdoor dining, such as parklets, can provide spaces for community gathering and create more vibrant commercial districts. Parklets are small segments of the right-of-way that has been converted from on-street parking to a public space. They are generally one or two parking spaces long. It is important to establish policies on when and where parklets can be placed. Two peer cities were examined as examples of how the City of Tucson can structure its own parklet policy.

CASE STUDY: SAN FRANCISCO, CA

Shared Spaces Policy

Post-COVID, San Fransisco has developed a Shared Space Policy that allows businesses to activate different areas of the right-of-way, including the sidewalk, parking lanes, and roadways. Businesses can use these spaces for outdoor seating/dining, personal services, merchandise display, art/performances, and community-serving/non-profit activities. Within this policy, there are three types of parklets businesses can implement. These spaces are used mostly for outdoor dining or retail.

TIER	TYPE	PUBLIC ACCESS	COMMERCIAL ACTIVITY	DAILY OCCUPANCY	CONSTRUCTION
1	**Public Parklet**	Entire facility during daylight hours through 10pm	None	24/7	Fixed Structure
2	**Movable Commercial Parklet**	At least one bench during hours of commercial operation	8am to 12pm 12pm to 3pm 3pm to 6pm 6pm to 10pm	Up to 3 consecutive blocks from the available time block options	Movable Fixtures
3	**Commercial Parklet**	At least one bench during hours of commercial operation. Otherwise, entire facility during daylight hours through 10pm	During hours of operation	24/7 (operator may secure their parklet from 12am to 7am)	Fixed Structure

Permitting

Permitting costs differ depending on the tier of parklet. The first parking space ranges from $1,000 to $3,000 and each additional parking space costs from $250 to $1,500 for each one. The annual license is between $100 and $2,000 per parking space.

To secure a parklet permit, a business must first obtain permission from neighboring properties if encroaching on their marked parking space. Additionally, all businesses must upload their Certificate of Insurance, along with a site plan and pictures from specific angles. The application will be reviewed, the site will be inspected and a 10-day Public Notice will be issued. After the 10 days, the permit will be conditionally approved while any required modifications and construction is completed. Once completed, the business must follow up with Department of Public Works to schedule a final site visit and verify the parklet is compliant.

Right of Way Access Requirements

The following are criteria that the Parking Lane Shared Spaces parklets must meet:

1. 42 inch high enclosure on all sides facing the roadway.
2. Minimum 20-feet clearance from approaching intersection. Curbside space near the intersection must be clear of any obstructions.
3. No structures permitted in the parking lane located within 5 feet of a fire hydrant.
4. Parking lane structures must end at sidewalk. No structures shall be fixed to the sidewalk except for platform thresholds or accessible ramps where permitted.
5. 30 inches x 48 inches clear space for wheelchair users at accessible tables & counters.
6. All structures must maintain a setback of at least 2 feet from an active driveway or curb cut.
7. Structure may occupy 7 feet maximum width of the parking lane for parallel parking, and 14 feet maximum width for angled or perpendicular parking.
8. No structures permitted at active transit stops or accessible parking zones. No furniture shall be placed within 10 feet of a bus shelter.
9. Minimum 3-feet emergency access gap required for every 20 feet of structure, with vertical and horizontal clearance from street to building. Gap must be clear of obstructions.
10. A 3-feet buffer is required at each end of the Shared Spaces structure.

San Francisco Shared Spaces Manual

https://sf.gov/sites/default/files/2022-09/Shared%20Spaces%20Manual.pdf

Permitting Details

https://sf.gov/apply-shared-spaces-permit-sidewalk-or-parking-lane

CASE STUDY: SAINT PAUL, MN

Saint Paul created its parklets policy to enable growth in community groups and businesses by enhancing the pedestrian friendliness of their streets and to make Saint Paul more livable and walkable.

Parklet applicants are responsible for the design, construction, installation, operation, management, maintenance, and removal of a parklet. Parklet design includes the platform, seating, enclosure, and vegetation but advertising and other commercial activities are not permitted in the parklet. Parklets may be installed beginning on May 1st and must be removed by October 31st.

Permitting

An application for obstruction of the right-of-way must be submitted to the Right-of-Way Management Division of Public Works. Applicants must submit a Confirmation of Eligibility form. To be eligible for a parklet, the applicant must be a District Council, ground-floor business owner, or non-profit/community based organization. Others are allowed on a case-by-case basis.

The City staff reviews this form and notifies the applicant of their eligibility. If invited to submit a full application, they must provide:

- Letter of commitment
- Document of adjacent property owner support
- Drawing of the basic parklet design and site plan
- Photos of the proposed location
- Duration of parklet installation

The City will review within 20 days. The Right-of-Way Division considers potential future street projects, traffic patterns and roadway geometry, operational considerations, and any necessary traffic/safety control measures required during installation. If accepted, the applicant must submit a right-of-way permit application with proof of insurance and $100 fee. The applicant has 3 days to install the parklet and the City will inspect it, along with associated safety devices.

Right of Way Access Requirements

The following are right of way criteria that the parklets must meet:

1. In an unrestricted parking lane, parallel to the curb edge, adjacent to the sidewalk and/or hardscape boulevard
2. On a street with traffic speeds of 30 mph or less
3. At least 5 feet away from catch basins
4. At least 30 feet away from the nearest intersection (measured from back of sidewalk)
5. At least 30 feet behind a bus stop zone
6. At least 5 feet away from driveways and alleys
7. A parklet CANNOT
    - a. Block access to public utilities, hydrants, alleys, or driveways
    - b. Block existing street drainage patterns
    - c. Block a marked bicycle lane or turn lane
    - d. Be located on streets with steep slopes
    - e. Be located at metered parking spaces

Saint Paul Parklet Policy 2017

https://www.stpaul.gov/sites/default/files/2022-03/Parklet%20Policy%202017.pdf

Right of Way Division Policies

https://www.stpaul.gov/departments/public-works/right-way

ALLOCATING SPACE FOR STREATERIES

Allocating curb space for streateries provides space for table service that is used exclusively by the business that constructed it. A streatery is an open space constructed in the parking lane outside a local business. It is a way to activate parklets and promote economic vitality. Streateries help support city growth and community building while also responding to the demand for more outdoor cafe seating, specifically where sidewalks are too narrow for sidewalk cafes.

CASE STUDY: CHARLOTTE, NC

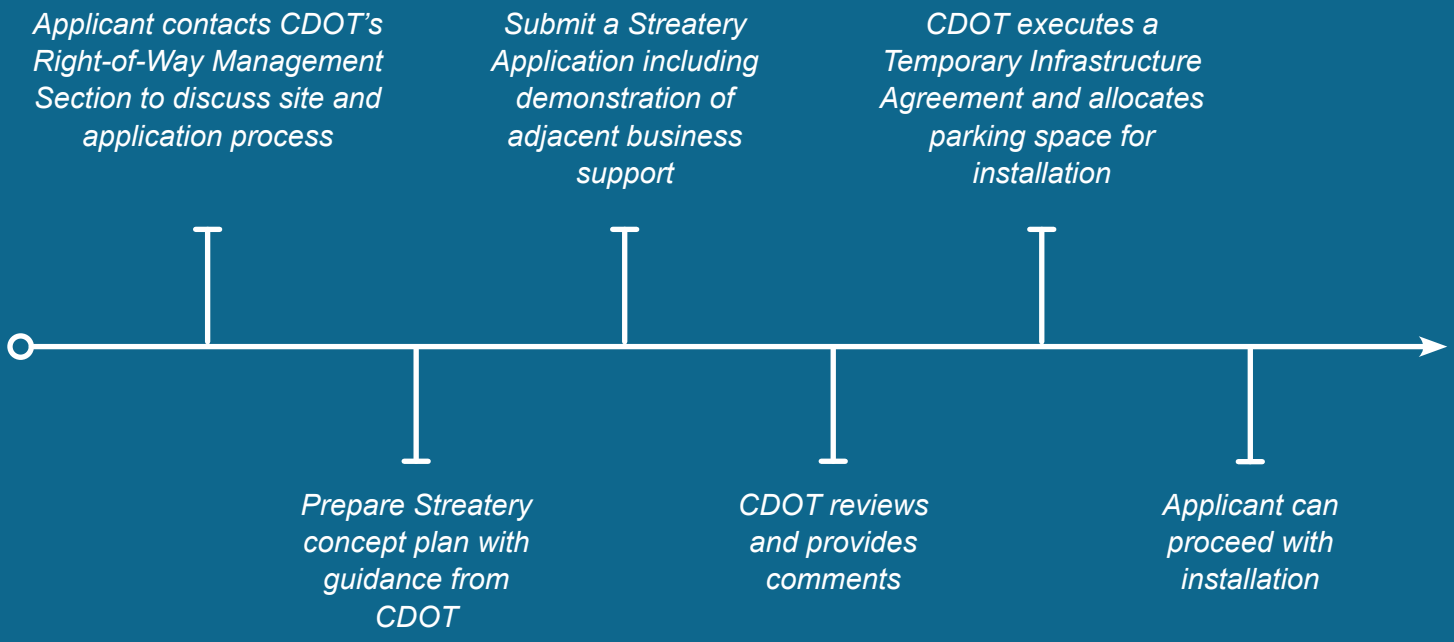
Pilot Streatery Program

In response to COVID, the Charlotte Department of Transportation (CDOT) implemented a Pilot Streatery Program to use underutilized street space for dining and contribute to an active, accessible, and vibrant urban environment. To be eligible for a streatery, the location must be on a road with:

- **On-street, parallel, public parking spaces**
- **Posted speed limit of 35 mph or less**
- **In spaces where parking is permitted during all hours of the day/night**

With additional consultation, streateries can be located within on-street diagonal public parking spaces; where public parking doesn't exist but pavement width may be sufficient for extending the side; or where a travel lane could be used for dining.

Application Process



Right of Way Access Requirements

The following are right of way criteria that the streateries must meet:

1. Further than 20 feet from intersections.
2. Further than 10 feet from driveways and bus stops.
3. Running slope must be less than 5% and a cross slope must be less than 2%.
4. At least 5 feet from fire hydrants and stand pipes.
5. Cannot be a NCDOT road or a bridge.
6. Must be ADA accessible.
7. A streatery CANNOT:
    - a. Be in front of planting strips
    - b. Block manholes or other utility access
    - c. Block a bus lane or loading zone without prior removal request
    - d. Block bike lanes/e-scooter designated parking

Charlotte Pilot Streatery Program

https://citycharlottencgov.azureedge.net/Streatery_Program.pdf

Safe Start Permits

Outdoor dining permits have been available through Seattle's Business Enhancement Program prior to COVID-19. However, beginning in 2020 the City offered streamlined, temporary free permits for outdoor cafes through January 2023. Businesses must apply for a Temporary No Parking Permit and rent/purchase a No Parking barricade. These barricades must be in place for at least 24 hours to be enforceable. In 2023, a 2-week public comment period will be reinstated in the application process.

Permitting

Beginning in 2023, Seattle is moving away from charging occupation fees for outdoor dining uses, including the parking replacement fee previously charged for streateries. The city has updated its permit costs for long-term, annually renewing outdoor dining permits and seasonal outdoor dining permits.

For long term permits, there is a one-time issuance fee of $1,200 for the first space and $200 for each additional space. Hourly rate review fees for secondary reviews may be charged when required. After that, renewal fees are $588 per year. For seasonal outdoor dining permits, there is an issuance fee of $500 per year with the potential of hourly rate review fees.

To apply, businesses must provide:

- Photo of site/conceptual image
- Certificate of Insurance
- A letter of Authorization if applicant is different from the owner
- A description on how the space will be used and anticipated hours of operations/periods of use during the year
- A Certificate of Approval from the Historic Preservation Program if the site is within a historic district
- Stamped plans from a professional engineering/licensed architect if the proposal includes a platform or overhead structural component.

Right of Way Access Requirements

The following are right of way criteria that the Streateries must meet:

1. At least 5 feet from alleys and driveways.
2. At least 5 feet from any curb ramp element including the landing.
3. May not be located in travel lanes including bike and bus lanes.
4. At least 15 feet from a fire hydrant unless otherwise approved.
5. Must provide adequate access to public and private utilities, access panels, valves, and other features.
6. Must maintain roadside drainage.
7. An appropriate distance from either a crosswalk or a curb ramp, whichever is closest to the curb space café:
    - a. At a non-signalized intersection: (a) at least 30 feet from the approach to any crosswalk or curb ramp; and (b) at least 20 feet downstream from any crosswalk or curb ramp.
    - b. At a signalized intersection: (a) at least 20 feet from the approach to any crosswalk or curb ramp; and (b) at least 10 feet downstream from any crosswalk or curb ramp.

Seattle Safe Start Temporary Outdoor Cafe Permits

https://www.seattle.gov/transportation/permits-and-services/permits/temporary-permits/temp-cafe

SDOT Director's Rule February 2019: Cafe's in the Public Place

Seattle Department of Transportation - Director's Rules 02-2019

COMMERCIAL LOADING ZONES

Commercial vehicle loading is an essential curb lane use. Loading zones typically require the removal of at least two (2) on-street parking spaces which can increase the demand for parking on nearby block-faces and off-street parking facilities. However, it also reduces the likelihood of double-parked vehicles and can help support economic development by increasing access for goods. As detailed in the Curb Decision Diamond, loading zones should be implemented along the curb when the following criteria are met:

- The surrounding area has a high amount of retail and restaurant land uses which often rely upon on-street loading zones to facilitate the delivery of goods.
- The surrounding area has office and multi-family residential land uses that generate demand for loading by parcel delivery services such as UPS, FedEx, and Amazon. Although office and multi-family residential land uses may provide off-street loading areas, logistics companies routinely avoid using off-street loading.
- Cities should implement a default ratio of one (1) loading zone for every two block-faces in conjunction with mobility platforms that track loading activity in real-time.

City of Tucson currently has minimal language regarding commercial (freight) loading zones. Per the municipal code, freight curb loading zone locations are determined by the director of transportation. These zones are active between 8:00 AM - 5:00 PM Monday through Friday except public holidays. Vehicles parked in these zones must have comercial plates, have their hazard lights on, and must not be parked for more than 30 minutes.

The existing policy language presents an opportunity to improve commercial loading zones to increase efficiency and improve user experience for both the goods delivery employees and the general public. Additionally, leveraging a mobility platform will allow the City to make more accurate decisions about the number and location of freight loading zones, and adapt as Tucson grows and changes.

30-Minute Truck Loading Zone, Seattle, WA

CASE STUDY: SEATTLE, WA

Seattle, Washington has multiple types of "Load Zones" that provide areas specifically for loading and unloading of people and goods and should not be used for parking. Businesses that are interested in a new zone or changes in a load zone near them may contact the Seattle Department of Transportation to address these changes. Seattle has four (4) different types of load zones including:

1. **Load/Unload Zones:** Drop-off and load/unload of people and goods from private vehicles. In the Center City these require parking payment.

   Curb Color: **Yellow**

2. **Passenger Load Zones:** Quick passenger drop-off and pick-ups. Driver should remain in vehicle.

   Curb Color: **White**

3. **Truck-Only Load Zones:** Delivery or pick up of products, merchandise, or other objects. Restricted to vehicles licensed as trucks.

   Curb Color: **Yellow**

4. **Commercial Vehicle Load Zones:** Commercial service delivery vehicles, such as trucks delivering beverages, food supplies, office goods, large merchandise, etc.

   Curb Color: **Yellow**

Typical Signage

Load/Unload Zone Sign

Passenger Load Zone Sign

Truck-Only Load Zone Sign

Commercial Vehicle Loading Zone Sign

Commercial Vehicle Load Zone

Commercial Vehicle Load Zones (CVLZ) were established in 1989 to provide a specific parking space for service delivery vehicles to stop. In these areas, the Truck-Only Load Zones do not adequately meet the needs of these vehicles. CVLZs are generally located in Seattle business districts with paid parking and are designated by a sign and yellow paint markings. Additionally, only CVLZ permitted vehicles are allowed to park in alleys for loading and unloading. Unless stated on the sign, CVLZs are not active on Sundays or holidays, allowing for on-street parking during those times. Loading and unloading activities shall not exceed thirty (30) minutes in the zone.

Seattle defines a commercial vehicle as:

- **A "motor truck" or "truck" except a passenger car;**
- **A station wagon or van that has been permanently modified to carry no more than three (3) seated passengers.**

These vehicles shall be licensed as trucks and shall have the name of the business the vehicle is registered to displayed on both the left and right sides. Payment is required at the zone by either permit or parking payment device.

Permitting for CVLZs

Commercial loading permits shall only be issued to persons or entities that possess a valid City of Seattle business license, except where not required by the Seattle Municipal Code. The Traffic Engineer is authorized to administer the commercial loading permits or on-demand payment for authorized commercial loading and to collect fees.

The applicant may obtain one nontransferable permit for each truck-licensed vehicle operated by the company named in the business license. Companies with a fleet of ten (10) or more commercial vehicles are able to purchase one (1) transferable permit for every five (5) non-transferable commercial vehicle permits. These transferable permits shall only be used on other commercial vehicles while a non-transferable permitted vehicle is temporarily out of service. The permit must be permanently attached to the lower left-hand corner of the vehicle's windshield.

City of Seattle, WA - Municipal Code Reference

https://www.seattle.gov/transportation/permits-and-services/permits/atp-commercial-vehicle-load-zone

https://library.municode.com/wa/seattle/codes/municipal_code?nodeId=TIT11VETR_SUBTITLE_ITRCO_PT2LIPECORE_CH11.23SPPEPEPRRIVE_11.23.030COLOPEEQ

Permitting Details

https://www.seattle.gov/transportation/permits-and-services/permits/parking-permits/commercial-vehicle-load-zone-permits

CHAPTER 4: APPLYING THE FRAMEWORK TO TUCSON'S CURB LANES


HEXAGON

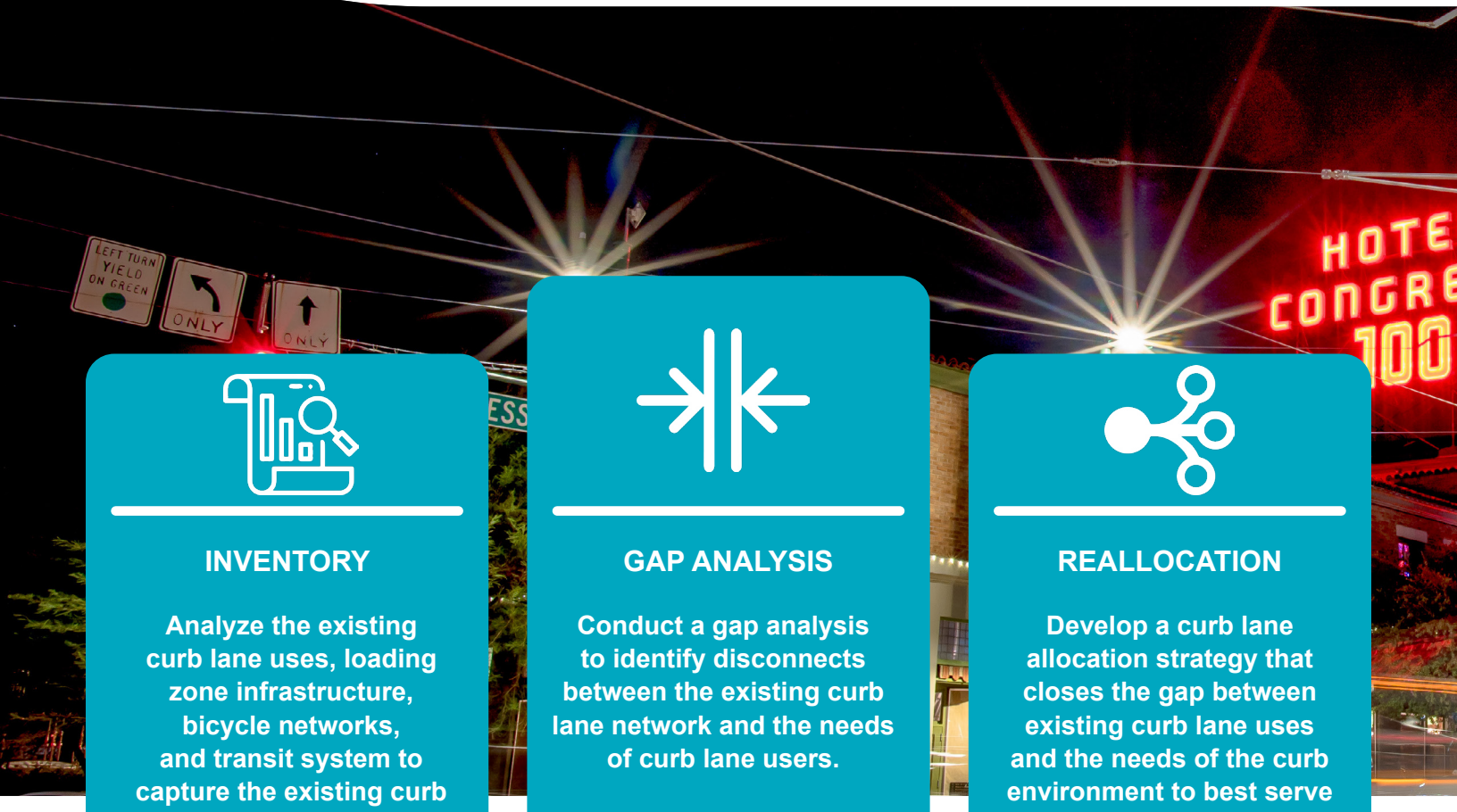

Cole & Weems
est. 2004
BRINKS

This chapter highlights the curb allocation decision process for each case study corridor based on existing conditions. It then provides recommendations on improvements needed to align each corridor with its stated priorities based on the decision process. The curb allocation process for case study corridors represents a standard operating procedure that Tucson can implement for all curb lanes within the study area. Additionally, Tucson can use this methodology to expand its on-street parking system while diversifying the curb lane uses.

Existing Conditions

Understanding the existing allocation of curb space and how curb operations impact Tucson's overall mobility network is critical to developing a curb framework that can meet the needs of all users. To understand existing curb lane allocation, Park Tucson conducted the following steps: 1) inventoried case study corridors, 2) identified gaps in the curb lane system, and 3) reallocated curb space to align with curb lane priorities and land use needs.

Examining the existing curb usage allows Park Tucson to identify where the City's goals and implementation are misaligned. Determining these discrepancies allows the City to efficiently use its resources to realign specific corridors with its goals. Curb space allocation was evaluated using CurbClarity™, a propriety software solution developed by Kimley-Horn & Associates, Inc., to conduct quantitative analysis of curb space that facilitates the actualization of qualitative goals and curb priorities. The CurbClarity™ platform was used to evaluate curb uses block-face by block-face and develop a score for the curb's ability to meet Tucson's stated curb priorities.



INVENTORY

Analyze the existing curb lane uses, loading zone infrastructure, bicycle networks, and transit system to capture the existing curb lane environment and supporting infrastructure.

GAP ANALYSIS

Conduct a gap analysis to identify disconnects between the existing curb lane network and the needs of curb lane users.

REALLOCATION

Develop a curb lane allocation strategy that closes the gap between existing curb lane uses and the needs of the curb environment to best serve users, increase curb lane efficiency, and enhance the overall safety of the roadway.

Enforcement / Citation Review

Citation data from 2019 was provided by the City of Tucson. The year 2019 was chosen to avoid COVID related impacts in the data. A total of 35,596 citations were issued during the year. Citations can be broken into 5 categories: disables, basic, nuisance, safety, and warnings. The majority of citations, 32,411 tickets, fall within the basic, nuisance, and safety categories.

BASIC CITATIONS

12,883 Tickets

Includes violations such as :

**Parking outside the painted lines,
Expired meters,
Double parking,
Incorrect angled parking, etc.**

NUISANCE CITATIONS

12,184 Tickets

Includes violations such as:

**Parking in permitted areas without a permit,
Time of day restrictions,
Expired vehicle registration,
Abandoned vehicle, etc.**

SAFETY CITATIONS

7,344 Tickets

Includes violations such as:

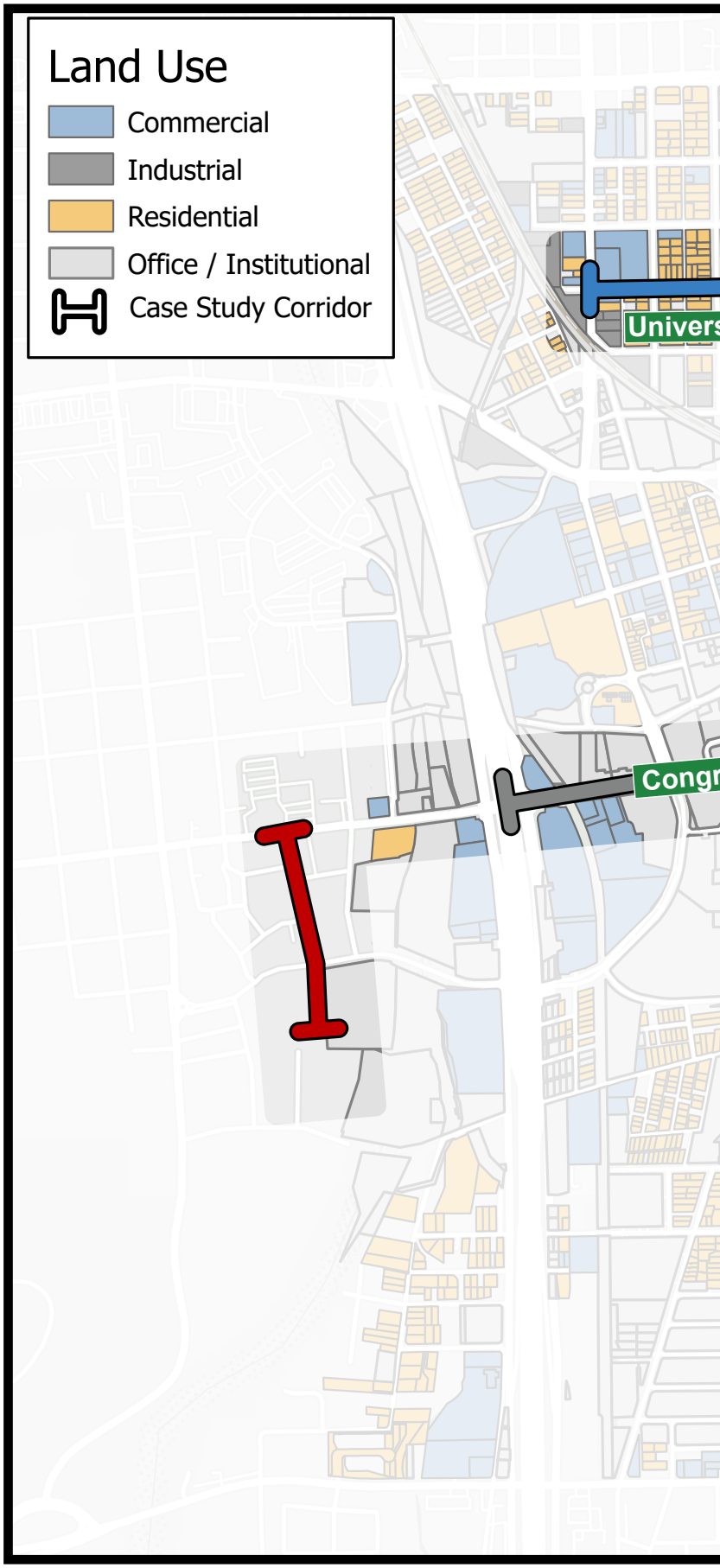
**Blocking driveways,
Blocking sidewalks,
Blocking crosswalks,
parking in no parking zones,
parking in a travel lane, etc.**

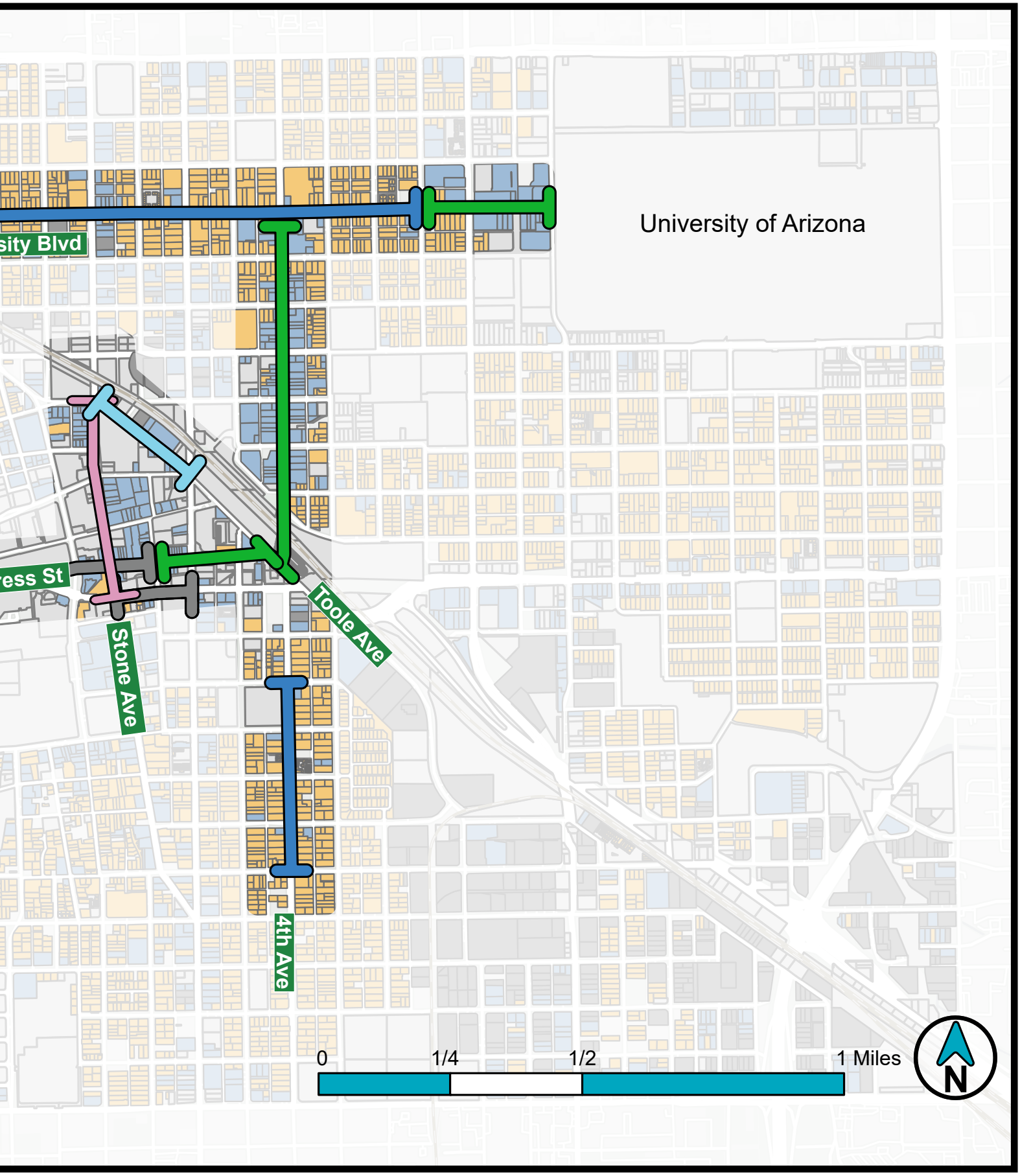
Existing Land Uses

The primary purpose of a curb lane is to serve the adjacent land uses. Based on the type of land uses present, curb space will be structured to meet the needs of businesses, residents, customers, and visitors. Analyzing existing curb usage in comparison to existing land use allows the City to see disconnects between the curb lane network and its users. Land uses adjacent to the case study corridors are provided to the right. These corridors make up the study area that was inventoried and are analyzed.

The existing land uses within the study area are comprised of various types, which include commercial, industrial, residential, and office/ institutional. Commercial uses are along high activity roadways and residential uses are spread throughout the entirety of the study area. Industrial land uses are common in the southeast corner of the study area, near the airport. Other land use in the area encompasses both public uses and office space. This includes the University of Arizona campus in the northeast corner of the study area.

Based on the existing land use conditions within the study area, neighborhood typologies and priorities for curb space can be established.

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Neighborhood Typologies

The neighborhood context of a curb will determine how a curb functions and what priorities a curb takes on. The neighborhood typologies identified in the study area include: Neighborhood Commercial, Entertainment District, Urban Core, Low-Density Residential, Mid- to High-Density Residential, and Adaptive Re-use/ Industrial.

Each neighborhood typology has specific land uses and therefore specific curb lane needs. Land use adjacent to the curb lane shapes the demands and user groups that need access to the curb. Different land uses have different must-haves for their adjacent curb lane.

NEIGHBORHOOD COMMERCIAL

Areas with significant commercial retail and restaurant land uses are considered as neighborhood commercial.

ENTERTAINMENT DISTRICT

Areas with significant entertainment opportunities for customers and visitors. Typically characterized by bars, restaurants, and retail businesses.

URBAN CORE

Areas where land use is primarily office space and supporting commercial development are considered urban core corridors.

The identified neighborhood typologies were used to determine the curb typologies that would be analyzed within the study area. Curb management form, function, and strategies will vary based on curb users and their specific curb lane needs.

Each of the neighborhood typologies shown below can be categorized by their land use. The Entertainment District and Neighborhood Commercial are primarily retail and restaurant land uses. The Urban Core is office space and in addition to residential land use, the Mid- to high- density residential typology also includes some retail as well. The Adaptive Re-use / Industrial typology prioritizes mobility over public space and access to goods / people. Each neighborhood's curb use needs are further explained in the following sections.

LOW-DENSITY RESIDENTIAL

Low-density residential areas are mainly single-family homes that are meant to prioritize the residents of the neighborhood.

MID- TO HIGH-DENSITY RESIDENTIAL

Mid- to high-density residential areas are characterized by multiple family homes/apartment buildings.

ADAPTIVE RE-USE / INDUSTRIAL

Adaptive re-use/industrial corridors are typically in areas that have been used as traffic carrying roadways.

The neighborhood context of a curb will determine how a curb functions and what priorities a curb takes on.

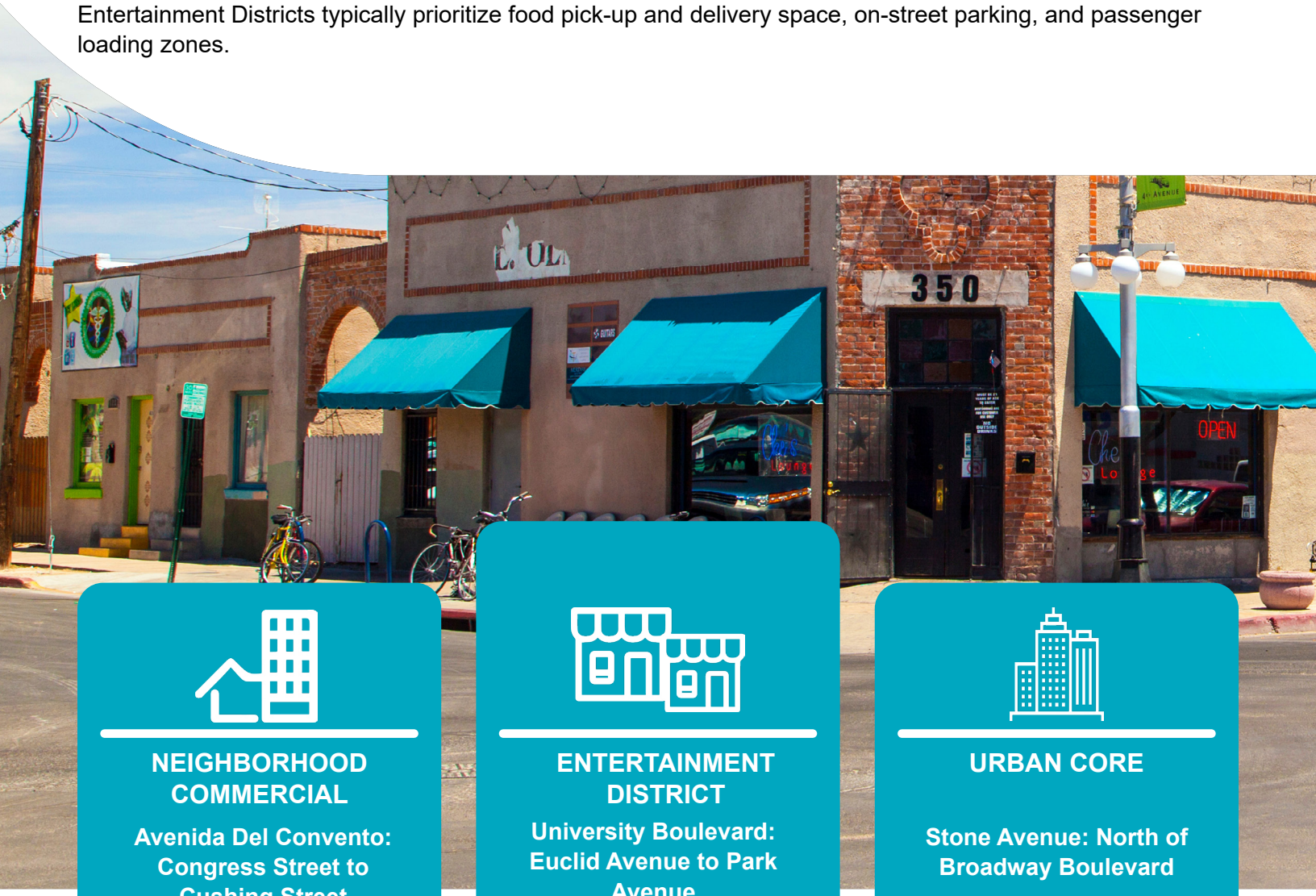
Neighborhood Typologies, Land Uses and its Associated Curb Lane Needs

NEIGHBORHOOD TYPOLOGIES	LAND USE	CURB LANE NEEDS
Neighborhood Commercial	Retail Restaurant	Managed On-street Parking Multi-Modal Access Passenger Loading Zones Delivery Zones for Goods Food Pick-Up Zones
Entertainment District	Bars / Restaurant	Passenger Loading Zones Delivery Zones for Goods Food Pick-Up Zones
Urban Core	Office	Driveway to Off-Street Parking Parcel Delivery Loading Zones Managed On-street Parking
Low-Density Residential	Single Family Home	Parcel Delivery Loading Zones Multi-Modal Access Food Delivery Zones
Mid- to High- Density Residential	Multi-Family Home	Parcel Delivery Loading Zones Multi-Modal Access Food Delivery Zones Driveway to Off-Street Parking
Adaptive Re-use / Industrial	Industrial	Multi-Modal Access Passenger Loading Zones Delivery Zones for Goods Managed On-street Parking

Case Study Corridors

The identified typologies were applied to key corridors within the study area. The best fit roadways for each corridor were later analyzed for existing curb use inventory. The identified corridors for this inventory evaluation are shown below. Of the 10 key corridors examined, 3 were part of the Entertainment District typology and 2 were located within Mid- to High-Density Residential areas.

The Tucson case study corridors typically prioritize on-street parking and pick-up/drop-off zones for curb space allocation. Avenida Del Convento, Stone Avenue, and E. Toole Avenue all use curb lane space for managed on-street parking. University Boulevard from Euclid Avenue to Park Avenue, E. Broadway Boulevard from Stone Avenue to W Franklin Street, Congress Street East of Scott Avenue, and similar corridors in Entertainment Districts typically prioritize food pick-up and delivery space, on-street parking, and passenger loading zones.



NEIGHBORHOOD COMMERCIAL

Avenida Del Convento: Congress Street to Cushing Street

ENTERTAINMENT DISTRICT

University Boulevard: Euclid Avenue to Park Avenue

4th Avenue: University Boulevard to Congress Street

Congress Street: East of Scott Avenue

URBAN CORE

Stone Avenue: North of Broadway Boulevard

LOW-DENSITY RESIDENTIAL

University Boulevard: Main Avenue to Euclid Avenue

4th Avenue: 12th Street to 16th Street

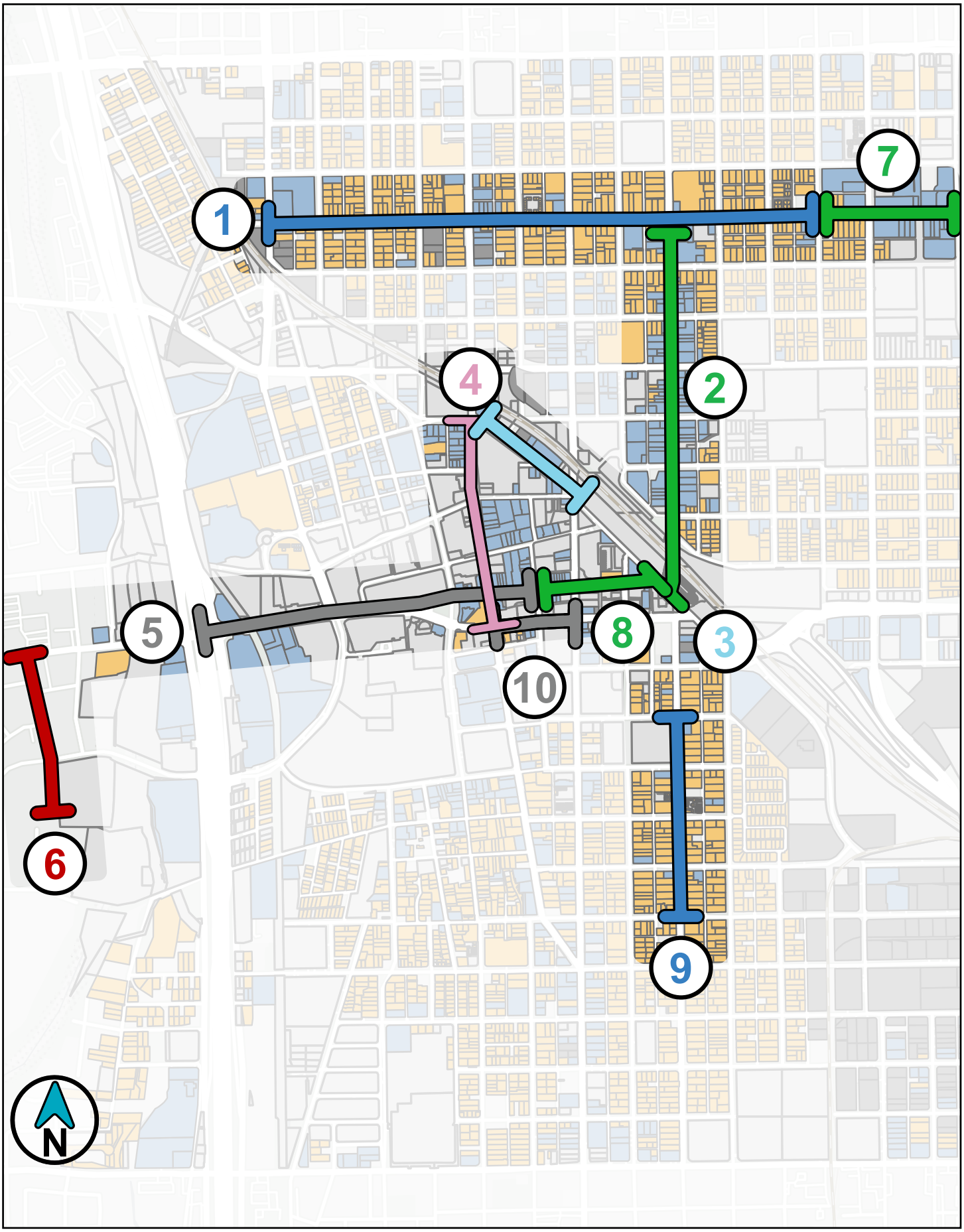
MID- TO HIGH-DENSITY RESIDENTIAL

E. Broadway Blvd: Stone Avenue to 6th Avenue

Congress Street: West of Scott Avenue

ADAPTIVE RE-USE / INDUSTRIAL

E. Toole Avenue: Stone Avenue to 6th Avenue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1 University Blvd: Main Ave to Euclid Ave
Curb Typology: Low-Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~8 Feet

2 4th Ave: University Blvd to Congress St
Curb Typology: Entertainment District
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~12 Feet

3 E Toole Ave: Stone Ave to 6th Ave
Curb Typology: Adaptive Re-use/Industrial
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, Bi-directional
# of Bike Lanes: 2 Lanes
Sidewalk Width: ~12 Feet

4 Stone Ave: North of Broadway Blvd
Curb Typology: Urban Core
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~12 Feet

5 Congress St: West of Scott Ave
Curb Typology: Mid- to High- Density
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, One-way / Bi-directional
# of Bike Lanes:1 Lane
Sidewalk Width: ~9 - 22 Feet

6 Avenida del Convento: South of Congress St
Curb Typology: Neighborhood Commercial
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~22-28 Feet

7 University Blvd: Euclid Ave to Park Ave
Curb Typology: Entertainment District
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~12 Feet

8 Congress St: East of Scott Ave
Curb Typology: Entertainment District
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, One-way
# of Bike Lanes: None
Sidewalk Width: ~15 Feet

9 4th Ave: 12th St to 16th St
Curb Typology: Low-Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, Bi-directional
# of Bike Lanes: 2 Lanes
Sidewalk Width: ~10 Feet

10 E Broadway Blvd: Stone Ave to 6th Ave
Curb Typology: Mid- to High- Density
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, One-way
# of Bike Lanes: None
Sidewalk Width: ~8-19 Feet

Setting Curb Priorities

Our priorities for a curb lane can directly shape the characteristics and uses included along the curb. Clearly stated priorities can result in a curb that produces the outcomes we desire. If the top priority for a curb lane is access for goods, but the curb environment does not include commercial vehicle loading zones, it is unlikely the curb will perform as desired. Five curb priorities and their associated uses are detailed below.

Access For People

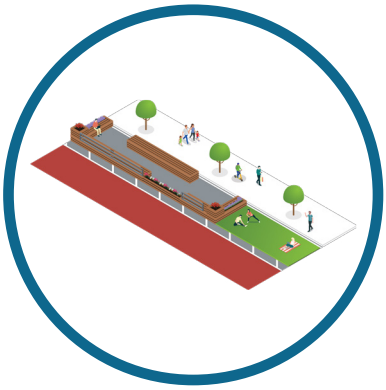
Provides active space prioritizing transit usage, rideshare, and shared-mobility services

- Bikeshare Stations
- Bus Stops
- Carshare
- Commuter Shuttles
- Pick-Up & Drop-Off Zones
- Public Transit
- Specialized Loading
- Taxis/TNC Zones
- Tour/Charter Buses

Access For Goods

Provides space for truck traffic and deliveries that will be present for a short amount of time

- Commercial Loading
- Curbside Delivery
- Curbside Pick-Up
- Parcel Delivery
- Smart Loading Zones
- Other Delivery



Public Space

Designated for landscaping and public amenities for people and public services

- Benches/Seating
- Community Services
- Food Stands & Shops
- Food Truck Zones
- Parklets
- Public Art
- Sidewalk Widening
- Streateries
- Wayfinding & Signage

Storage for Vehicles

Designated for vehicles to be stored for an extended period of time

- ADA Parking
- Bicycle Parking/Corrals
- Driveways
- Employee Parking
- EV Charging Stations
- Metered Parking
- Private Parking
- Residential Parking
- Tour/Charter Buses

Mobility

Dedicated to movement of motorized and non-motorized transportation vehicles, making curb space unavailable to other functions

- Bike Lanes
- Bus Only Lanes
- No Parking Zones
- Parking Protected Bike Lanes
- Rush-Hour Restricted Lanes
- Transit Lanes
- Travel Lanes
- Visibility Zones

Applying the Tucson Curb Framework

The Tucson Curb Framework provides a strategic method for allocating curb space and identifying trade-offs between curb lane uses. Applying this framework to different curb lane typologies requires an understanding of the existing curb uses, roadway characteristics, the priorities for the corridor, and the needs of adjacent land uses. Additionally, a holistic approach to curb place allocation must include an assessment of the sidewalks ability to accommodate mobility uses without impeding the pedestrian experience. Ensuring curb lane efficiency and meeting needs of multiple curb lane users are key principles when objectively allocating curb space. In practice, this means that curb space allocation, as detailed by the Curb Decision Diamond should prioritize equity, access, safety, efficiency, economic development, and convenience. Along a case study corridor, each block-face contributes to the overall corridor's ability to meet the needs of curb lane users.

NEIGHBORHOOD COMMERCIAL

Description

Areas with significant commercial retail and restaurant land uses are considered as neighborhood commercial.

Ranked Curb Priorities

1. Storage for Vehicles
2. Mobility
3. Access for Goods
4. Access for People
5. Public Space

Case Study Corridor

Avenida Del Convento: Congress Street to Cushing Street

ENTERTAINMENT DISTRICT

Description

Areas with significant entertainment opportunities for customers and visitors. Typically characterized by bars, restaurants, and retail businesses.

Ranked Curb Priorities

1. Access for People
2. Public Space
3. Access for Goods
4. Mobility
5. Storage for Vehicles

Case Study Corridor

University Boulevard: Euclid Avenue to Park Avenue

4th Avenue: University Boulevard to Congress Street

Congress Street: East of Scott Avenue

URBAN CORE

Description

Areas where land use is primarily office space and supporting commercial development are considered urban core corridors.

Ranked Curb Priorities

1. Mobility
2. Storage for Vehicles
3. Access for People
4. Access for Goods
5. Public Space

Case Study Corridor

Stone Avenue: North of Broadway Boulevard

Curb Typologies and Case Study Corridors Summary

As previously stated, the Tucson Curb Framework highlights ten (10) case study corridors across six (6) different neighborhood typologies. Each neighborhood typology's description, ranked curb priorities, and case study corridors are detailed below. The curb framework factors in each case study corridors unique needs and characteristics. Applying the curb framework to each case study corridor includes a call out of best practices for curb lane management.

LOW-DENSITY RESIDENTIAL

Description

Low-density residential areas are mainly single-family homes that are meant to prioritize the residents of the neighborhood.

Ranked Curb Priorities

1. **Mobility**
2. **Access for People**
3. **Storage for Vehicles**
4. **Public Space**
5. **Access for Goods**

Case Study Corridor

University Boulevard: Main Avenue to Euclid Avenue

4th Avenue: 12th Street to 16 Street

MID- TO HIGH-DENSITY RESIDENTIAL

Description

Mid- to high-density residential areas are characterized by multiple family homes/apartment buildings.

Ranked Curb Priorities

1. **Mobility**
2. **Storage for Vehicles**
3. **Access for People**
4. **Access for Goods**
5. **Public Space**

Case Study Corridor

E. Broadway Blvd: Stone Avenue to 6th Avenue

Congress Street: West of Scott Avenue

ADAPTIVE RE-USE / INDUSTRIAL

Description

Adaptive re-use/industrial corridors are typically in areas that have been used as traffic carrying roadways.

Ranked Curb Priorities

1. **Mobility**
2. **Access for People**
3. **Access for Goods**
4. **Storage for Vehicles**
5. **Public Space**

Case Study Corridor

E. Toole Avenue: Stone Avenue to 6th Avenue

Neighborhood Commercial

Stated curb priorities on roadways defined as Neighborhood Commercial are detailed below. When evaluating the curb lane system, the Avenida Del Convento corridor best exemplifies this curb environment.

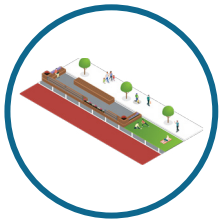
Stated Curb Priorities

Storage for Vehicles

Mobility

Access For Goods

Access For People



Public Space

The Neighborhood Commercial curb allocation aligns with its top priority of providing space for the storage of vehicles. Additionally, the second priority of mobility is reflected through access to transit and multi-modal infrastructure, such as the TUGO Bikeshare Station: North Mercado. Signage that highlights loading zones on intersecting streets may be a useful addition to improve access for goods and access for people. Public space is limited to outdoor dining internal to the MSA Annex, but could also be provided along the frontage zone of businesses.

Intersection: South Avenida del Convento @ W. Calle de Los Higos

The stated curb priorities for the Neighborhood Commercial typology, shown below, places Storage for Vehicles and Mobility as its top two. The case study corridor examined for this neighborhood typology is along Avenida del Convento from W. Congress St to W. Cushing St.

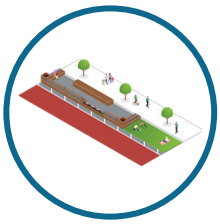
Stated Curb Priorities

Storage for Vehicles

Mobility

Access For Goods

Access For People



Public Space

Below are the common uses for the stated curb priorities in the Neighborhood Commercial typology. In order for the existing conditions to match the stated priorities along the Avenida del Convento corridor, these curb lane attributes should be present.

Storage of Vehicles Priorities

Common curb lane usage related to the Storage for Vehicles priority includes:

- Bicycle Parking
- Free/Metered Parking
- EV Charging
- ADA Parking

Mobility Priorities

Common curb lane usage related to the Mobility priority includes:

- Travel Lanes
- Bike Lanes
- No Parking Zones
- Crosswalks

Access for Goods Priorities

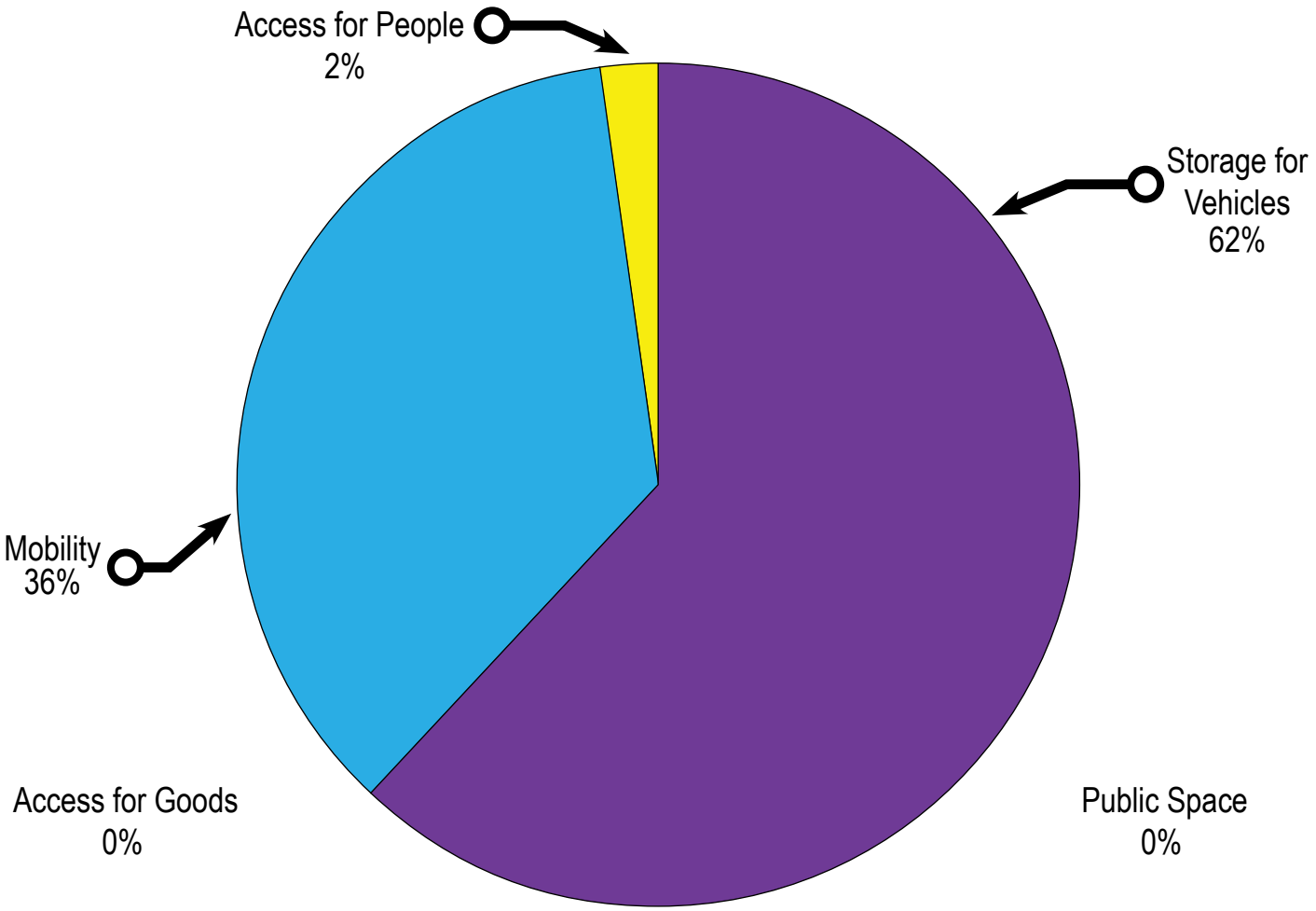
Common curb lane usage related to the Access for Goods priority includes:

- Commercial Vehicle Loading Zones
- General Short Term Parking
- Food Delivery Zones
- General Delivery

The chart below displays the existing percentage of curb lane usage along the corridor. The stated curb priorities place Storage of Vehicles, Mobility, and Access for Goods as the top three priorities. However, the existing curb uses prioritize Storage of Vehicles, Mobility, and Access for People with the following details:

- Storage for Vehicles accounts for 62% of the curb lane attributes,
- Mobility accounts for 36%, and
- Access for People accounts for 2%.
- There is no dedicated curb space for Access for Goods or Public Spaces.

Actual Curb Lane Priorities for Avenida del Convento



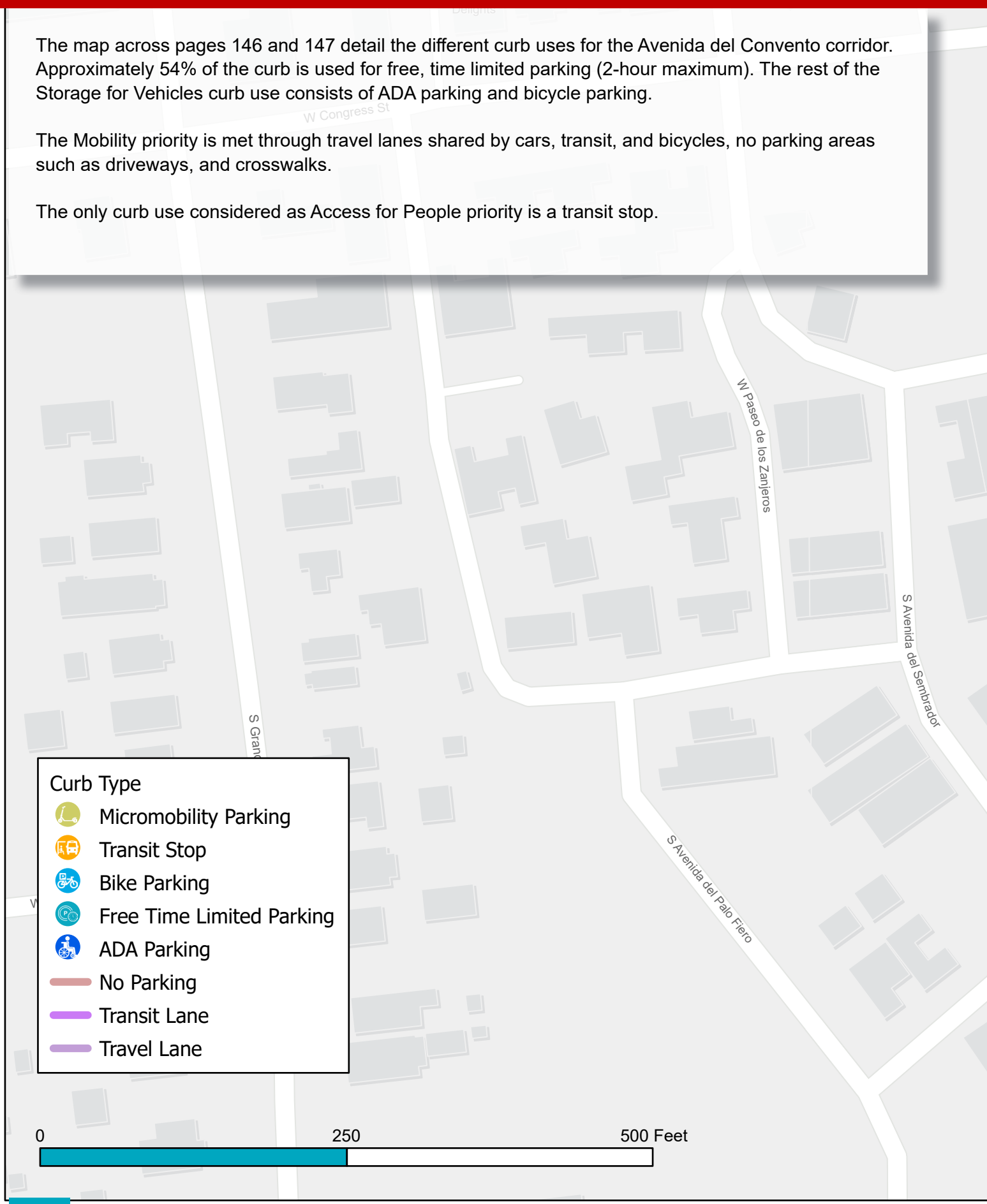
The existing conditions generally align with the stated curb priorities, with both the stated and existing curb priorities being Storage for Vehicles and Mobility. However, the corridor should be evaluated for:

- **Opportunities to provide more access for goods, such as commercial loading zones, short term parking, and food delivery zones.**

The map across pages 146 and 147 detail the different curb uses for the Avenida del Convento corridor. Approximately 54% of the curb is used for free, time limited parking (2-hour maximum). The rest of the Storage for Vehicles curb use consists of ADA parking and bicycle parking.

The Mobility priority is met through travel lanes shared by cars, transit, and bicycles, no parking areas such as driveways, and crosswalks.

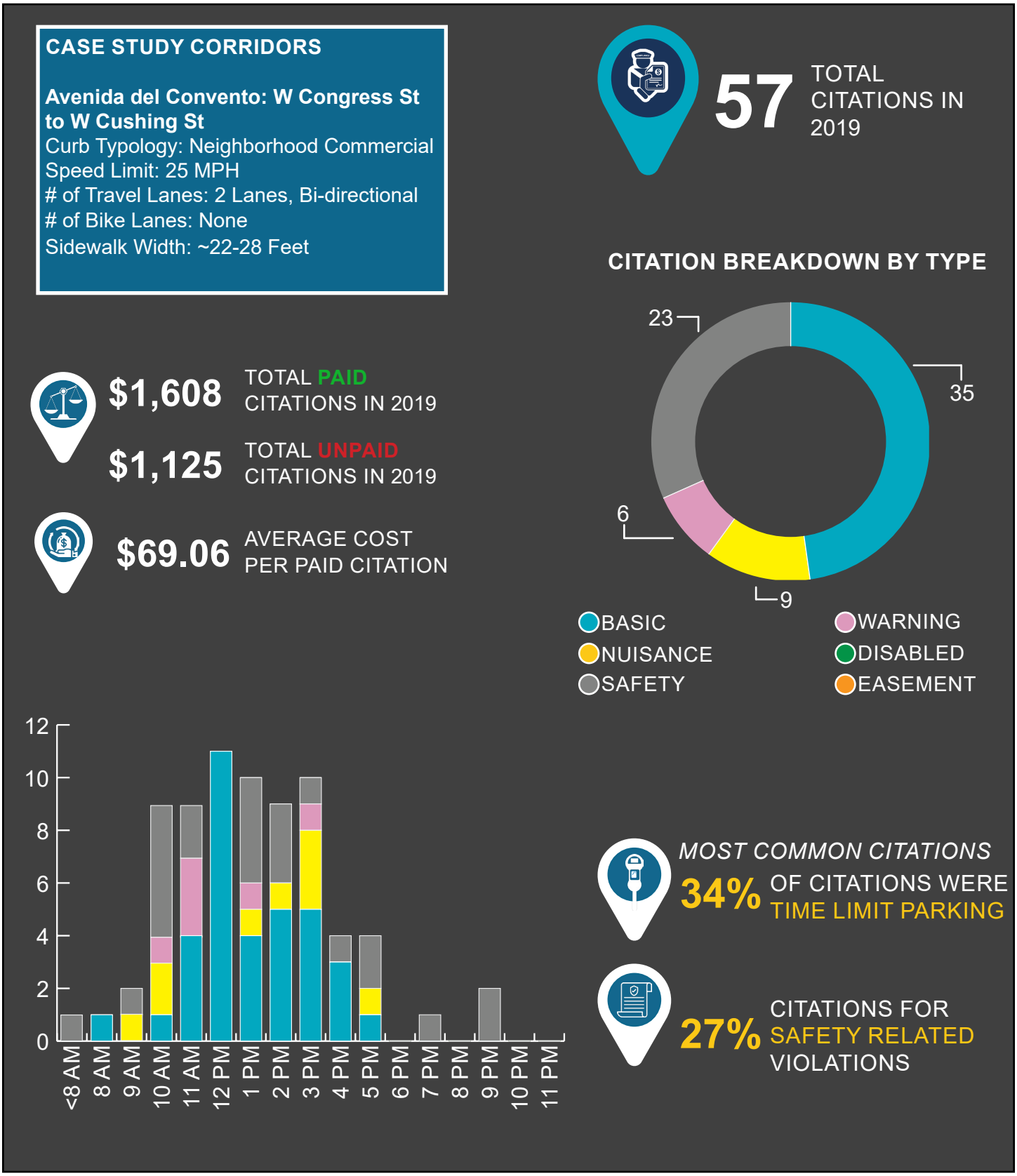
The only curb use considered as Access for People priority is a transit stop.




CASE STUDY CORRIDOR
Avenida del Convento:
South of Congress St
Curb Typology: Neighborhood Commercial
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~22-28 Feet
W Paseo de los Zanjeros
W Paseo de los Zanjeros
S Avenida del Convento
S Linda Ave
W Calle de los Higos
W Calle de los Higos
S Linda Ave
W Cushing St
N

Citations Analysis

Citations issued in 2019 were evaluated for corridors identified as Neighborhood Commercial. A summary of the issued citations are detailed below. The corridor is Avenida del Convento from W Congress St to W Cushing St.



Corridor Considerations

Based on the existing curb use allocation and citation issuance the following attributes warrant further evaluation for corridors in areas considered to be Neighborhood Commercial:

 **Access For Goods**	 **Access For People**	 **Mobility**
Increase the amount of curb space used for the loading and unloading of goods and parcel delivery.	Access for people is adequately met through transit stops and the bikeshare station. Other neighborhood commercial districts should provide passenger loading and micromobility curb uses.	Mobility needs are addressed through transit, bicycle, and vehicular movement. Additional curb space for mobility is not warranted.

 **Public Space**	 **Storage for Vehicles**	 **Compliance**
Activation and public space should be provided on sidewalks rather than in the curb lane. Sidewalks over 10 feet are adequate to provide additional outdoor space for pedestrians.	Curb spaces is predominately used to provide storage for vehicles. However, time limited parking is routinely violated, leading to longer parking sessions. Consideration for converting time limit parking to metered parking is warranted.	Safety violations in Neighborhood Commercial districts should be monitored to enhance compliance with regulatory standards.

Curb Allocation Summary - Neighborhood Commercial

CASE STUDY CORRIDOR

Avenida del Convento:
South of Congress St
Curb Typology: *Neighborhood Commercial*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, Bi-directional*
# of Bike Lanes: *None*
Sidewalk Width: *~22-28 Feet*

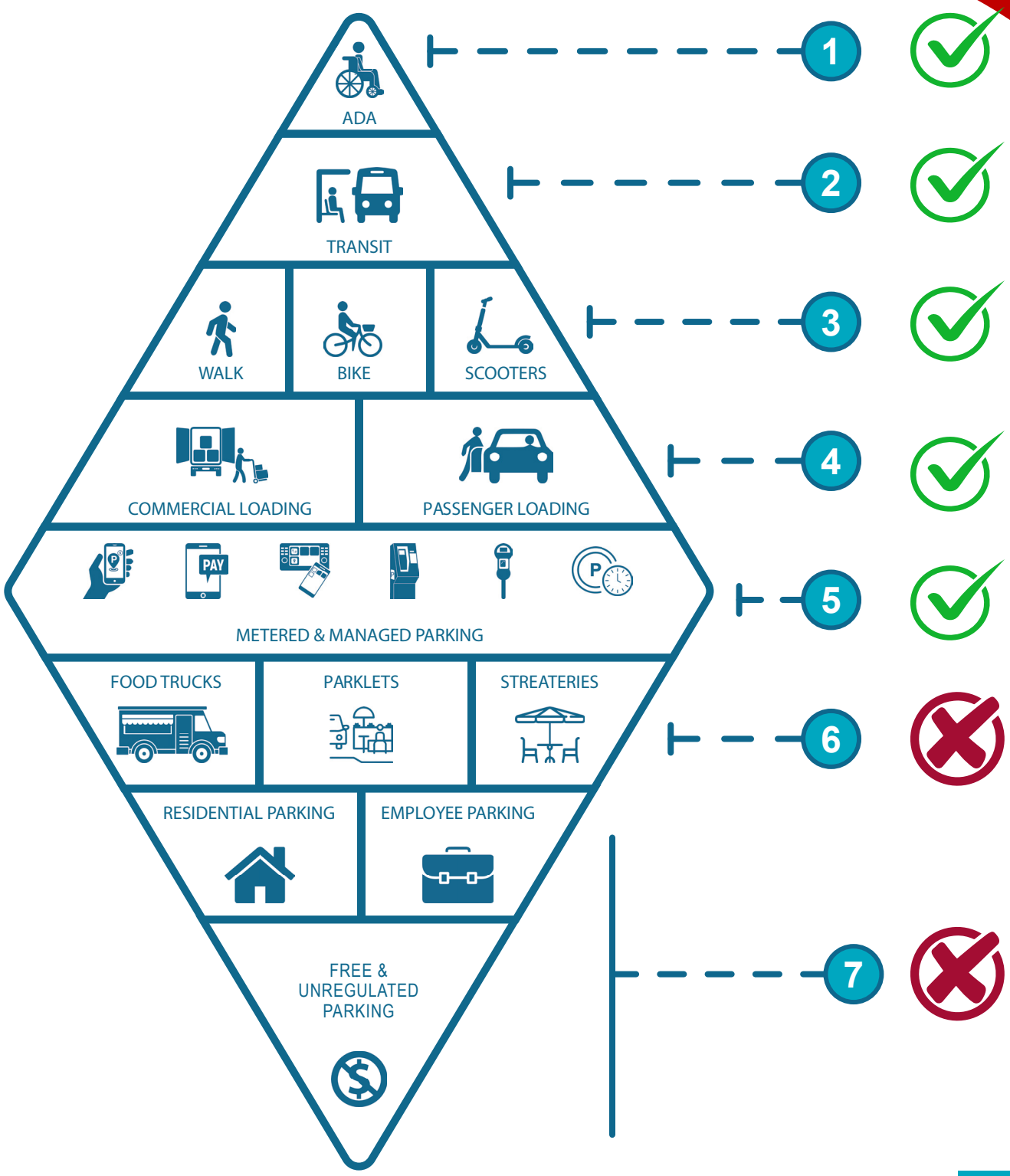
Curb Allocation Outcome Summary

- **Step 1:** No additional ADA parking spaces are needed along the Avenida del Convento corridor.
- **Step 2:** Provide No Parking signage at the Convento/Congress streetcar stop.
- **Step 3:** Provide designated locations for scooter parking on the sidewalk.
- **Step 4:** Evaluate wayfinding and signage for off-street loading zones to ensure awareness and easy access to available loading areas.
- Determine parking occupancy and designate short-term loading zones for passenger vehicle loading, food pick-up/drop-off, and other short-term loading zone needs. Remove two time-limited spaces and convert to passenger loading.
- **Step 5:** Meter parking along Avenida del Convento.
- **Step 6:** Outdoor dining along this corridor can be accommodated on the sidewalk without impeding the pedestrian experience. Curb space should not be applied to outdoor dining.
- **Step 7:** Based on the parking behavior identified in Step 5, long-term parking for residents and employees is not a warranted curb use along this corridor.

Changes to the Curb Lane

- Curb lanes in neighborhood commercial areas should have a maximum of 15% curb space allocation for ADA parking.
- Angled parking limits the installation of commercial loading zones that can accommodate trucks. Alternative loading zone locations are needed to provide commercial loading for the land uses along the Avenida del Convento corridor.
- Higher rates of ADA parking should be provided near commercial land uses and in locations that serve persons with limited mobility.
- Inventory all transit stops and ensure adequate No Parking signage is provided along transit corridors.
- Evaluate options to automate parking enforcement at transit stops and along transit routes.
- Determine parking occupancy and designate short-term loading zones for passenger vehicle loading, food pick-up/drop-off, and other short-term loading zone needs. Remove two time-limited spaces and convert to passenger loading.
- Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as neighborhood commercial.
- Convert time limited parking spaces to metered parking if the occupancy is greater than 75% or the parking duration exceed 2-hours.

Recommended Curb Uses



Applying the Curb Decision Diamond to the Avenida del Convento Case Study Corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-face being evaluated?

Answer: Yes. One or more ADA parking space is provided on each block-face being evaluated.

Question: Is ADA parking signage, striping, and ramps provided at each ADA parking space?

Answer: Yes. ADA parking signage, striping, and ramps are provided at each ADA parking space.

Outcome: No additional ADA parking spaces are needed along the Avenida del Convento corridor.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. The Convento/Congress streetcar stop is located on this corridor.

Question: Is there adequate no parking signage and striping at the transit stop?

Answer: No. There are no visible No Parking signs present at the transit stop.

Outcome: Provide No Parking signage at the Convento/Congress streetcar stop.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Is there a curb bulb out on the block-face/sidewalk being evaluated?

Answer: Yes. Curb bulb outs are provided along all block-faces/sidewalks along the Avenida del Convento corridor.

Outcome: Ensure that no parking signage is provided on this block-face and active curb lane uses can maneuver from the curb lane to the adjacent travel land without obstructions.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-face being evaluated?

Answer: Yes, bike parking is available along the block-faces along the Avenida del Convento corridor.

Outcome Provide designated locations for scooter parking on the sidewalk.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Is there a designated loading zone on the block-face being evaluated?

Answer: No. There are no designated loading zones for commercial vehicles on the block-face being evaluated.

Question: If No, do adjacent land uses need/want an on-street loading zone of this block-face?

Answer: No. On-street loading zones are provided on the adjoining block-faces and at off-street loading zones.

Outcome: Evaluate wayfinding and signage for off-street loading zones to ensure awareness and easy access to available loading areas.

Passenger Loading Zone Allocation Process

Question: Is there a designated passenger pick-up/drop-off zone on the block-face being evaluated?

Answer: No. There are no designated passenger pick-up/drop-off zones on the block face being evaluated.

Question: If No, does the block-face being evaluated contain a commercial vehicle loading zone.

Answer: No. If No, evaluate the parking occupancy in the area to determine the block's ability to function with less on-street parking.

Outcome: Determine parking occupancy and designate short-term loading zones for passenger vehicle loading, food pick-up/drop-off, and other short-term loading zone needs. Remove two time limited spaces and convert to passenger loading.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered/managed on the block-face being evaluated?

Answer: Yes. On-street parking is managed using a two-hour time limit.

Question: If time limited, evaluate parking occupancy and duration to determine if parking occupancy is >75% or parking duration is >2-Hours.

Answer: Parking behavior along Avenida del Convento warrants metered parking.

Outcome Meter parking along Avenida del Convento.

Step 6: Public Activation in the Curb Lane

Outcome: Outdoor dining along this corridor can be accommodated on the sidewalk without impeding the pedestrian experience. Curb space should not be applied to outdoor dining.

Step 7: Allowing Long-term Parking at the Curb

Outcome: Based on the parking behavior identified in Step 5, long-term parking for residents and employees is not a warranted curb use long this corridor.

Recommended Action Items - Neighborhood Commercial

Future Application

ADA Parking

No additional ADA parking is needed on this corridor. Allocate future ADA parking spaces at a maximum of 15% of the total spaces on a corridor.

Evaluate the use of existing ADA parking spaces and repurpose any over committed curb space to other uses.

Transit Stops

Inventory all transit stops and ensure adequate No Parking signage is provided along transit corridors.

Evaluate options to automate parking enforcement at transit stops and along transit routes.

Design future transit stops with an in-lane stop design and inset parking to minimize conflicts between transit and parked vehicles.

Pedestrian, Bicycle, and Micromobility Enhancements

Incorporate bike racks and scooter parking zones at future curb bulb outs and along sidewalks >10 feet wide.

Only place bike and scooter parking in the curb lane when sidewalk space is inadequate.

Commercial & Passenger Loading Zones

In neighborhood commercial areas, provide loading zones near commercial land uses and ensure loading zone signage allows loading for commercial and non-commercial vehicles. Add passenger loading zones on blocks with less than 75% occupancy.

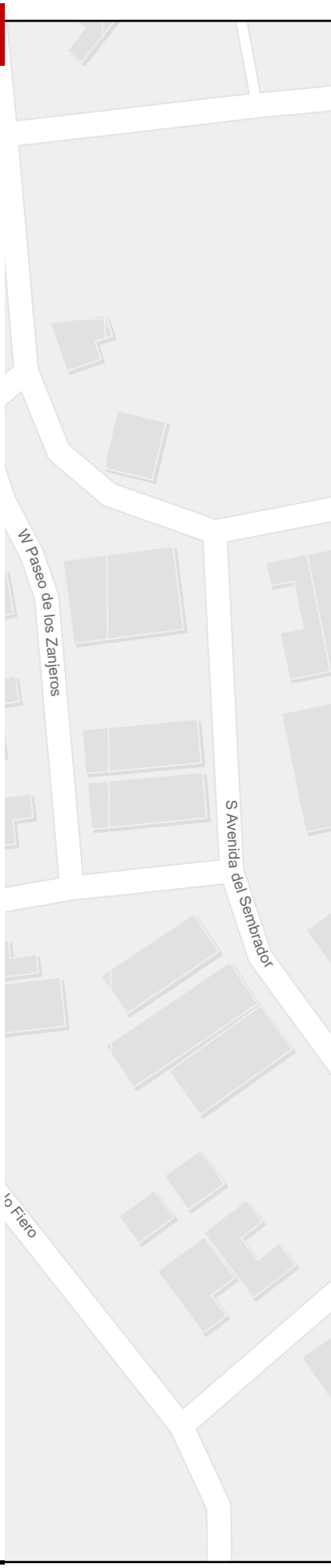
Metered & Managed Parking

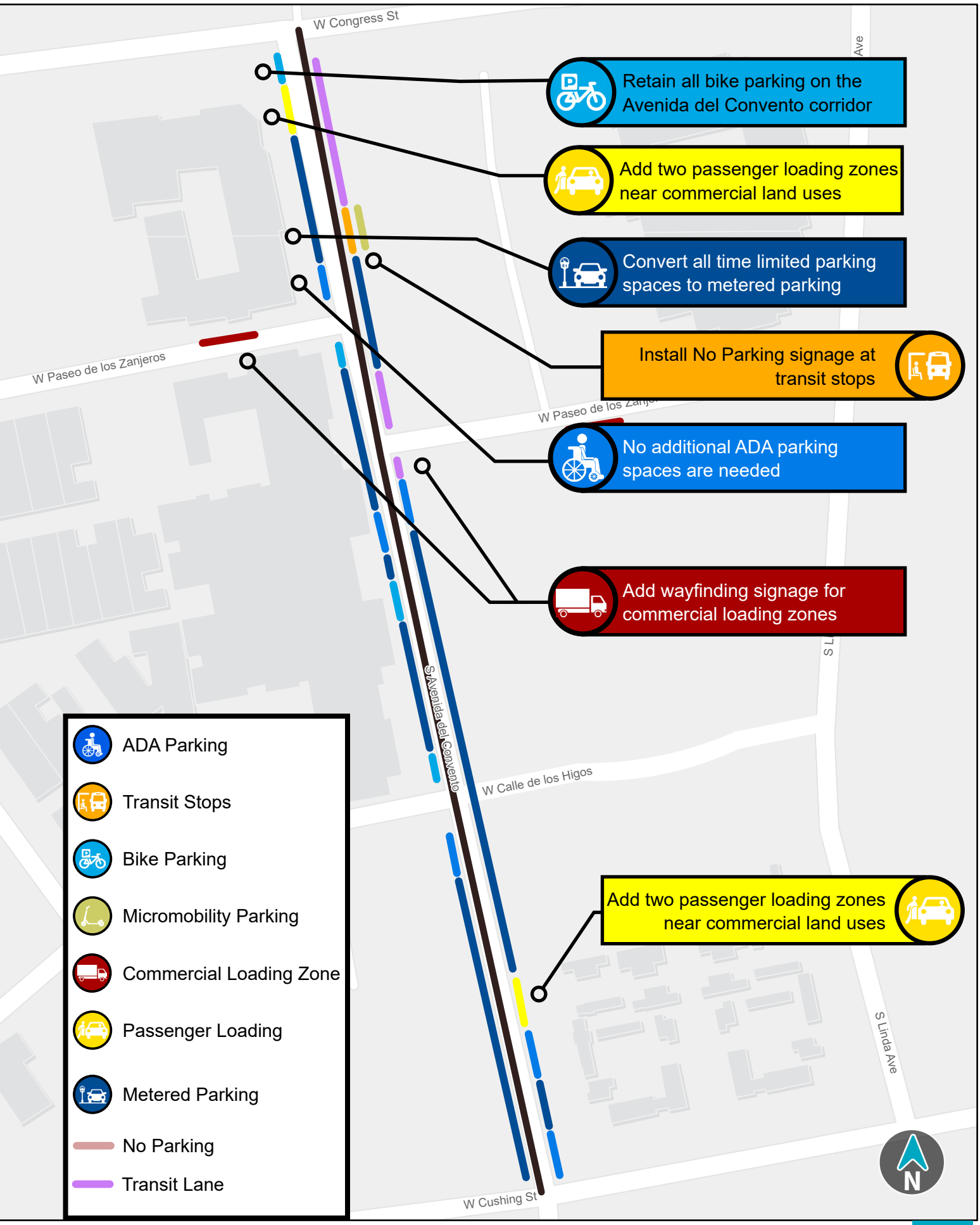
Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as neighborhood commercial.

Convert time limited parking spaces to metered parking if the occupancy is greater than 75% or the parking duration exceed 2-hours.

Outdoor Dining

Add wayfinding signage to support local businesses, increase vibrancy, and promote the use of off-street dining areas.



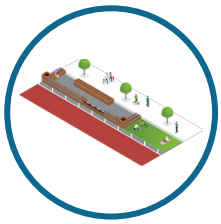

W Congress St
W Paseo de los Zanjeros
W Paseo de los Zanjeros
S Avenida del Convento
W Calle de los Higos
W Cushing St
S Linda Ave
Retain all bike parking on the Avenida del Convento corridor
Add two passenger loading zones near commercial land uses
Convert all time limited parking spaces to metered parking
Install No Parking signage at transit stops
No additional ADA parking spaces are needed
Add wayfinding signage for commercial loading zones
Add two passenger loading zones near commercial land uses
ADA Parking
Transit Stops
Bike Parking
Micromobility Parking
Commercial Loading Zone
Passenger Loading
Metered Parking
No Parking
Transit Lane
N

Entertainment District

To support bars, restaurants, and other local businesses, corridors in Entertainment Districts must provide excellent multi-modal access, on-street parking, and loading. These corridors must prioritize access to entertainment venues which typically requires strategic curb lane uses such as valet parking or passenger loading. The Entertainment District curb typology is exemplified at University Boulevard from Euclid Avenue to Park Avenue.

Stated Curb Priorities

Access For People



Public Space

Access For Goods

Mobility

Storage for Vehicles

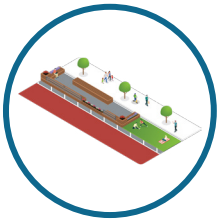
This corridor is adjacent to the University of Arizona campus and is comprised of commercial land uses. The corridor provides a variety of curb lane attributes to meet the needs of the businesses. All vehicle parking is metered and/or time restricted. Loading zones for both freight and passenger are present. Access for people is also provided through curb space allocation for a transit stop and micromobility.

Corridor: E University Blvd, East of Euclid Ave

The stated curb priorities for Entertainment District, shown below, are ordered as Access for People, Public Space, and Access for Goods as the top three. The case study corridors examined for this neighborhood typology include 4th Ave, University Blvd, and Congress St. In Entertainment Districts, flexing on-street parking to meet loading/unloading needs during nights and weekends is a critical component to allocating curb space. Understanding the difference between daytime and nighttime curb needs is essential to managing curb lanes in an Entertainment District's 24-hour curb use cycle. During evenings, on-street parking can be converted to pick-up/drop-off zones to increase access for people and access for goods.

Stated Curb Priorities

Access For People



Public Space

Access For Goods

Mobility

Storage for Vehicles

Below are the common uses for the stated curb priorities in Entertainment Districts. In order for the existing conditions to match the stated priorities along the three corridors, these curb lane attributes should be present.

Access for People

Common curb lane usage related to the Access for People priority includes:

- Passenger Loading Zones
- Micro-mobility Parking
- Transit Stops
- Specialized Loading/ Paratransit

Public Space

Common curb lane usage related to the Public Space priority includes:

- Parklets/ Streateries
- Utilities
- Street Trees/ Landscaping
- Food Trucks

Access for Goods Priorities

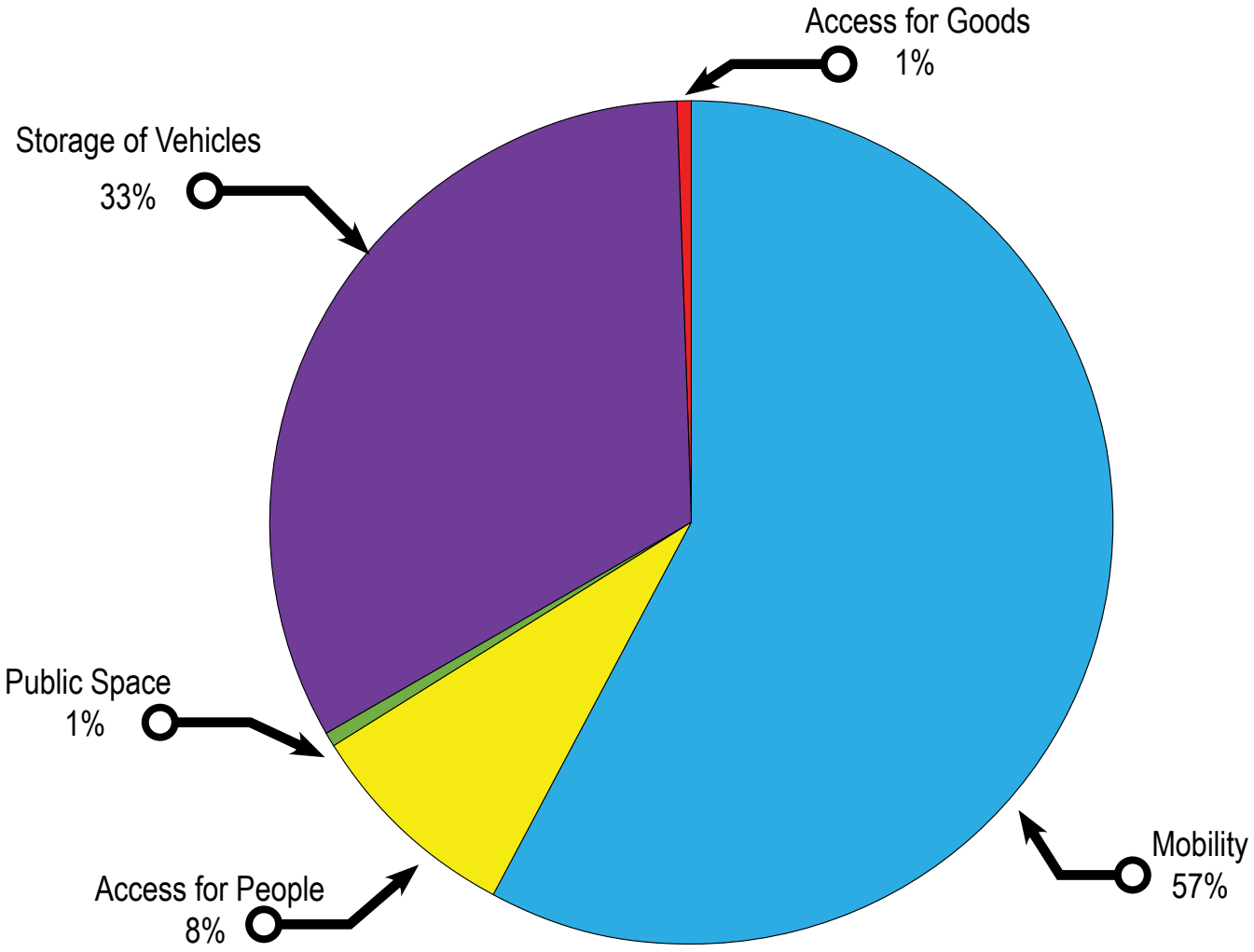
Common curb lane usage related to the Access for Goods priority includes:

- Commercial Vehicle Loading Zones
- General Short Term Parking
- Food Delivery Zones
- General Delivery

The chart below displays the overall existing percentage of curb lane usage along the three corridors using a weighted average. The existing curb uses prioritize Mobility and Storage of Vehicles, with Mobility accounting for over half the curb lane.

- Mobility accounts for 57% of the curb lane attributes,
- Storage of Vehicles accounts for 33%, and
- Access for People accounts for 8%.
- Access for Goods and Public Spaces are approximately 1% of the curb lane each.

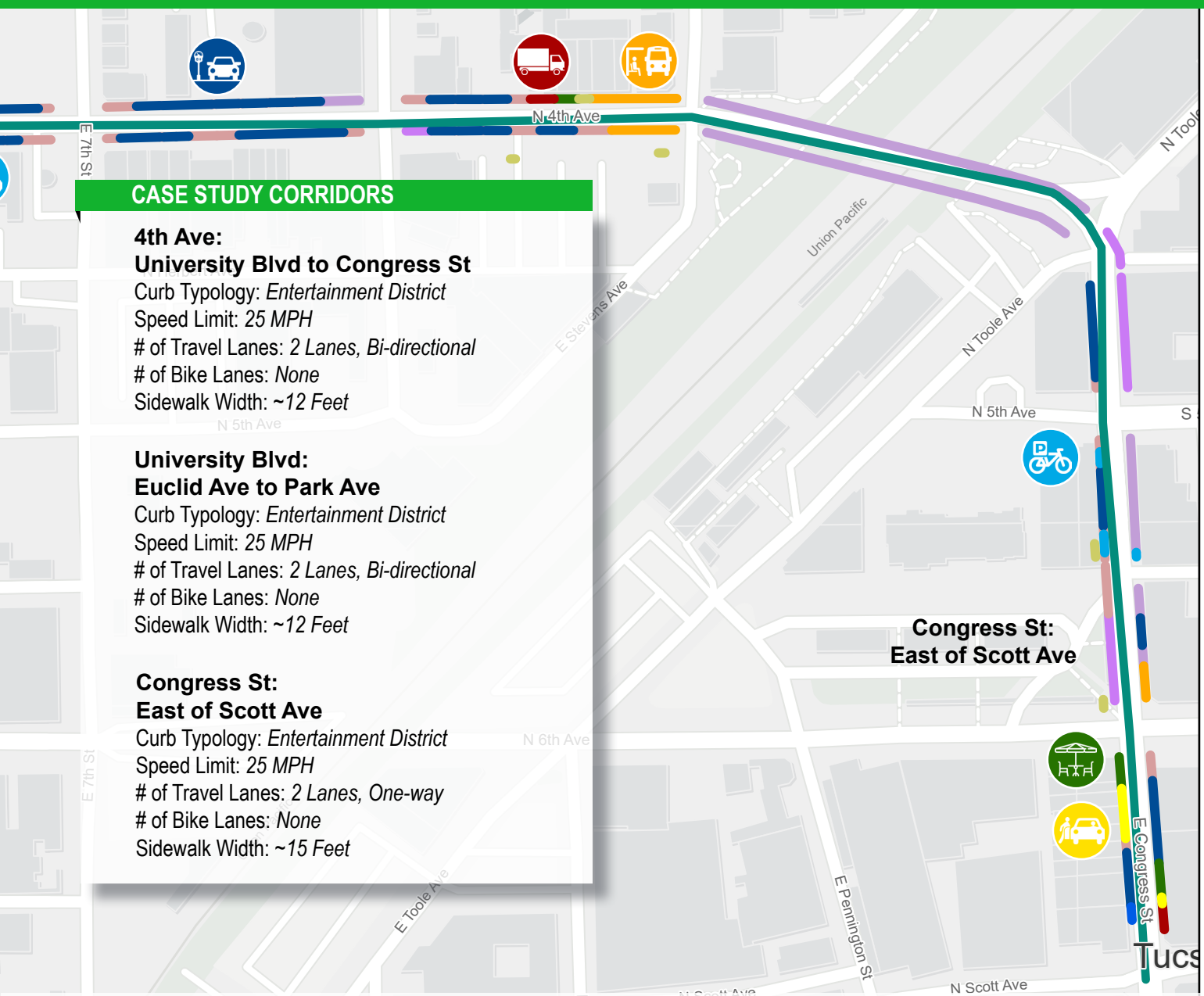
Actual Curb Lane Priorities for the Entertainment District



To align with the stated curb priorities, this corridor should evaluate:

- **Flex some vehicular storage to passenger loading zones at night**
- **Addition of curb uses related to Access for People such as micro-mobility parking, passenger loading zones, and transit stops**
- **Increase of curb uses related to Access for Goods, including commercial vehicle loading zones**
- **Inclusion of curb uses related to Public Spaces such as streateries, food trucks, and landscaping.**


4th Ave:
University Blvd to Congress St
N 4th Ave
N Herbert Ave
N 5th Ave
N Arizona Ave
N 6th Ave
N 7th Ave
E University Blvd
E 4th St
E 5th St
E 6th St
N Echols Ln
N Stone Ave
University Blvd:
Euclid Ave to Park Ave
Curb Type
Passenger Loading Zone
Micromobility Parking
Transit Stop
Freight Loading Zone
Streatery
Short Term Parking
Bike Parking
Free Time Limited Parking
ADA Parking
Metered Parking
Bike Lane
No Parking
Travel Lane
Transit Lane
0
0.125
0.25 Miles



CASE STUDY CORRIDORS

4th Ave:
University Blvd to Congress St
Curb Typology: *Entertainment District*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, Bi-directional*
# of Bike Lanes: *None*
Sidewalk Width: *~12 Feet*

University Blvd:
Euclid Ave to Park Ave
Curb Typology: *Entertainment District*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, Bi-directional*
# of Bike Lanes: *None*
Sidewalk Width: *~12 Feet*

Congress St:
East of Scott Ave
Curb Typology: *Entertainment District*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, One-way*
# of Bike Lanes: *None*
Sidewalk Width: *~15 Feet*

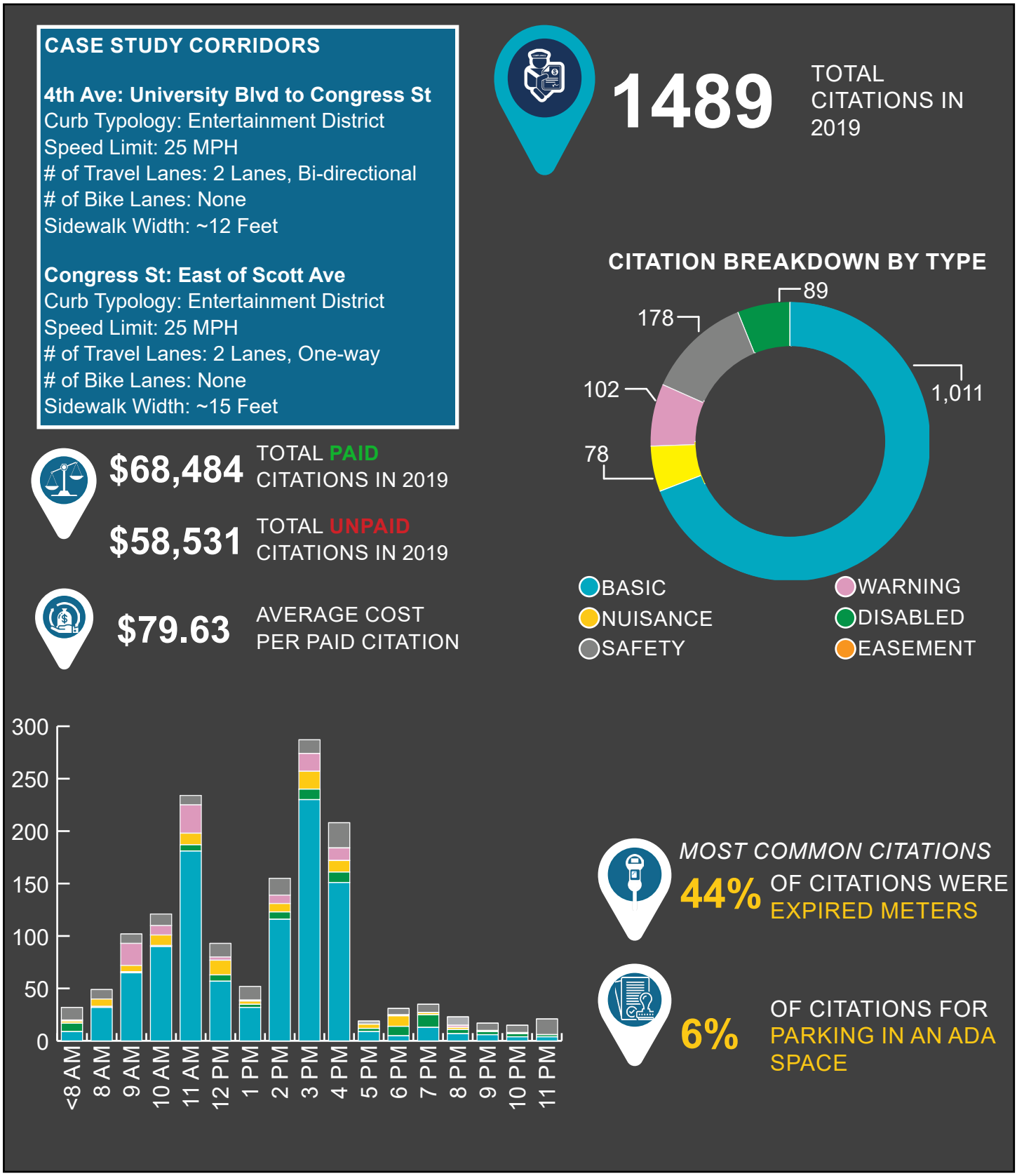
The longest corridor in the Entertainment District typology is 4th Ave between University Blvd and Congress St, consisting of 67% of the area studied. The majority of the 4th Avenue corridor is used for metered parking (41%), travel lanes (24%) and no parking zones (21%). The Access for People priority comes from transit stops, sidewalk access, and crossings along 4th Ave.

The University Blvd corridor represents 13% of the study area and the majority of the corridor's curb lane is used for Storage for Vehicles in the form of metered parking (44%) and Mobility as no parking areas (30%). There is less than 10% each for passenger loading zones and commercial vehicle loading zones.

Congress St represents 20% of the study area. The corridor's curb lane attribute are mostly Mobility focused with travel lanes accounting for 30% of the corridor, no parking zones accounting for 14% and crosswalks for 16%. Additionally, 24% of the curb lane is used for metered parking. There is 4% each for passenger loading and streateries.

Citations Analysis

Citations issued in 2019 were evaluated for corridors identified as Entertainment District. A summary of the issued citations are detailed below.



Corridor Considerations

Based on the existing curb use allocation and citation issuance the following attributes warrant further evaluation for corridors in areas considered to be Entertainment Districts.

 **Access For Goods**	 **Access For People**	 **Mobility**
Increase the number of commercial vehicle loading zones and pick-up/drop-offs for food delivery	Provide passenger loading zones along 4th Ave and designate additional areas for micromobility and bikeshare	Evaluate opportunities to decrease no parking areas and travel lanes along the corridor and repurpose space for Access for Goods and People

 **Public Space**	 **Storage for Vehicles**	 **Compliance**
Evaluate opportunities to increase vegetation and landscaping along 4th Avenue and University Blvd. Support outdoor dining adjacent to bars and restaurants that have >10 feet wide sidewalks	Consider diversifying the types of vehicle storage provided along the corridor to include bike and short-term parking. Evaluate occupancy levels before removing on-street parking	Citations associated with parking in permit zones, time of day restrictions, and expired metered parking are the most common sources of citations

Curb Allocation Summary - Entertainment District

CASE STUDY CORRIDOR

University Blvd: Euclid Ave to Park Ave

Curb Typology: *Entertainment District*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, Bi-directional*
# of Bike Lanes: *None*
Sidewalk Width: *~12 Feet*

Curb Allocation Outcome Summary

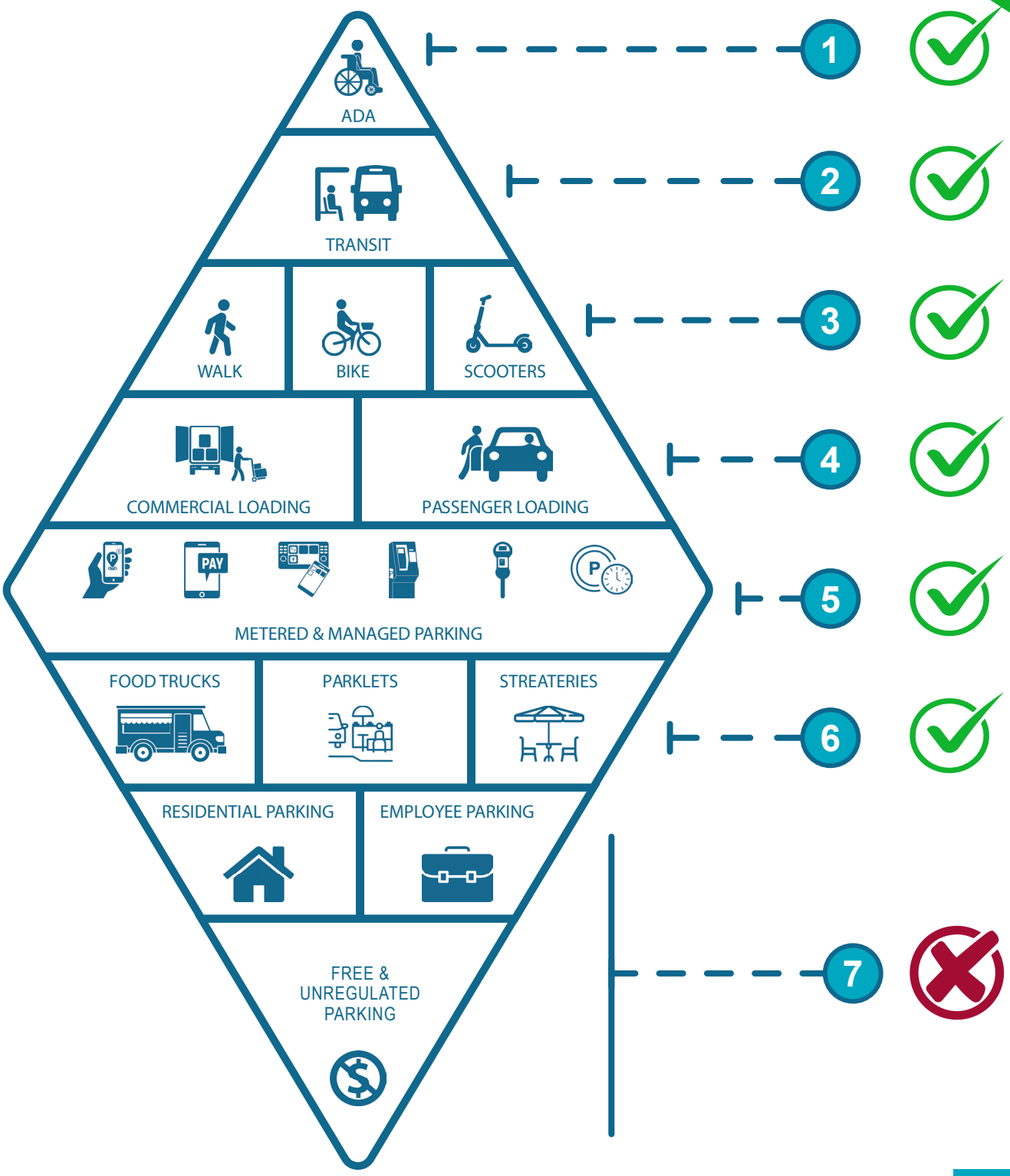
Using the Decision Diamond process, the following steps were identified to align the University Blvd corridor with the stated priorities of Entertainment Districts.

- **Step 1:** Remove two metered parking spaces and install one ADA parking space on the northern block-face of University Blvd between N Park Ave and N Tyndall Ave. An ADA ramp and signage is needed to meet national ADA standards.
- **Step 2:** Transit stop accommodations are not needed on this corridor. Additional coordination with Sun Link is needed to ensure there are no impediments to transit service.
- **Step 3:** Provide designated locations for scooter parking on the sidewalk without impeding the pedestrian through zone or impacting space dedicated to outdoor dining.
- **Step 4:** Designate commercial vehicle loading zones and incorporate signage that allows for commercial and permitted non-commercial vehicles.
- Ensure passenger pick-up/drop-off zones are signed for short-term parking and sized appropriately to prevent double-parked vehicles.
- **Step 5:** Ensure that metered/managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the frontage zone, street furniture zone, and curb lane as needed.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Remove two metered parking spaces and install one ADA parking space on the northern block-face of University Blvd between N Park Ave and N Tyndall Ave. An ADA ramp and signage are needed to meet national ADA standards.
- For curb lanes in Entertainment Districts, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM, and Thursday - Saturday: 8:00 AM - 12:00 AM.

Recommended Curb Uses



Applying the Curb Decision Diamond to the University Blvd from Euclid Ave to Park Ave case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: Yes. Three of the four block-faces being evaluated provide ADA parking.

Question: If Yes, ensure ADA parking signage, striping, and ramps are present and meet user needs.

Answer: Yes. ADA parking signage, striping, and ramps are provided at each ADA parking space.

Outcome: Remove two metered parking spaces and install one ADA parking space on the northern block-face of University Blvd between N Park Ave and N Tyndall Ave. An ADA ramp and signage is needed to meet national ADA standards.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: No. The transit stops along this corridor are located in the center of the roadway.

Outcome: Transit stop accommodations are not needed in the curb lanes along this corridor. Additional coordination with Sun Link is needed to ensure there are no impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there a curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: Yes. Curb bulb outs are provided along all block-faces/sidewalks along the University Blvd corridor.

Outcome: Ensure that no parking signage is provided on this block-face and active curb lane uses can maneuver from the curb lane to the adjacent travel lane without obstructions.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: Yes, bike parking is available along the block-faces along the University Blvd corridor.

Outcome: Provide designated locations for scooter parking on the sidewalk without impeding the pedestrian through zone or impacting space dedicated to outdoor dining.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. Only one of the four block-faces provide a commercial vehicle loading zone.

Question: If No, do adjacent land uses need/want an on-street loading zone of its adjacent block-face?

Answer: Yes. The adjacent land uses are predominately commercial land uses and need access to on-street loading.

Outcome: Designate commercial vehicle loading zones and incorporate signage that allows for commercial and permitted non-commercial vehicles.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: Yes. Only two of the four block-faces being evaluated provide a 15-minute loading zone that can be used for passenger loading. The other two block-faces provide 15-minute loading zones used for food pick-up.

Outcome: Ensure passenger pick-up/drop-off zones are signed for short-term parking and sized appropriately to prevent double-parked vehicles.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered or managed on the block-face being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit during the summer and 1-hr limit during the academic school year

Outcome: Ensure that metered or managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: Yes. The restaurants provide outdoor dining as bistro seating or dining areas in their frontage zones or bistro seating in the furniture zone. There is one streatery provided in the furniture zone on the southern block-face on University Blvd between N Tyndall Ave and N Park Ave.

Outcome: Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the frontage zone, street furniture zone, and curb lane as needed.

Step 7: Allowing Long-term Parking at the Curb

Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome: Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Implementation Actions

ADA Parking

Adding ADA parking on curb lanes with angled parking in Entertainment District will need the removal of two parking spaces for one ADA parking space. Evaluate the placement of existing ADA parking spaces and ensure ADA ramps can be accessed safely.

Transit Stops

Coordinate with Sun Link to ensure curb lane activity does not impede transit service. Understanding the interaction between passenger loading zones and transit lanes will be critical to minimizing interference with transit service.

Pedestrian, Bicycle, and Micromobility Enhancements

Install micromobility parking along the sidewalk adjacent to No Parking zones to enhance access for people in Entertainment Districts with sidewalks >10-Feet wide.

Commercial & Passenger Loading Zones

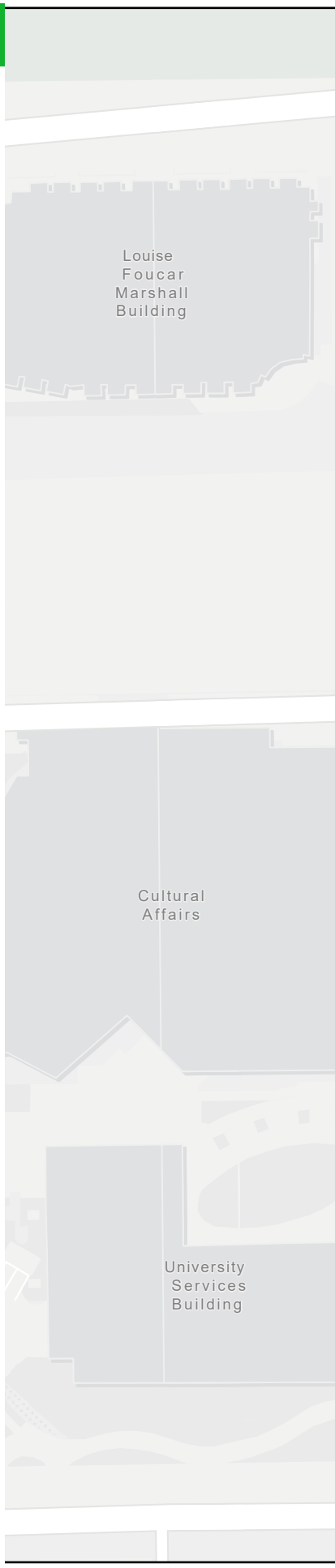
Commercial vehicle loading zone signage should be updated to reflect access by commercial vehicles and non-commercial vehicles with loading zone permits.

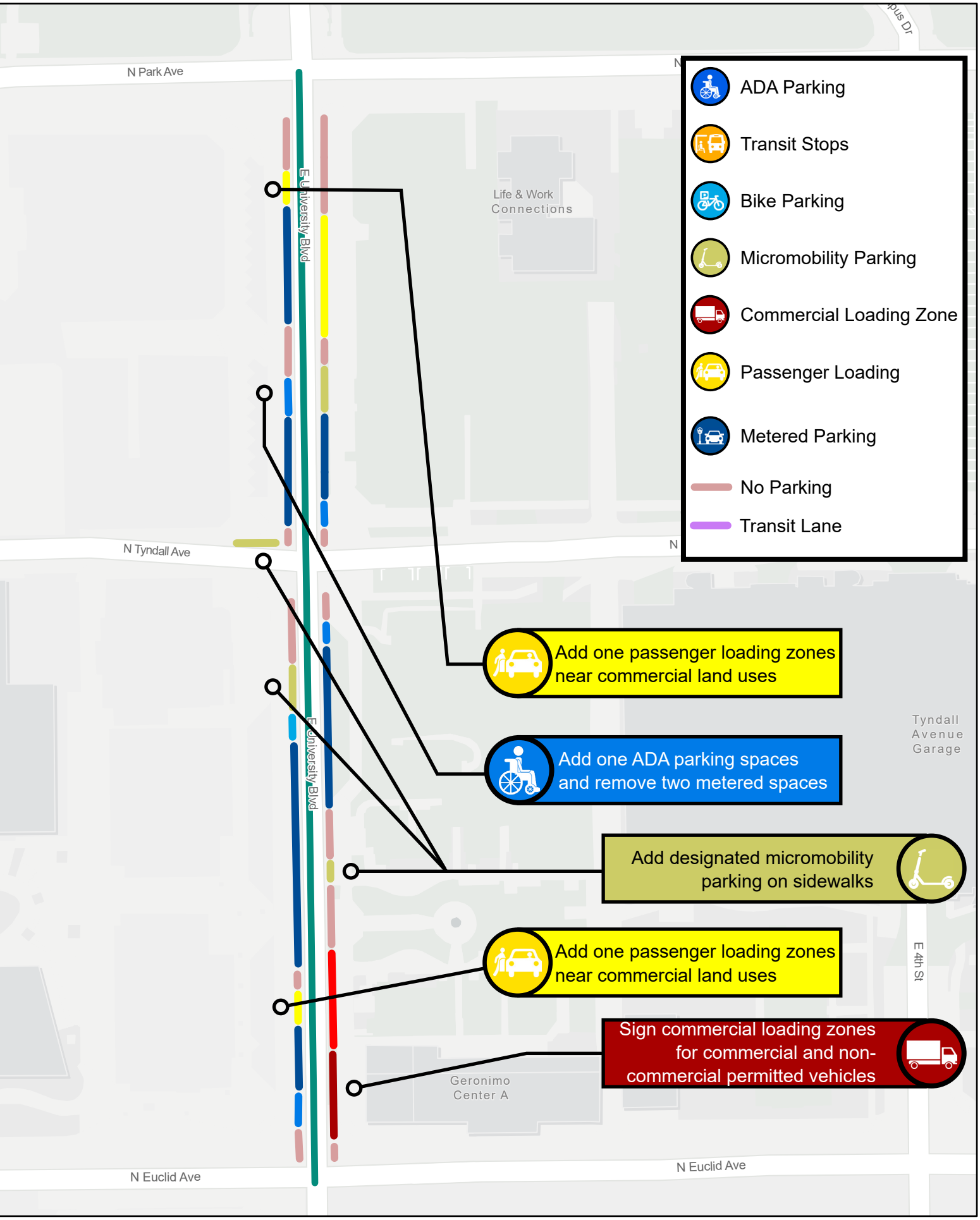
Angled parking limits the ability to use passenger loading zones for large commercial vehicles. Designate angled parking for passenger loading and parallel parking for a mixture of commercial and passenger loading.

Metered & Managed Parking

Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Entertainment Districts

For curb lanes in Entertainment Districts, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM and Thursday - Saturday: 8:00 AM - 12:00 AM.




ADA Parking
Transit Stops
Bike Parking
Micromobility Parking
Commercial Loading Zone
Passenger Loading
Metered Parking
No Parking
Transit Lane
Add one passenger loading zones near commercial land uses
Add one ADA parking spaces and remove two metered spaces
Add designated micromobility parking on sidewalks
Add one passenger loading zones near commercial land uses
Sign commercial loading zones for commercial and non-commercial permitted vehicles
N Park Ave
N Tyndall Ave
N Euclid Ave
E University Blvd
Life & Work Connections
Tyndall Avenue Garage
Geronimo Center A
E 4th St

Curb Allocation Summary - Entertainment District

CASE STUDY CORRIDORS

4th Ave: University Blvd to Congress St
Curb Typology: *Entertainment District*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, Bi-directional*
# of Bike Lanes: *None*
Sidewalk Width: *~12 Feet*

Curb Allocation Outcome Summary

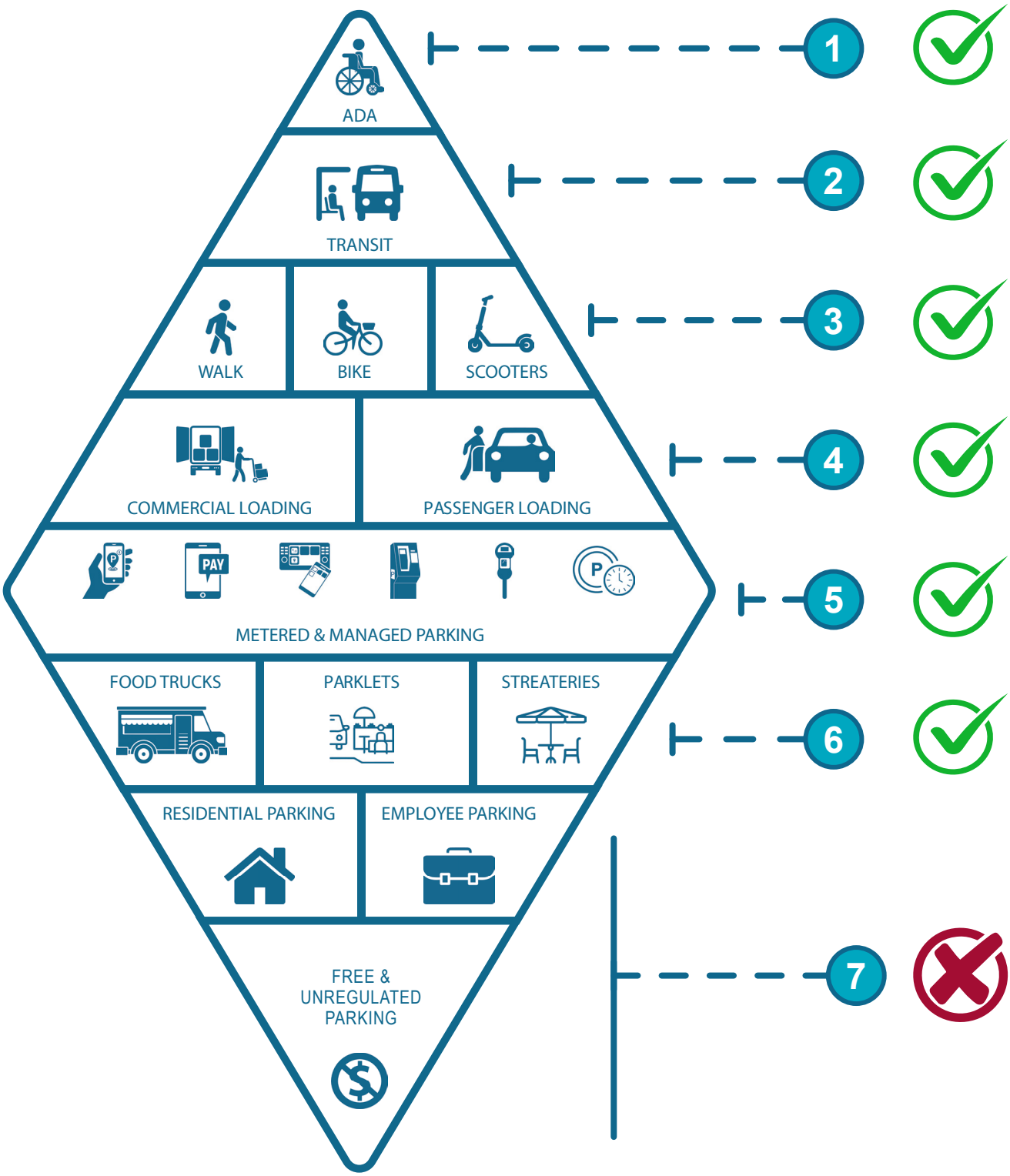
Using the Decision Diamond process, the following steps were identified to align the 4th Ave corridor with the stated priorities of Entertainment Districts.

- **Step 1:** ADA parking is provided at three of the twelve block-faces along the 4th Ave case study corridor. Additional ADA parking, signage, ramps, and striping is needed over the length of the corridor.
- **Step 2:** Transit stop accommodations are not needed in the curb lanes along this corridor. Additional coordination with Sun Link is needed to ensure there are no impediments to transit service.
- **Step 3:** Designate the intersections that warrant a curb extension and stripe the curb bulb outs as a low-cost alternative until additional funding for the curb extension is allocated.
- Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.
- **Step 4:** Designate commercial vehicle loading zones and incorporate signage that allows for commercial and permitted non-commercial vehicles.
- **Step 5:** Ensure that metered/managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the frontage zone, street furniture zone, and curb lane as needed.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Leverage the network of ADA parking spaces and loading zones on adjoining block-faces to enhance access for people and access for goods along this corridor.
- Loading zones installed along the 4th Ave corridor should be flexed to other curb uses if they are not needed.
- The 4th Ave corridor is in need of a complete streets overhaul and sidewalk beautification program.

Recommended Curb Uses



Applying the Curb Decision Diamond to the 4th Ave from University Blvd to Congress St case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: No. There were no ADA parking spaces identified on the block-faces being evaluated.

Question: If No, is one or more ADA parking space provided on the adjoining block-face?

Answer: Yes. Three ADA parking spaces were identified on adjoining block-faces along the 4th Ave case study corridor. Two ADA parking spaces are provided on E 5th St and one ADA parking space is provided on E 7th St.

Outcome: ADA parking is provided at three of the twelve block-faces along the 4th Ave case study corridor. Additional ADA parking, signage, ramps,and striping is needed over the length of the corridor.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: No. The transit stops along this corridor are located in the center of the roadway.

Outcome: Transit stop accommodations are not needed in the curb lanes along this corridor. Additional coordination with Sun Link is needed to ensure there are no impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there a curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: No. The N 4th Ave at E 6th St intersection is the only area where block-faces contain curb bulb outs.

Question: If No, evaluate the travel speed of the roadway. Is the roadway travel speed limit 20 MPH or more?

Answer: Yes. The travel speed limit on the 4th Ave corridor is 25 MPH.

Outcome: Designate the intersections that warrant a curb extension and stripe the curb bulb outs as a low-cost alternative until additional funding for the curb extension is allocated.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: Yes, bike and scooter parking are provided along the 4th Ave corridor.

Outcome: Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. Only one of the twelve block-faces provide a commercial vehicle loading zone.

Question: If No, do adjacent land uses need/want an on-street loading zone of its adjacent block-face?

Answer: Yes. The adjacent land uses are predominately commercial land uses and need access to on-street loading.

Outcome: Designate commercial vehicle loading zones and incorporate signage that allows for commercial and permitted non-commercial vehicles.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There are no passenger pick-up/drop-off zones on the block-faces being evaluated.

Question: If No, evaluate the parking occupancy in the area to determine each block-face's ability to function with less on-street parking.

Answer: Parking occupancy on the block-faces being evaluated is <75%.

Outcome: Remove at least two (2) parking spaces at the start or end of a block-face and install loading zones for passenger and commercial vehicles.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered or managed on the block-face being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit.

Outcome: Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: No. Only one outdoor dining location is provided on the block-faces being evaluated.

Question: If No, can outdoor dining needs be accommodated along the business's frontage zone and within the furniture zone?

Answer: Yes. Sidewalk widths along this corridor are ~12-Feet wide. Bistro seating can be accommodated on the sidewalk.

Outcome: Do not remove on-street parking for the addition of a parklet or streatery.

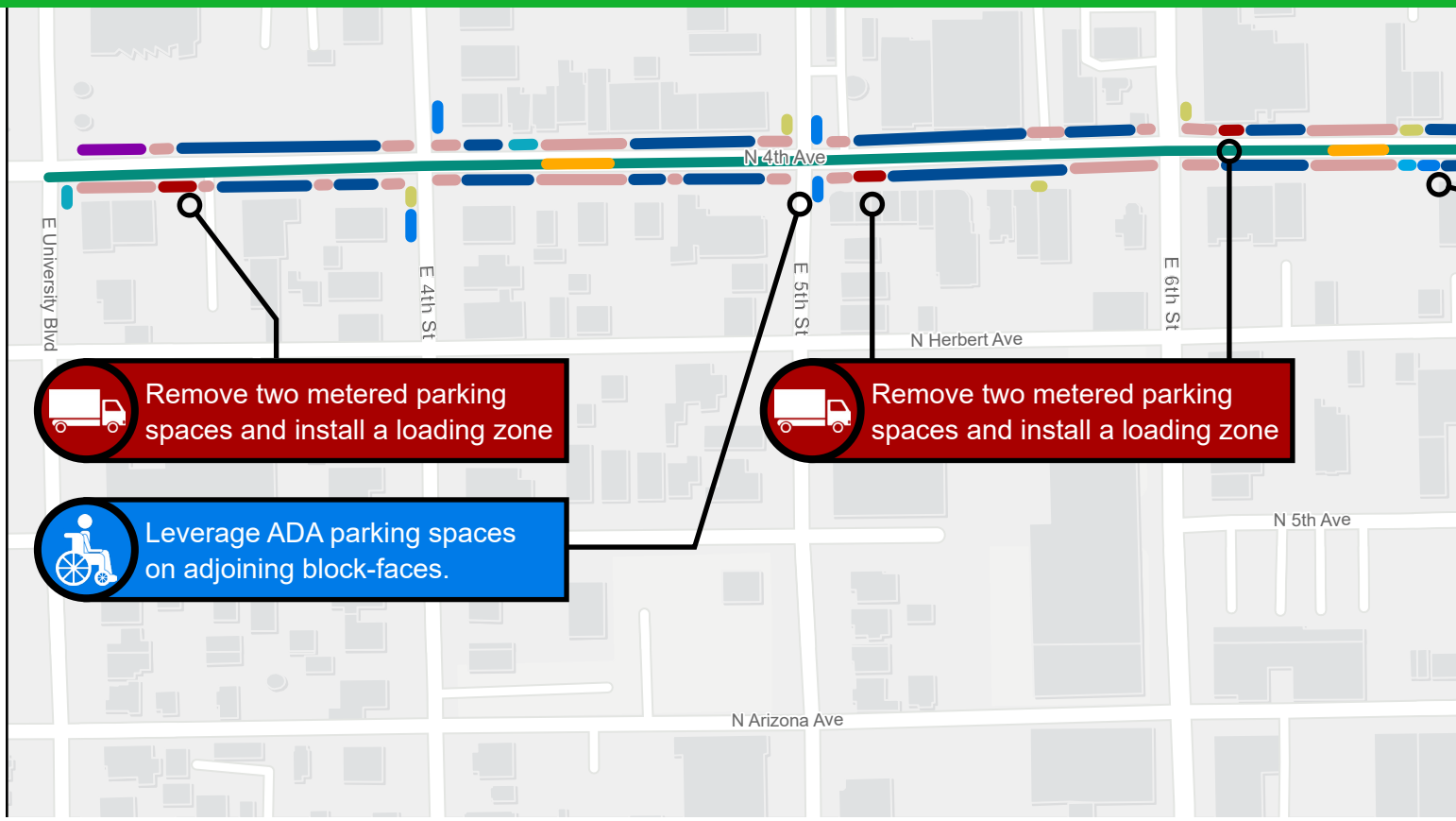
Step 7: Allowing Long-term Parking at the Curb

Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome: Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Recommended Action Items - Entertainment District



Implementation Actions

ADA Parking

Leverage ADA parking spaces provided on adjoining block-face to meet ADA parking demand.

Evaluate potential safety hazards associated with providing ADA parking spaces along a streetcar route.

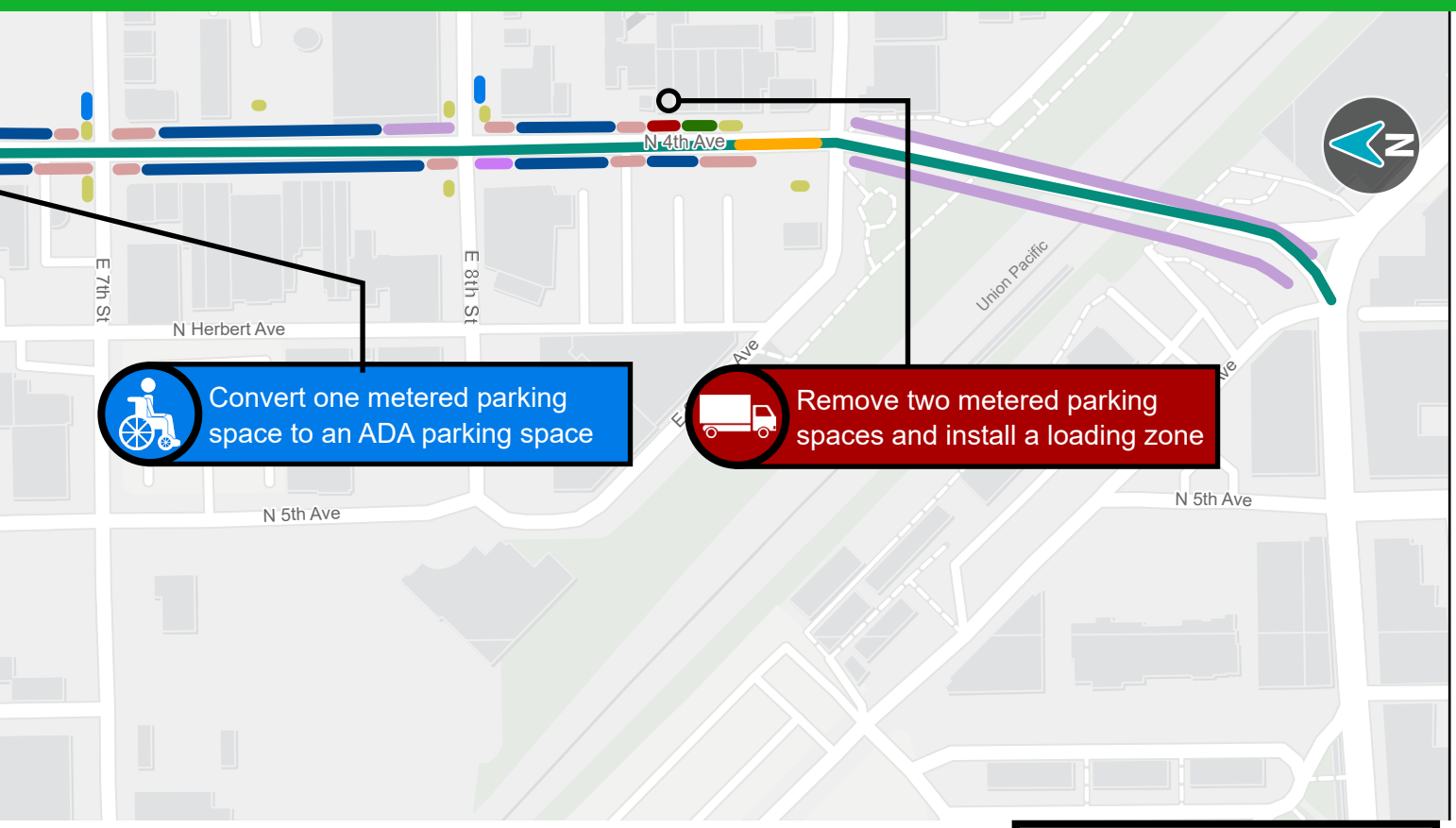
Transit Stops

Coordinate with Sun Link to ensure curb lane activity does not imped transit service. Understanding the interaction between passenger loading zones and transit lanes will be critical to minimizing interference with transit service.

Pedestrian, Bicycle, and Micromobility Enhancements

4th Ave between University Blvd and Congress St should be evaluated for a complete streets overhaul and future sidewalk beatification.

Use striping to install curb bulb outs to shorten the pedestrian crossing distance along this corridor and incorporate curb bulb outs into future roadway improvements.



Commercial & Passenger Loading Zones

Expand the network of loading zones along the 4th Ave corridor. Install four (4) loading zones along the 4th Ave corridor to allow for efficient loading and unloading before 11:00 AM. Loading zones along this corridor should be flexed to metered parking or passenger loading to address user demand.

Metered or Managed Parking

For curb lanes in Entertainment Districts, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM and Thursday - Saturday: 8:00 AM - 12:00 AM.

- ADA Parking
- Transit Stops
- Bike Parking
- Micromobility Parking
- Commercial Loading Zone
- Passenger Loading
- Metered Parking
- Streatery
- Bike Lane
- No Parking
- Transit Lane

Curb Allocation Summary - Entertainment District

CASE STUDY CORRIDORS

Congress St: East of Scott Ave
Curb Typology: *Entertainment District*
Speed Limit: *25 MPH*
# of Travel Lanes: *2 Lanes, One-way*
# of Bike Lanes: *None*
Sidewalk Width: *~15 Feet*

Curb Allocation Outcome Summary

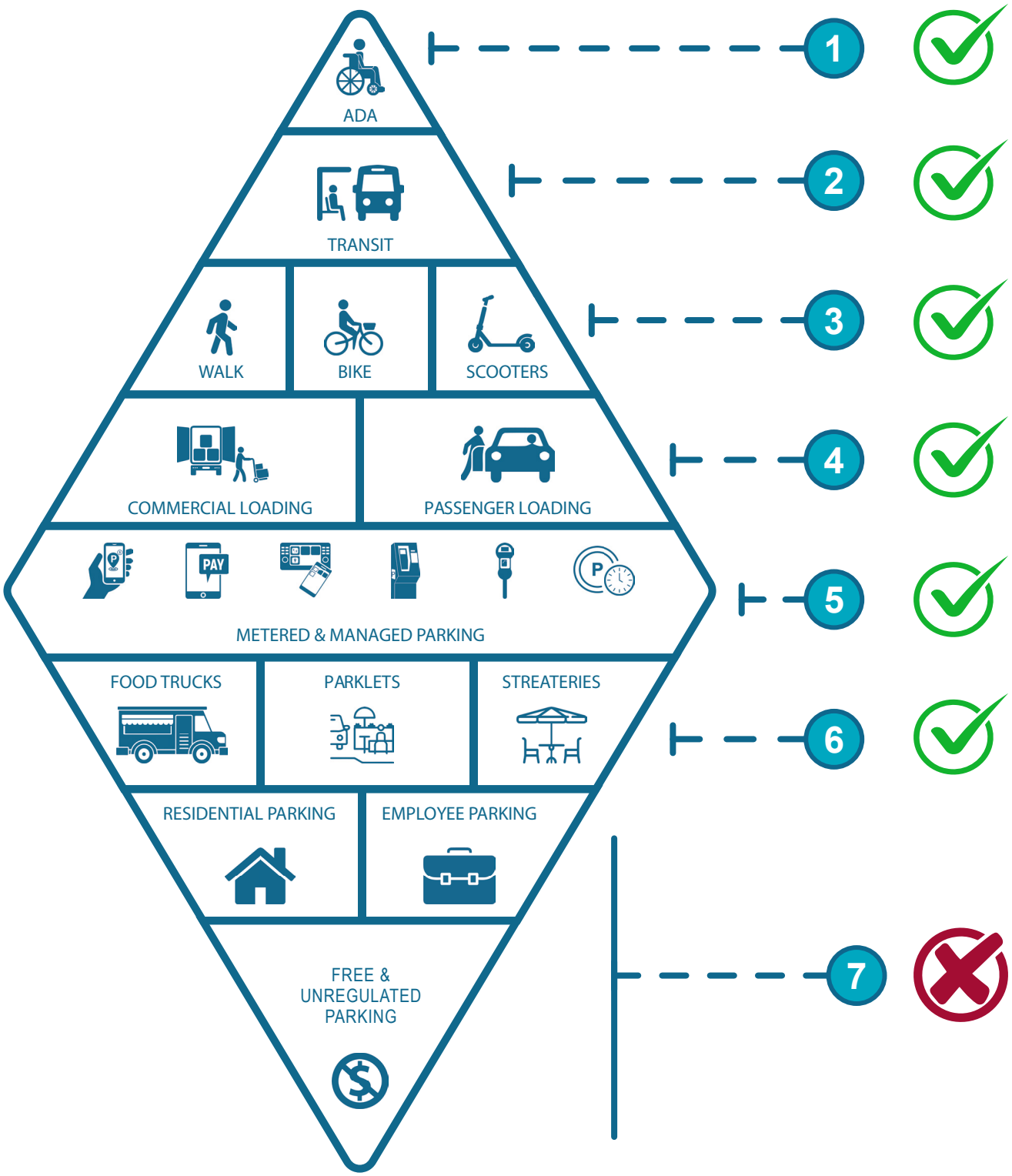
Using the Decision Diamond process, the following steps were identified to align the Congress St corridor with the stated priorities of Entertainment Districts.

- **Step 1:** ADA parking is provided at three of the six block-faces along the Congress St case study corridor. Ensure ADA parking signage, striping, and ramps are present and meet user needs.
- **Step 2:** There is a current transit stop at Congress St and 6th Ave. Ensure that there is No Parking signage at the transit stop and coordinate with Sun Link to determine if there are any impediments to transit service.
- **Step 3:** Ensure that No Parking signage is provided on this block-face and active curb lane uses can maneuver from the curb lane to the adjacent travel lane without obstructions.
- Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.
- **Step 4:** Designate commercial vehicle loading zones and incorporate signage that allows for commercial and permitted non-commercial vehicles.
- Ensure that passenger pick-up/drop-off zone is signed for short-term parking and sized appropriately to prevent double-parked vehicles.
- **Step 5:** Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the frontage zone, street furniture zone, and curb lane as needed.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Flex passenger loading zones to allow for commercial loading during times when demand for the delivery of goods is at its peak.
- Remove any objects that impede the pedestrian through zone or require pedestrians to enter the roadway as a detour for outdoor dining.

Recommended Curb Uses



Applying the Curb Decision Diamond to the Congress Street East of Scott Ave case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: Yes. Three of the six block-faces being evaluated provided ADA parking.

Outcome: Ensure ADA parking signage, striping, and ramps are present and meet user needs.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. The Congress @ 6th Ave streetcar stop is on this corridor.

Outcome: Ensure that there is No Parking signage at the transit stop. Additional coordination with Sun Link is needed to determine if there are any impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: Yes. There are curb bulb outs on the block-faces/sidewalks along the corridor.

Outcome: Ensure that No Parking signage is provided on these block-faces and active curb lane users can maneuver from the curb lane to the adjacent travel land without obstructions.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: Yes, bike parking is provided along the Congress St case study corridor.

Outcome: Use data collection methods such as video analytics, micromobility data streets, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. There is only one commercial loading zone on the six block-faces being evaluated.

Question: If No, do adjacent land uses need/want an on-street loading zone on its adjacent block-face?

Answer: Yes. The adjacent land uses are predominately commercial land uses and need access to on-street loading.

Outcome: Designate commercial vehicle loading zones and incorporate signage that allows for commercial and permitted non-commercial vehicles.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: Yes. There are four passenger loading zones on the block-faces being evaluated.

Outcome: Ensure that passenger pick-up/drop-off zone is signed for short-term parking and sized appropriately to prevent double-parked vehicles.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered or managed on the block-face being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit.

Outcome: Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: Yes. Outdoor dining is provided along Congress St as Streateries between 6th Ave and Scott Ave.

Outcome: Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.

Step 7: Allowing Long-term Parking at the Curb

Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome: Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Implementation Actions

ADA Parking

No additional ADA parking spaces are needed along this case study corridor.

ADA parking at the adjoining block-faces on 6th St could present a hazard for persons with disabilities. Traffic calming measures are needed before ADA parking spaces can be placed at this location.

Transit Stops

Add No Parking signage along this transit corridors.

Evaluate options to automate parking enforcement at transit stops and along transit routes.

Bicycle Parking & Micromobility Parking

Identify locations for scooter parking on sidewalks and share bike parking areas for scooter parking.

Only place bike and scooter parking in the curb lane when sidewalk space is inadequate.

Commercial & Passenger Loading Zones

Flex passenger loading zones to allow for commercial loading during times when demand for the delivery of goods is at its peak.

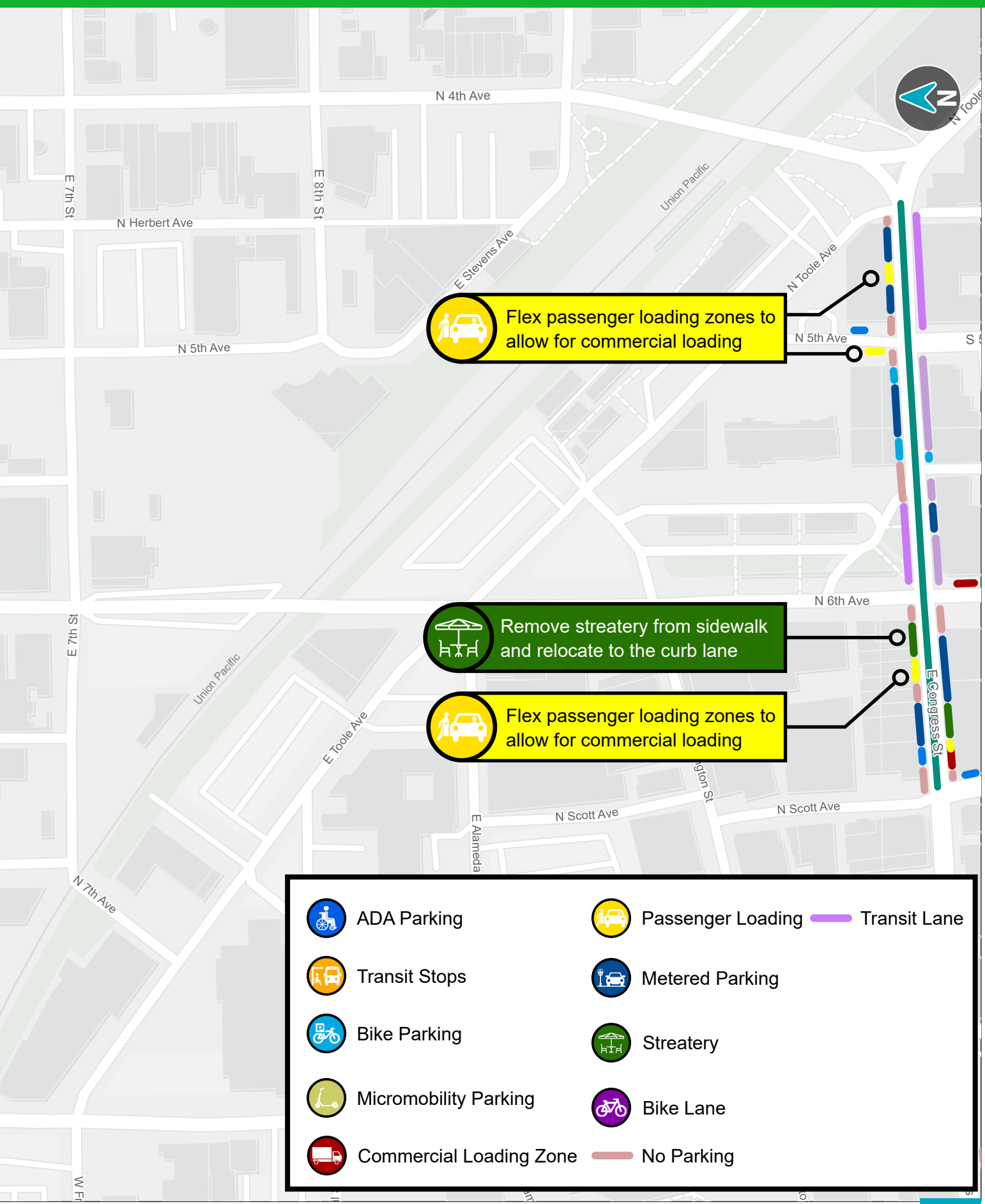
Metered & Managed Parking

For curb lanes in Entertainment Districts, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM and Thursday - Saturday: 8:00 AM - 12:00 AM.

Outdoor Dining

Remove the outdoor dining provided on the northern block-face of Congress St between 6th Ave and Scott Ave and relocate this dining area to the curb lane if it meets the requirements in the decision-making tree on page 65. Allow the current operator of the Streatery to apply for an outdoor permit and incorporate fees associated with renting the on-street parking spaces along their store front.

Remove any objects that impede the pedestrian through zone or require pedestrians to enter the roadway as a detour for outdoor dining.


N 4th Ave
E 7th St
E 8th St
N Herbert Ave
Union Pacific
E Stevens Ave
N Toole Ave
N 5th Ave
Flex passenger loading zones to allow for commercial loading
N 6th Ave
Remove streatery from sidewalk and relocate to the curb lane
Flex passenger loading zones to allow for commercial loading
E Toole Ave
E Alameda
N Scott Ave
E Congress St
N 7th Ave
ADA Parking
Passenger Loading
Transit Lane
Transit Stops
Metered Parking
Bike Parking
Streatery
Micromobility Parking
Bike Lane
Commercial Loading Zone
No Parking

Urban Core

Urban Core areas have a higher number of commuters than present in other curb typologies. The stated curb priorities for Urban Core roadways are highlighted below. The Urban Core curb typology is exemplified by the Stone Ave corridor, north of Broadway Blvd.

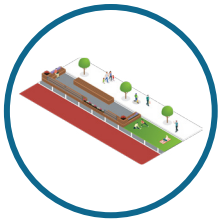
Stated Curb Priorities

Mobility

Storage for Vehicles

Access For People

Access For Goods



Public Space

This corridor prioritizes mobility by providing two lanes of one-way traffic flow for vehicles, a dedicated bike lane for cyclists, and transit service along an undedicated travel lane. Storage of vehicles is provided through metered parking and bike racks on the sidewalk. Access for people and goods is accommodated by transit stops and multiple freight loading zones. Public space is provided at areas with curb extensions/bulb-outs that supply additional sidewalk space. This increases the corridor's ability to provide public space while maintaining a safe pedestrian environment.

Corridor: N. Stone Ave, North of Broadway Blvd

The stated curb priorities for the Urban Core places Mobility, Storage for Vehicles, and Access for People as the top three. The case study corridor examined is along Stone Ave north of Broadway Blvd, specifically from Broadway Blvd to W Franklin St.

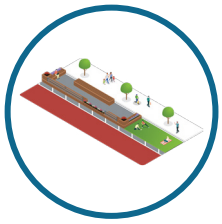
Stated Curb Priorities

Mobility

Storage for Vehicles

Access For People

Access For Goods



Public Space

Below are the common uses for the stated curb priorities in the Urban Core. In order for the existing conditions to match the stated priorities along the Stone Ave corridor, these curb lane attributes should be present.

Mobility Priorities

Common curb lane usage related to the Mobility priority includes:

- Travel Lanes
- Bike Lanes
- No Parking Zones
- Crosswalks

Storage of Vehicles Priorities

Common curb lane usage related to the Storage for Vehicles priority includes:

- Bicycle Parking
- Free/Metered Parking
- EV Charging
- ADA Parking

Access for People

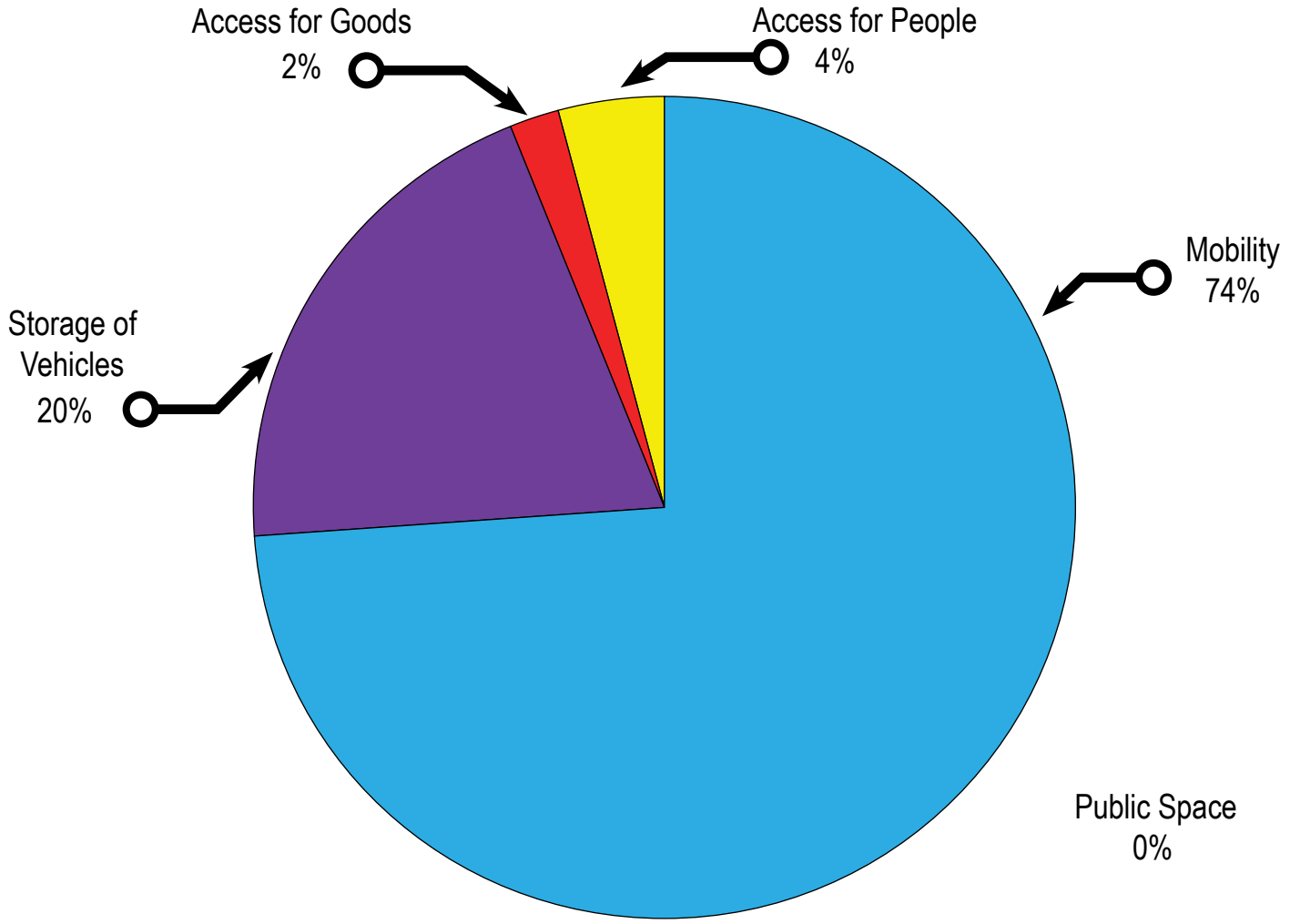
Common curb lane usage related to the Access for People priority includes:

- Passenger Loading Zones
- Micromobility Parking
- Transit Stops
- Specialized Loading/ Paratransit

The chart below displays the overall existing percentage of curb lane usage along the corridor. The existing curb uses prioritize Mobility and Storage of Vehicles.

- Mobility accounts for 74% of the curb lane attributes,
- Storage of Vehicles accounts for 20%, and
- Access for People accounts for 4% and Access for Goods is 2%.
- There is no dedicated curb space for Public Spaces.

Actual Curb Lane Priorities for the Urban Core



The existing conditions align with the Urban Core stated priorities. To ensure continued alignment, the specific curb lane uses should be evaluated within each priority to ensure that each individual use is efficiently serving its community. Additionally, the percentage of curb usage for each priority should be evaluated to analyze whether each priority is adequately met. For example, although existing conditions show Access for People as the Urban Core's third priority, the neighborhood might still benefit from an increase in curb usages related to the priority as it only represents 4% of the total curb lane attributes.

Approximately 43% of the curb lane is dedicated to travel lanes for both vehicular and transit traffic. Additionally, 13% of the curb is used for parking protected bike lanes and 16% for crosswalks. No parking zones account for 4%.

All 20% of the Storage of Vehicles priority is for metered parking.

There are two transit stops which account for the 4% of curb lane attributes related to Access for People.


CASE STUDY CORRIDOR
Stone Ave: North of Broadway Blvd
Curb Typology: Urban Core
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, One-way
# of Bike Lanes: 2
Sidewalk Width: ~12 Feet
N Scott Ave
E Alameda St
E Pennington St
E Congress St
E Broadway Blvd
Chase
S Stone Ave
N Stone Ave
W Alameda St
W Pennington St
W Congress St
W Broadway Blvd
Tucson Electric Power Company
N Church Ave
Veinte de Agosto Park
La Placita Park
El Presidio Park
N Court Ave
W Telles St
N

Curb Allocation Summary - Urban Core

CASE STUDY CORRIDOR

Stone Ave: North of Broadway Blvd
Curb Typology: Urban Core
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~12 Feet

Curb Allocation Outcome Summary

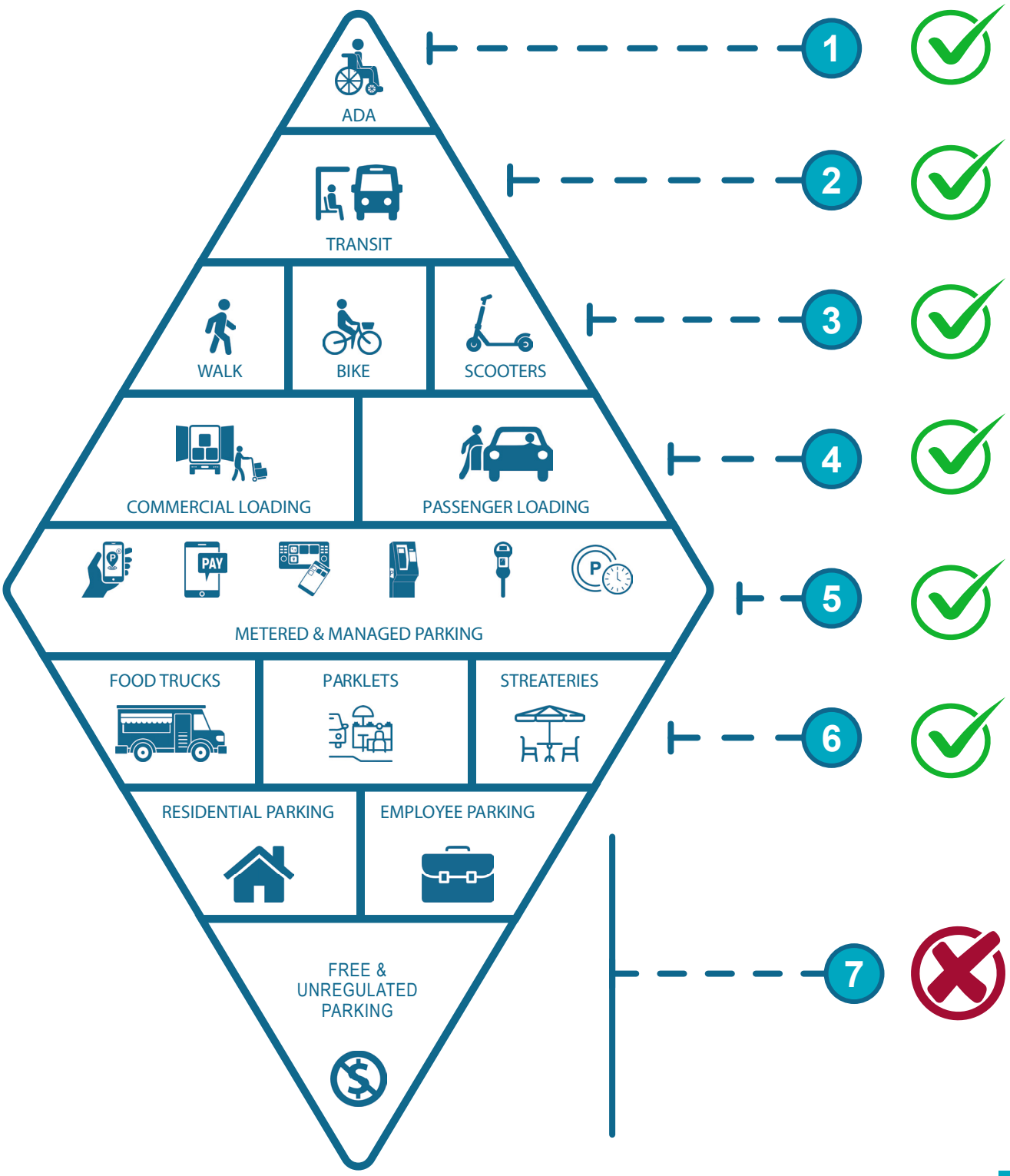
Using the Decision Diamond process, the following steps were identified to align the Stone Ave corridor with the stated priorities of the Urban Core.

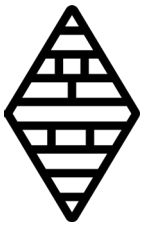
- **Step 1:** Ensure ADA parking signage, striping, and ramps are present and meet user needs.
- **Step 2:** Ensure that there is No Parking signage the transit stop. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.
- **Step 3:** Ensure that no parking signage is provided on this block-face and active curb lane uses can maneuver from the curb lane to the adjacent travel land without obstructions.
- Use data collection methods such as video analytics, micromobility data streets, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.
- Add bike parking to the parking protected bike lane at the intersection of Stone Ave and Council St.
- **Step 4:** Ensure that loading zone signage and striping are easy to understand and visible to the user.
- Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.
- **Step 5:** Ensure that metered/managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Add one ADA parking space on the northern block-face of W Pennington St where it intersects Stone Ave.
- In addition to red curb paint, consider adding No Parking signage at transit stops. Coordinate with Sun Tran to ensure curb lane activity does not impede transit service.
- Add bike parking to the parking protected bike lane at the intersection of Stone Ave and Council St.
- Remove two on-street parking spaces on Stone Ave near Broadway Blvd and install a loading zone that accommodates commercial and permitted non-commercial loading. This commercial loading zone should also be used to provide a passenger pick-up/drop-off zone.

Recommended Curb Uses





Applying the Curb Decision Diamond to the Stone Ave north of Broadway Blvd case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: Yes. ADA parking spaces are provided on block-faces along curb lanes that are not used as travel lanes or on adjoining block-faces near the corridor being evaluated.

Outcome: Ensure ADA parking signage, striping, and ramps are present and meet user needs.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. There is a transit stop at Stone Ave between Toole Ave and Council St and a transit stop at Stone Ave between Council St and Alameda St.

Outcome: Ensure that there is No Parking signage at both transit stops. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: Yes. There are curb bulb outs on the block-faces/sidewalks along the corridor.

Outcome: Ensure that No Parking signage is provided on this block-face and active curb lane users can maneuver from the curb lane to the adjacent travel lane without obstructions.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-face being evaluated?

Answer: Yes, bike parking is provided along the Stone Ave case study corridor.

Outcome: Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.

Add bike parking to the parking protected bike lane at the intersection of Stone Ave and Council St.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: Yes. There are designated commercial loading zones on three of the five curb lanes that can accommodate loading zones.

Outcome: Ensure that loading zone signage and striping are easy to understand and visible to the user.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There is only one passenger pick-up/drop-off zone on the block-faces being evaluated.

Question: If No, does the block-faces being evaluated contain a commercial vehicle loading zone?

Answer: Yes. There are commercial vehicle loading zones along the corridor.

Outcome: Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered or managed on block-faces being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit, except for the block of Stone Ave between Alameda St and Pennington St which has a one-hour max time limit

Outcome: Ensure that metered/managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: Yes. Outdoor dining is provided at two locations on Stone Ave.

Outcome: Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.

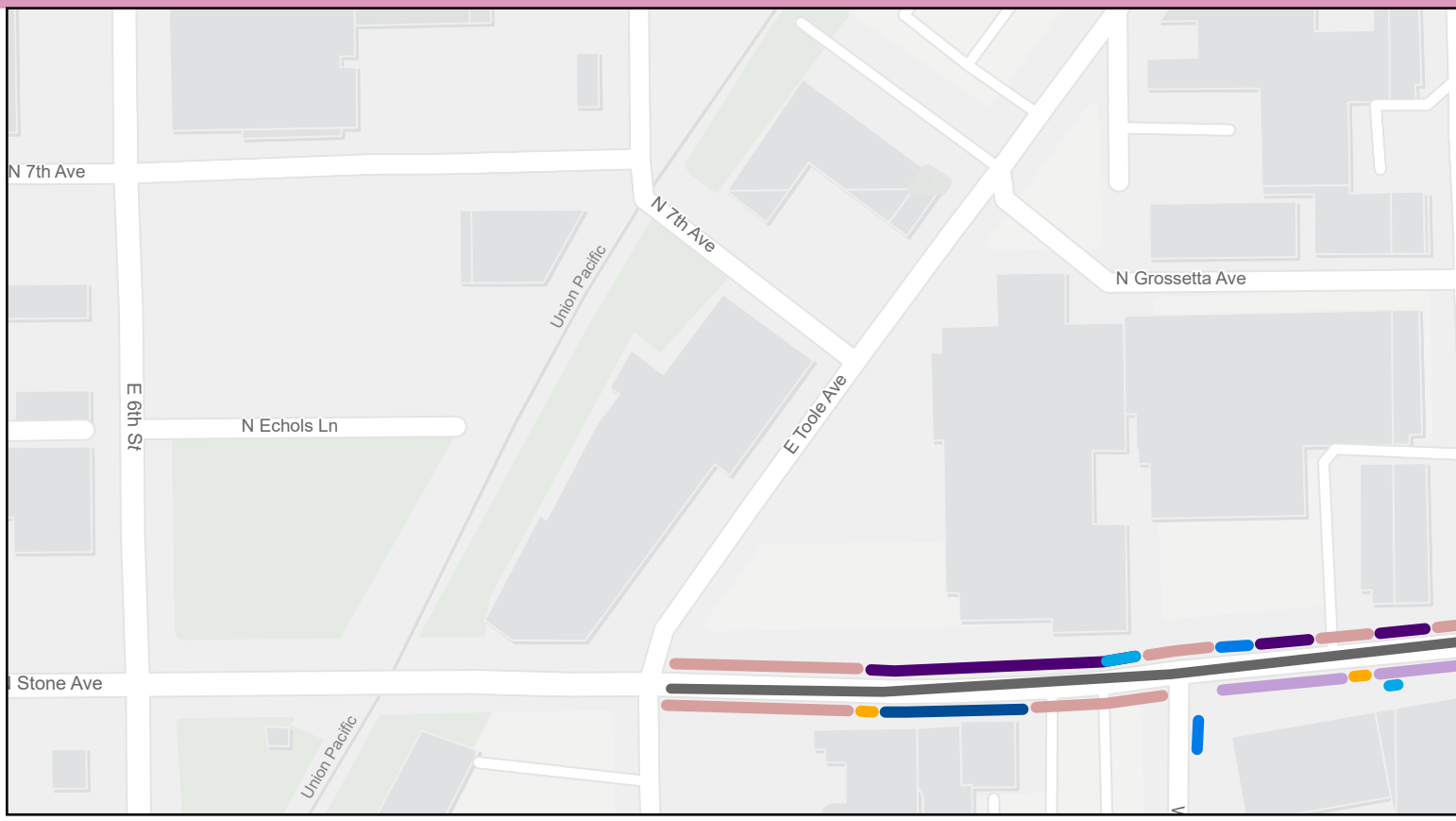
Step 7: Allowing Long-term Parking at the Curb

Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome: Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Recommended Action Items - Urban Core



Implementation Actions

ADA Parking

Add one ADA parking space on the northern block-face of W Pennington St where it intersects Stone Ave.

Transit Stops

In addition to red curb paint, consider adding No Parking signage at transit stops. Coordinate with Sun Tran to ensure curb lane activity does not imped transit service.

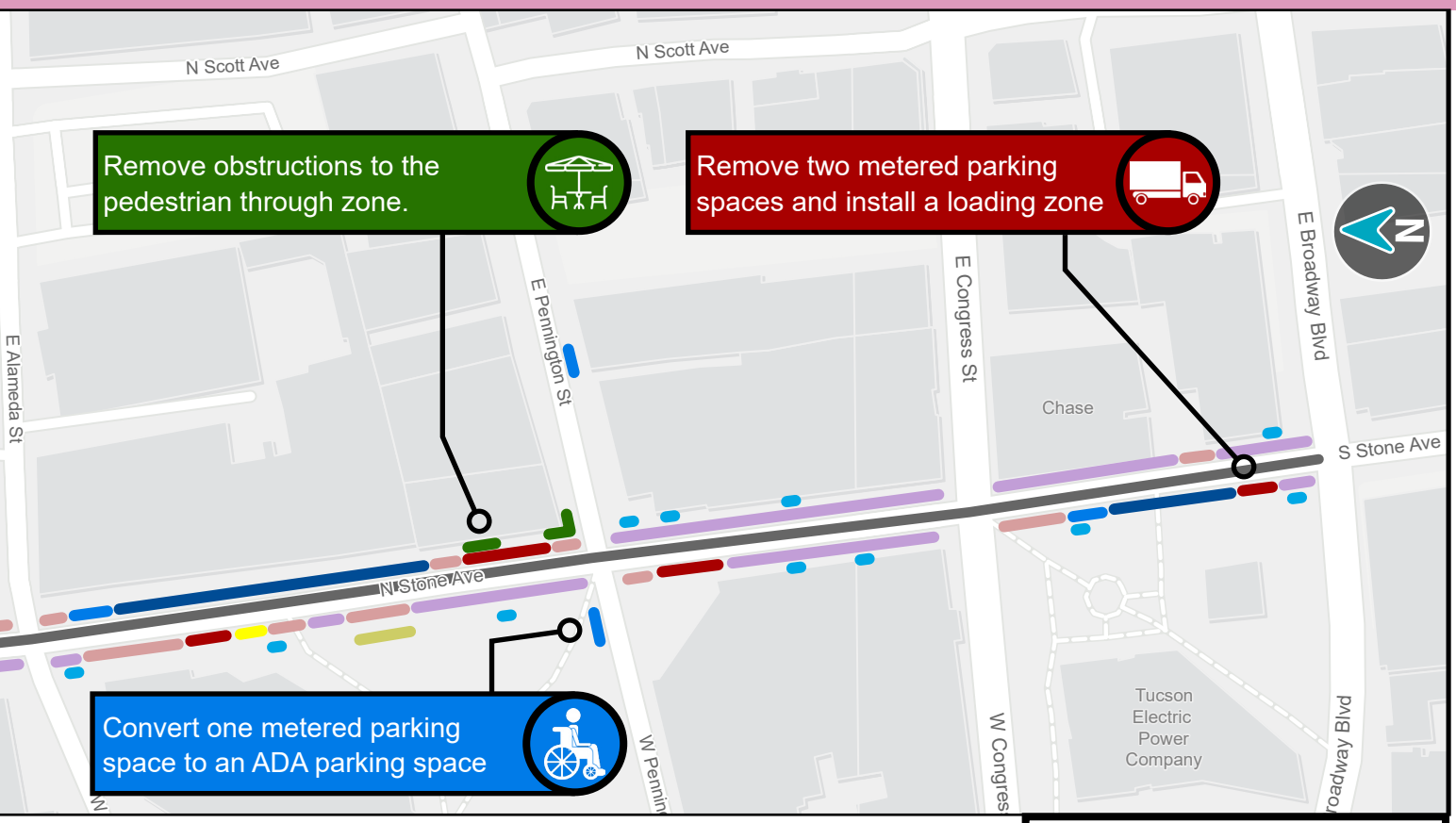
Pedestrian, Bicycle, and Micromobility Enhancements

Add bike parking to the parking protected bike lane at the intersection of Stone Ave and Council St.

Commercial & Passenger Loading Zones

Remove two on-street parking spaces on Stone Ave near Broadway Blvd and install a loading zone that accommodates commercial and permitted non-commercial loading.

Flex commercial loading zone in the Urban Core to provide a passenger pick-up/drop-off zone.



ADA Parking

Transit Stops

Bike Parking

Micromobility Parking

Commercial Loading Zone

Passenger Loading

Metered Parking

Streatery

Bike Lane

No Parking

Transit Lane

Metered & Managed Parking

Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Urban Core to determine if extended hours of operation are needed.

Outdoor Dining

Ensure that all outdoor dining areas do not obstruct the pedestrian through zone. If impediments to pedestrian movement are identified, coordinate with the business owner to remove obstructions and ensure the outdoor dining areas use the frontage zone, furniture zone, or curb lane to meet their outdoor dining needs.

Low-Density Residential

Low-Density Residential areas prioritize residential parking and often have restricted curb lane uses through Residential Parking Permit Programs. A corridor that exemplifies this curb typology is University Blvd from Euclid Ave to Main Ave.

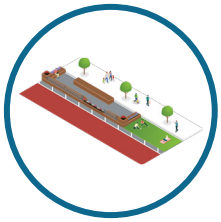
Stated Curb Priorities

Mobility

Storage for Vehicles

Access For People

Access For Goods



Public Space

Traffic volumes are typically lower in Low-Density Residential areas, which allows for less roadway space dedicated to the movement of vehicles. Low-Density Residential areas often have open access curb lanes that allow motorists and cyclists to stop at any point along the curb, supporting the needs for the Access of People and the Access of Goods. Conversely, low density areas typically have limited access via transit. In this corridor typology, curb space is not typically dedicated for Public Space or Access for Goods. The Storage of Vehicles can be accommodated at the curb or at off-street parking locations provided for residences.

Corridor: University Blvd, West of Euclid Ave

The stated curb priorities for Low-Density Residential, shown below, places Mobility and Storage for Vehicles as the top two. The case study corridors examined are University Blvd from Main Ave to Euclid Ave and 4th Ave from 12 St to 16 St.

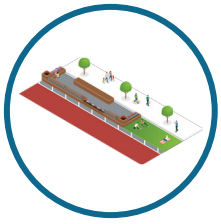
Stated Curb Priorities

Mobility

Storage for Vehicles

Access For People

Access For Goods



Public Space

Below are the common uses for the stated curb priorities in the Low-Density Residential area. In order for the existing conditions to match the stated priorities along the two corridors, these curb lane attributes should be present.

Mobility Priorities

Common curb lane usage related to the Mobility priority includes:

- Travel Lanes
- Bike Lanes
- No Parking Zones
- Crosswalks

Storage of Vehicles Priorities

Common curb lane usage related to the Storage for Vehicles priority includes:

- Bicycle Parking
- Free or Metered Parking
- EV Charging
- ADA Parking

Access for People

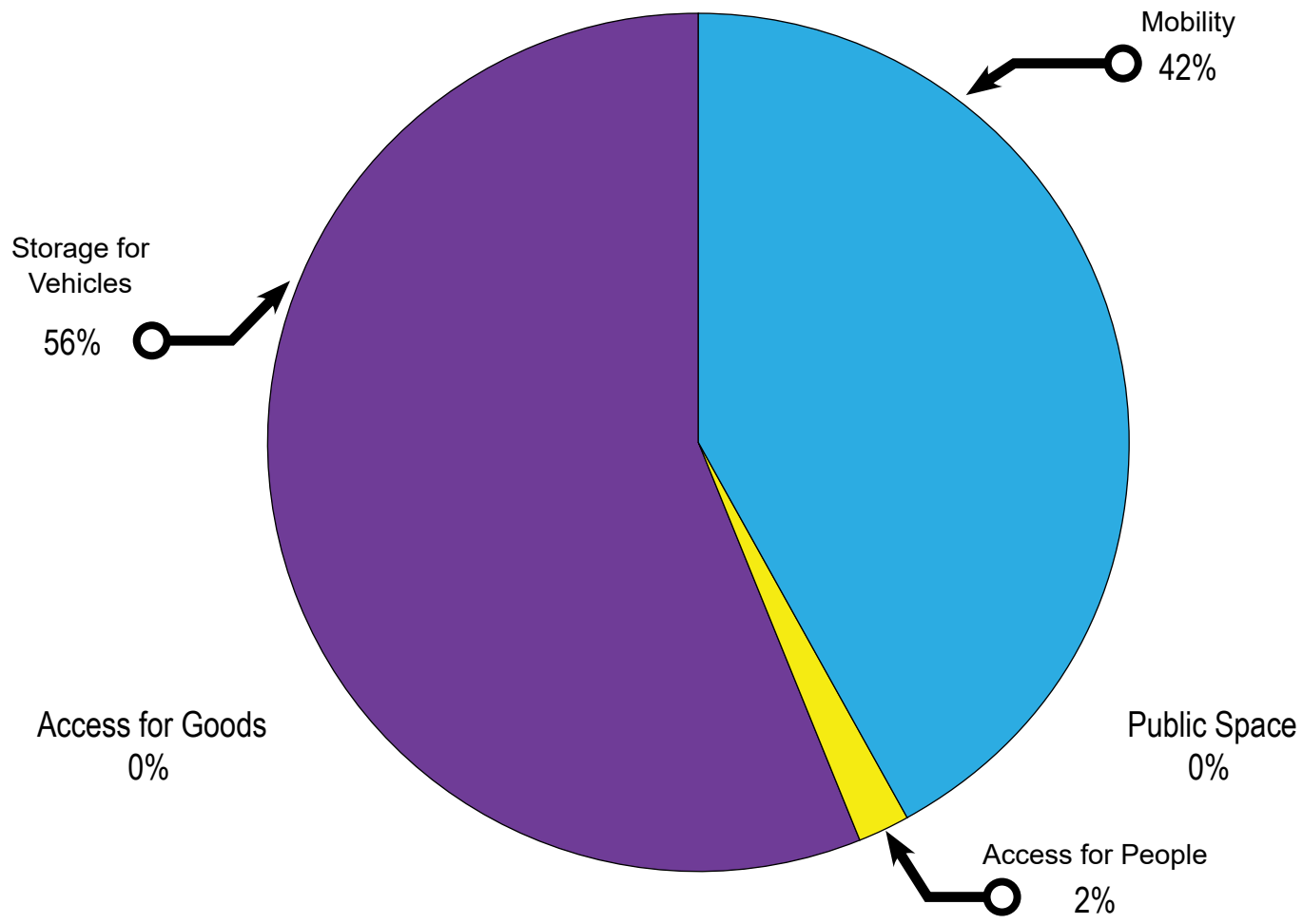
Common curb lane usage related to the Access for People priority includes:

- Passenger Loading Zones
- Micro-mobility Parking
- Transit Stops
- Specialized Loading/ Paratransit

The chart below displays the overall existing percentage of curb lane usage along the corridor. The existing curb uses prioritize Storage of Vehicles.

- Mobility accounts for 42% of the curb lane attributes,
- Storage of Vehicles accounts for 56%, and
- Access for People accounts for 2%.
- There is no dedicated curb space for Access for Goods or Public Spaces.

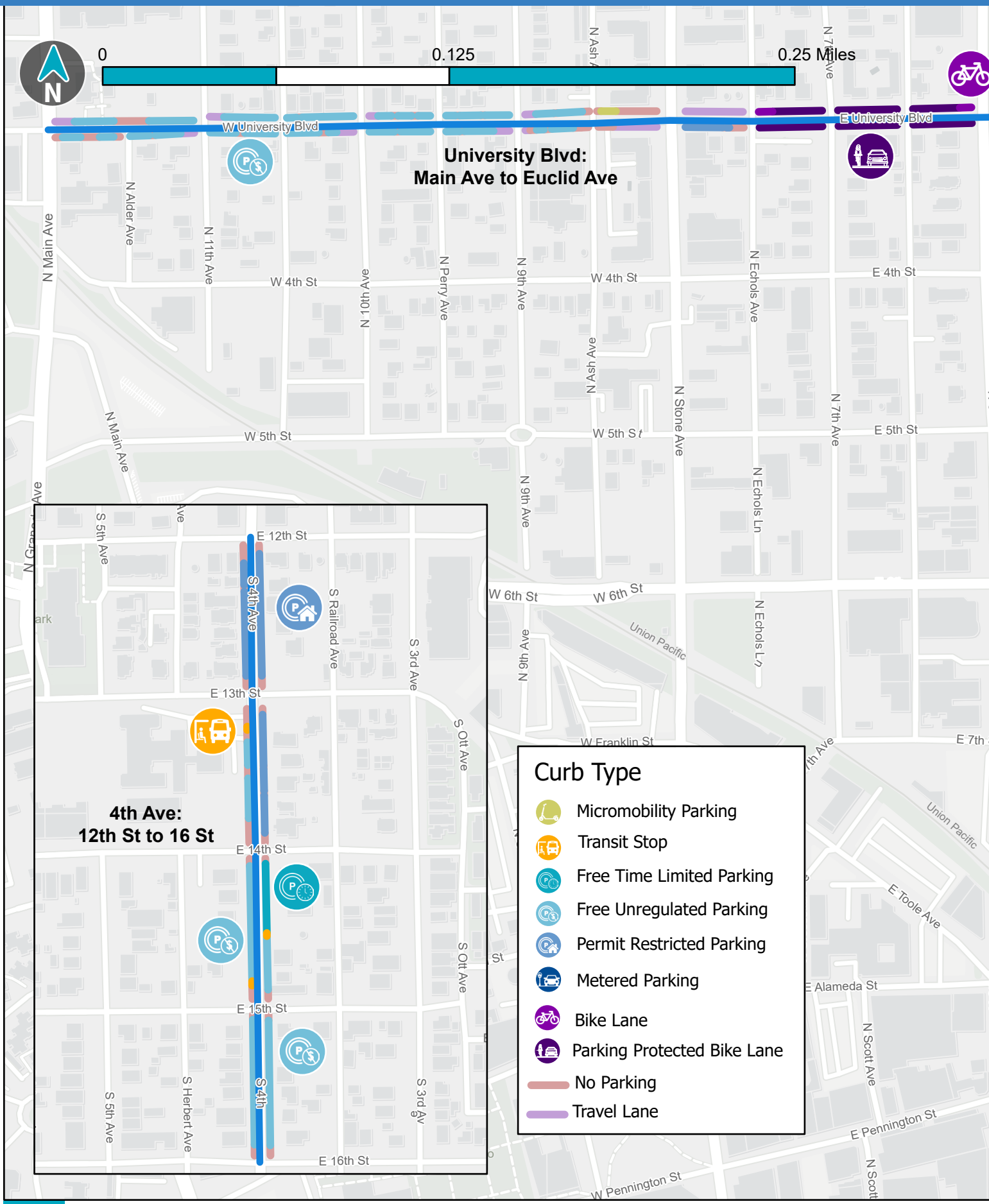
Actual Curb Lane Priorities for the Low Density Residential

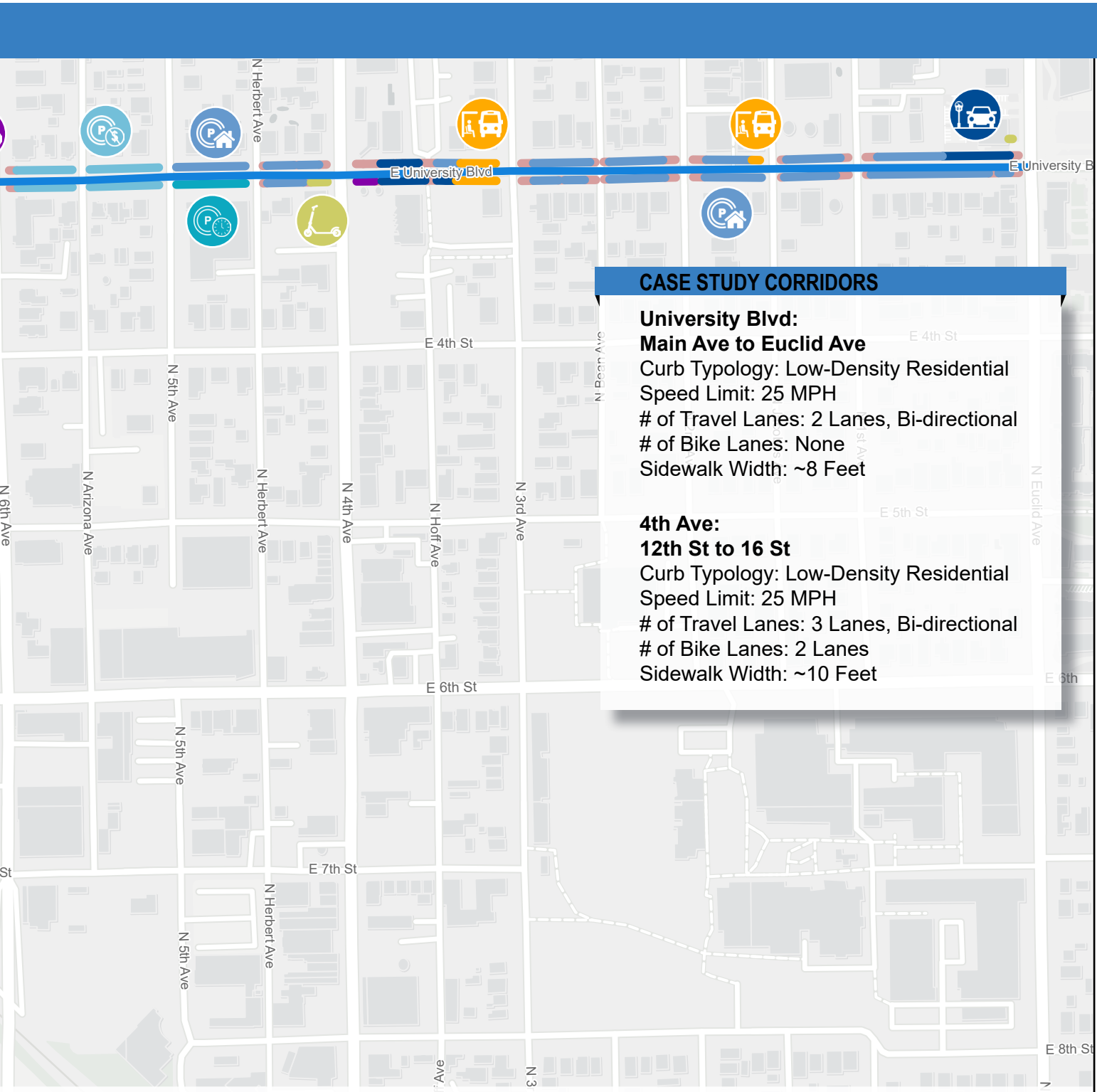


The existing conditions generally align with the Low-Density Residential stated priorities. However, Mobility is the most important stated priority but the existing conditions show slightly higher curb usage relating to Storage for Vehicles. To improve, the corridor should evaluate:

- **Addition of more parking protected bike lanes to complement the existing on-street parking**
- **Removal of some parking and replacement with other curb uses that enhance Access for People and Access for Goods**

Map of Curb Lane Attributes for Low Density Residential





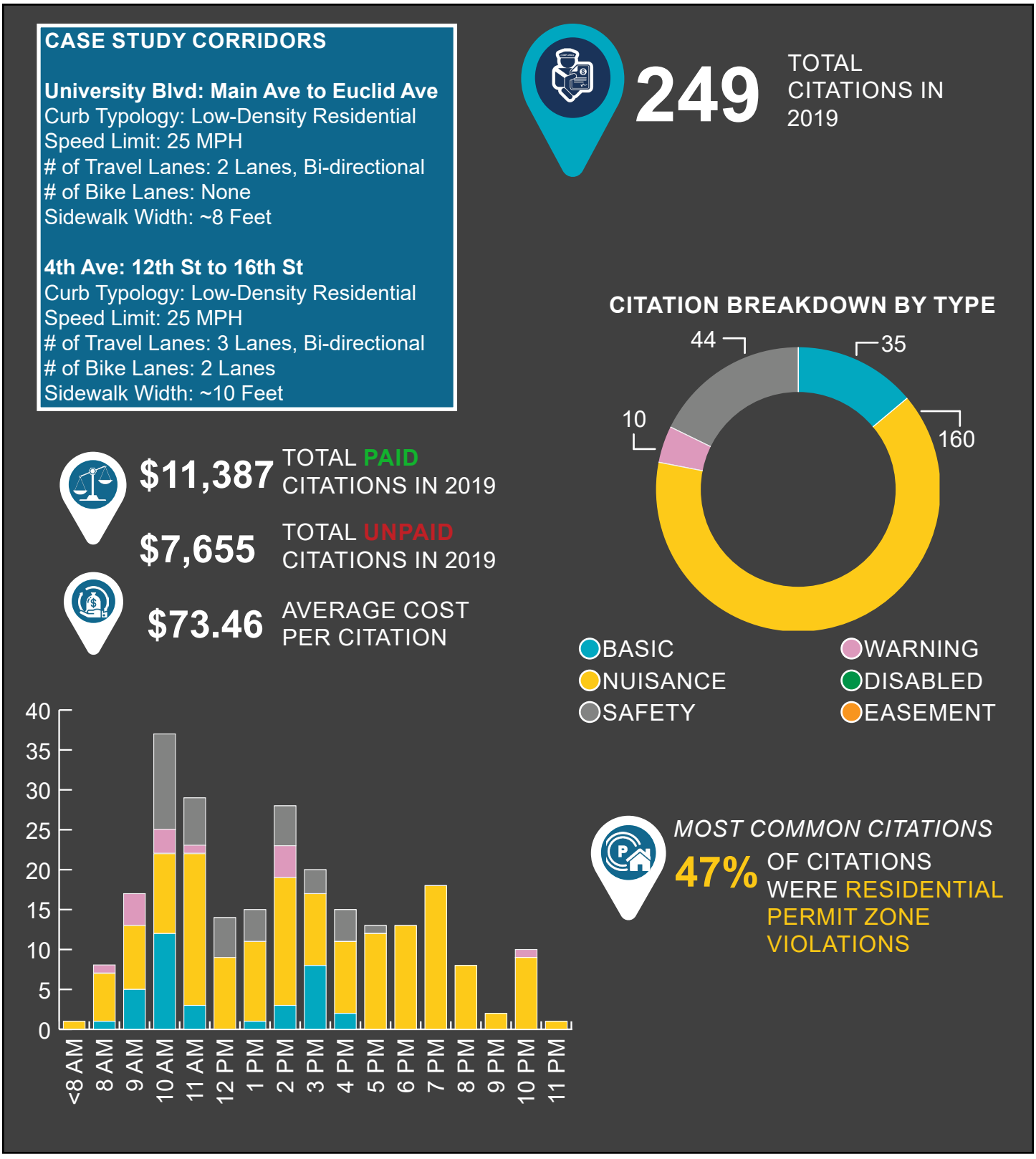
Within the Storage of Vehicles priority the majority of the curb lane usage is for free parking. Throughout the neighborhood typology, there is a mix of residential permit parking, free unregulated parking, and free time limited parking. Along the 4th Ave corridor, ~78% of the curb lane usage is for parking, indicating a preference for on-street parking as the main curb use.

Approximately 23% of the curb lane along the two corridors is for no parking areas, such as driveways or No Parking areas close to crosswalks.

Approximately 8% of the curb lane usage is for parking protected bike lanes.

Citations Analysis

Citations issued in 2019 were evaluated for corridors identified as Low-Density Residential. A summary of the issued citations are detailed below.



Corridor Considerations

Based on the existing curb use allocation and citation issuance the following attributes warrant further evaluation for future use.

 **Access For Goods**	 **Access For People**	 **Mobility**
Evaluate the need for designated areas that support the delivery of goods. Areas with lower rates of parking occupancy can accommodate loading needs without providing a designated zone	Diversify on-street parking to ensure there is adequate space for passenger loading, micro-mobility, and other curb uses that support access for people	Evaluate opportunities to enhance roadway safety for people using bikes in low-density residential areas. Parking protected bike lanes and traffic calming strategies should be explored

 **Public Space**	 **Storage for Vehicles**	 **Compliance**
Public Space curb uses such as parklets can enhance low-density residential areas and support activation Evaluate opportunities to install bioswales and greening in these areas	Additional curb space for the storage of vehicles is not needed in these areas. Provide consistent management to create a predictable parking experience.	Review residential parking signage to ensure curb users understand the rules and regulations associated with restricted parking access

Curb Allocation Summary - Low-Density Residential

CASE STUDY CORRIDORS

University Blvd: Main Ave to Euclid Ave
Curb Typology: Low-Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, Bi-directional
# of Bike Lanes: None
Sidewalk Width: ~8 Feet

Curb Allocation Outcome Summary

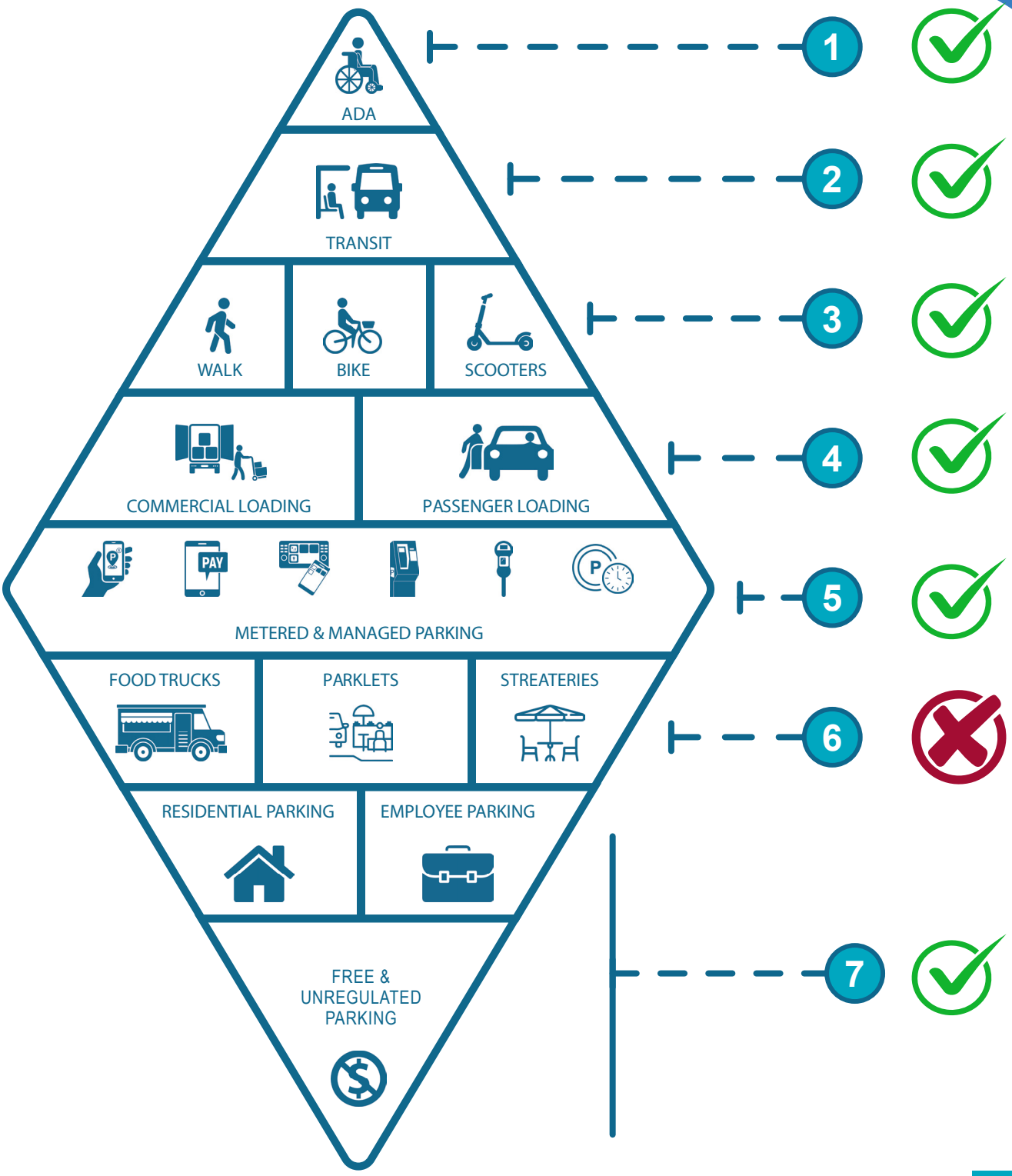
Using the Decision Diamond process, the following steps were identified to align the University Blvd corridor with the stated priorities of Low-Density Residential Areas.

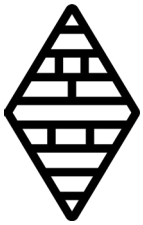
- **Step 1:** ADA parking on this corridor may be warranted. Survey the adjacent land uses to determine their ADA parking needs.
- **Step 2:** Transit stop accommodations are not needed in the curb lanes along this corridor. Additional coordination with Sun Link is needed to ensure there are no impediments to transit service.
- **Step 3:** Add curb bulb outs to shorten the pedestrian crossing distance and ensure the curb bulb out extends the width of the curb lane. Evaluate additional sidewalk and curb lane opportunities to enhance the pedestrian experience.
- Parking demand does not exceed the current supply. However, bike racks that offer parallel bike parking should be added to the furniture zone along corridors proximate to bike lanes or on blocks within the urban core.
- **Step 4:** Ensure that loading zone signage and striping are easy to understand and visible to the user.
- Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.
- **Step 5:** Ensure that managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** The demand for outdoor dining does not exceed the capacity of the frontage zone and curb space should not be allocated for parklets or streateries.
- **Step 7:** Survey the adjacent land uses to ensure that block-faces with long-term parking also address their curb lane management needs.

Changes to the Curb Lane

- Consider adding ADA parking surrounding the University Blvd and 4th Ave intersection to service the businesses and transit stop around this intersection. Survey these land uses to see if ADA parking is warranted.
- Make sure sidewalks are consistent throughout the corridor. Consider adding curb bulb to shorten pedestrian crossing distances. Most users parking along this corridor will be able to park their bikes off-street at residences. However, consider adding bike racks that offer parallel parking to the furniture zone of businesses along the corridor.

Recommended Curb Uses





Applying the Curb Decision Diamond to the University Blvd between Main Ave and Euclid Ave case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: No. There were no ADA parking spaces identified on the block-faces being evaluated.

Question: If No, is one or more ADA parking space provided on the adjoining block-faces?

Answer: No. ADA parking spaces are not provided on the adjoining block-faces along this corridor.

Outcome: ADA parking on this corridor may be warranted. Survey the adjacent land uses to determine their ADA parking needs.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. There are two transit stops along the corridor for buses and street cars.

Outcome: Ensure that there is No Parking signage and striping at the transit stop. Coordinate with Sun Tran to determine if additional stops are needed and if in-lane or pull-out stops are preferred.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: No. There are no curb bulb outs along the corridor.

Question: If No, evaluate the travel speed of the roadway. Is the roadway travel speed 20 MPH or more?

Answer: Yes. The posted speed limit is 25 MPH.

Outcome Add curb bulb outs to shorten the pedestrian crossing distance and ensure the curb bulb out extends the width of the curb lane. Evaluate additional sidewalk and curb lane opportunities to enhance the pedestrian experience.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: No. There is minimal bike /scooter parking available along the corridor. Some parking is located at the transit stop on 3rd Ave and 2nd Ave and outside a restaurant at the University Blvd and 4th Ave intersection.

Question: If No, are there impromptu bike/scooter parking locations, such as bikes parked along fences/sign posts or scooters left on the sidewalk?

Answer: No. There were scooters parked outside one apartment complex but no additional scooters were identified along the corridor.

Outcome Parking demand does not exceed the current supply. However, bike racks that offer parallel parking should be added to the furniture zone along corridors proximate to bike lanes.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. There are no designated loading zones along the corridor.

Outcome: Evaluate wayfinding and signage for off-street loading zones to ensure awareness and easy access to available loading areas.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There are no passenger pick-up/drop-off zone on the block-faces being evaluated.

Question: If No, does the block-faces being evaluated contain a commercial vehicle loading zone?

Answer: No. There are no commercial vehicle loading zones along the corridor.

Question: Is the projected parking occupancy less than 75% after two (2) parking spaces are removed from the block-face?

Answer: If Yes, remove at least two (2) parking spaces at the start or end of a block-face and install a 10-minute loading zone for passenger and food pick-up/drop-off. If no, the parking occupancy on the block-face may not be able to accommodate the loss of on-street parking.

Outcome: Calculate the projected occupancy along University Blvd to determine whether passenger loading zones are feasible along the corridor

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered/managed on the block-face being evaluated?

Answer: Yes. On-street parking is managed by residential permit Monday - Friday from 8AM to 5PM. There is metered parking around the University Blvd and 4th Ave intersection.

Outcome Ensure that managed parking spaces are signed appropriately. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: No. Outdoor dining is not provided along University Blvd.

Question: Can outdoor dining needs be accommodated along the business's frontage zone?

Answer: Yes. There are only 2 restaurants along the corridor. Both have room to accommodate outdoor dining needs along the frontage zone.

Outcome The demand for outdoor dining does not exceed the capacity of the frontage zone and curb space should not be allocated for parklets or streateries

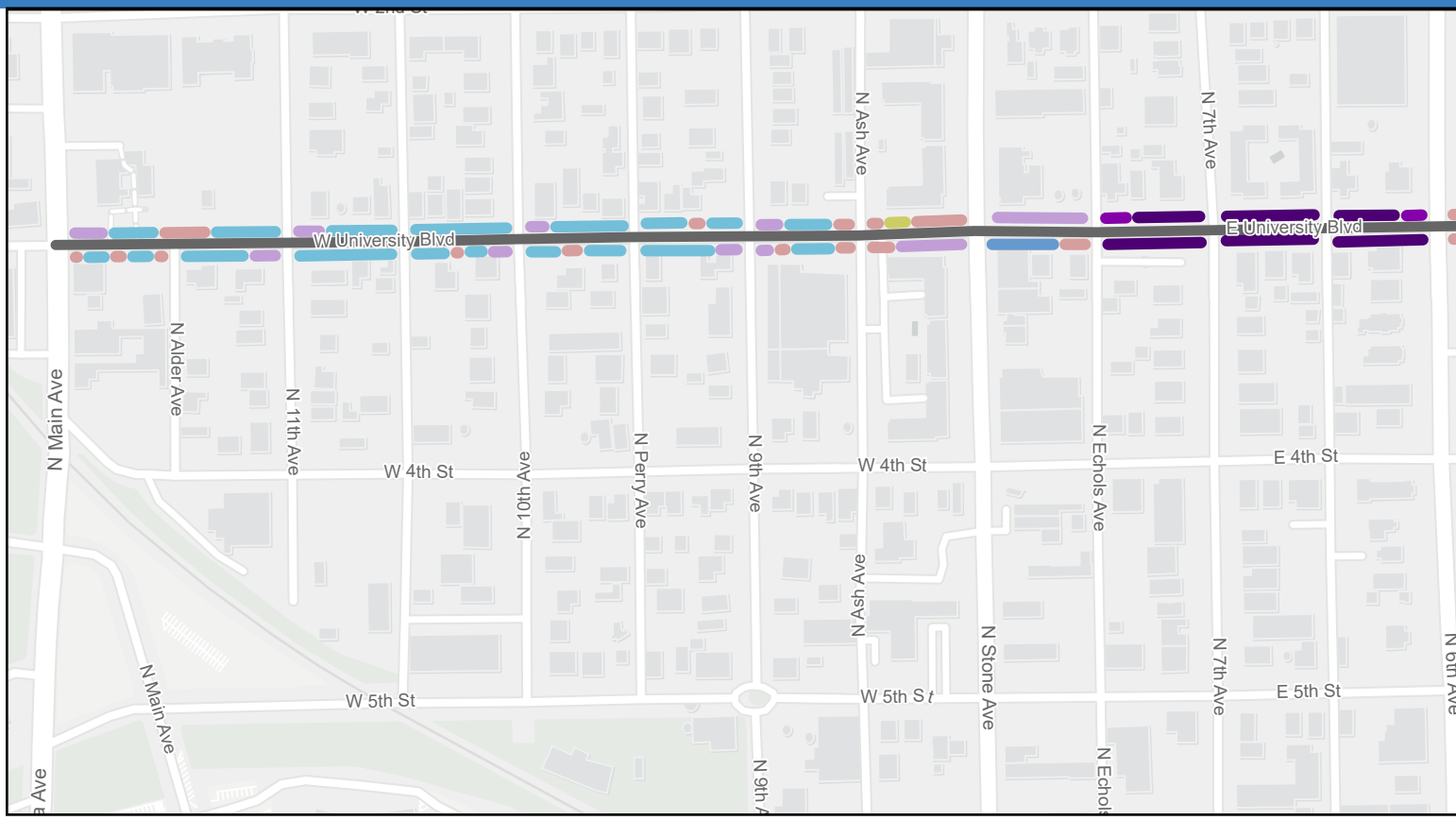
Step 7: Allowing Long-term Parking at the Curb

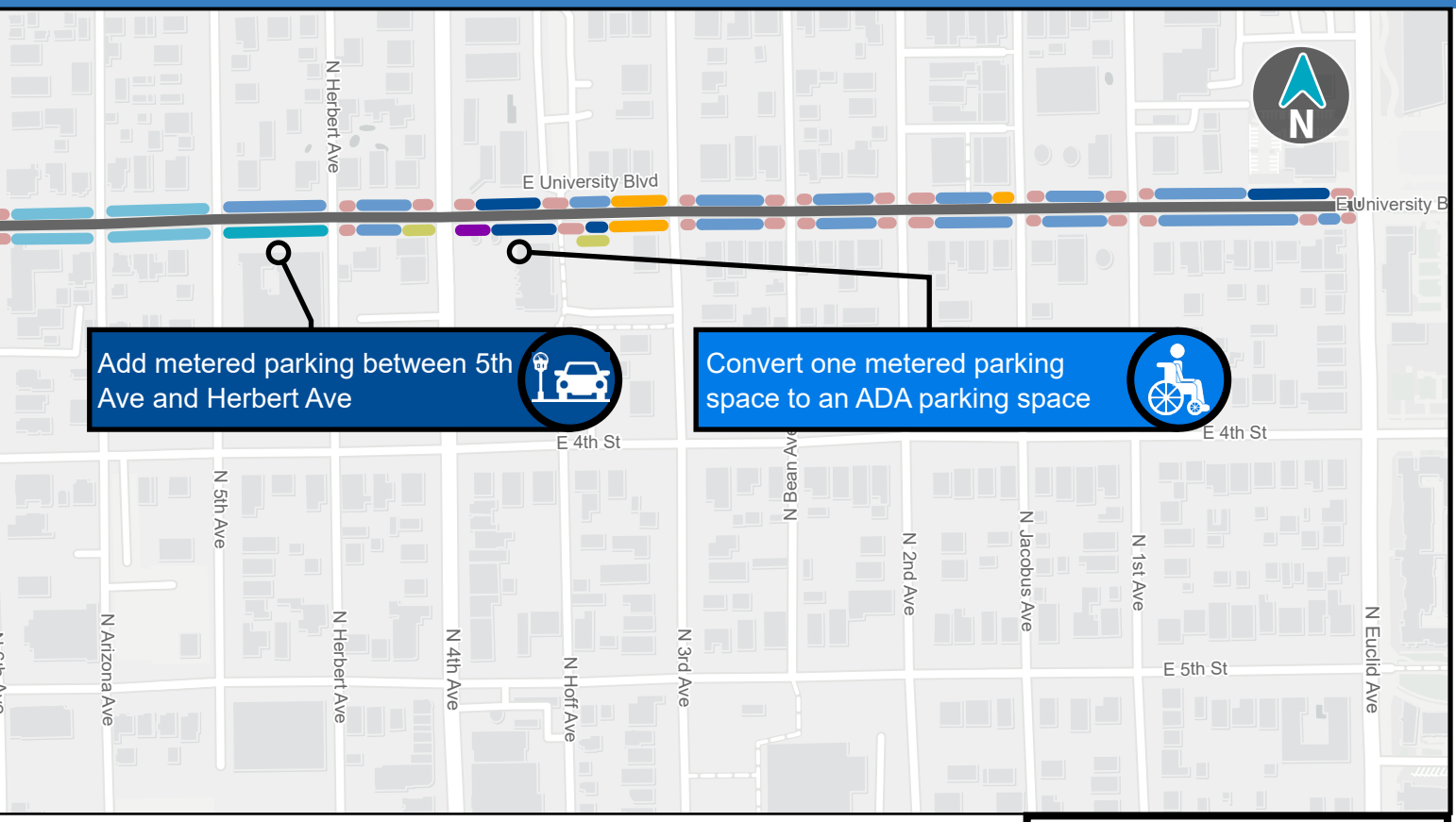
Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: Yes. There is residential permitted parking along the corridor.

Outcome Survey the adjacent land uses to ensure that block-faces with long-term parking also address their curb lane management needs.

Recommended Action Items - Low-Density Residential





ADA Parking

Transit Stops

Bike Parking

Micromobility Parking

Commercial Loading Zone

Passenger Loading

Metered Parking

Streatery

Bike Lane

No Parking

Transit Lane

Commercial & Passenger Loading Zones

Survey local residents on their need for commercial and passenger loading zones. If they desire one, determine the parking occupancy.

Metered & Managed Parking

Consider adding metered or managed parking along University Blvd between Herbert Ave and 5th Ave to accommodate the needs of businesses along that block-face.

Curb Allocation Summary - Low-Density Residential

CASE STUDY CORRIDORS

4th Ave: 12th St to 16 St
Curb Typology: Low-Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, Bi-directional
# of Bike Lanes: 2 Lanes
Sidewalk Width: ~10 Feet

Curb Allocation Outcome Summary

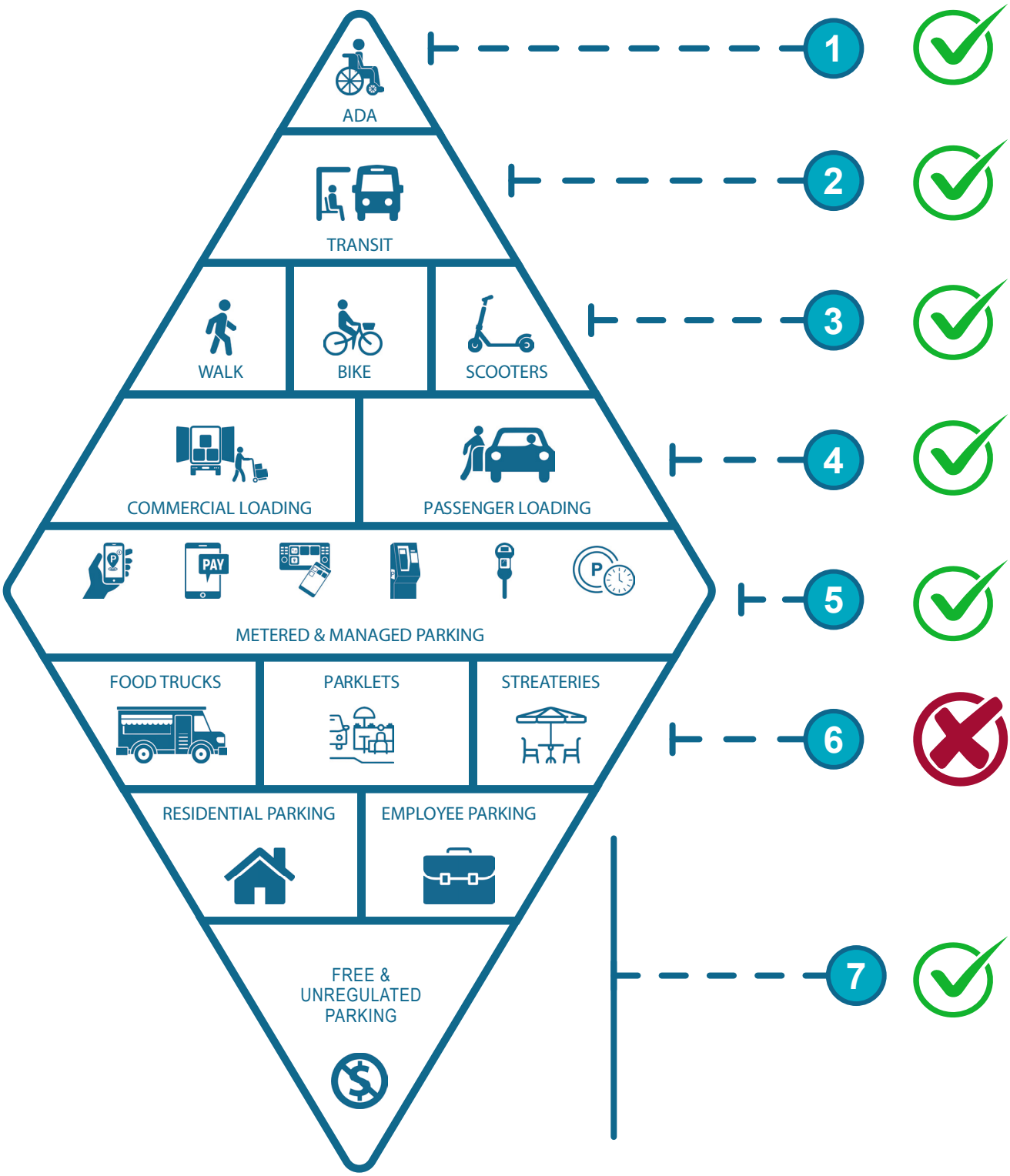
Using the Decision Diamond process, the following steps were identified to align the 4th Ave corridor with the stated priorities of Low-Density Residential Areas.

- **Step 1:** ADA parking on this corridor may be warranted. Survey the adjacent land uses to determine their ADA parking needs.
- **Step 2:** Ensure that there is No Parking signage at transit stops. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.
- **Step 3:** Add curb bulb outs to shorten the pedestrian crossing distance and ensure the curb bulb out extends the width of the curb lane. Evaluate additional sidewalk and curb lane opportunities to enhance the pedestrian experience.
- Parking demand does not exceed the current supply. However, bike racks that offer parallel parking should be added to the furniture zone along corridors proximate to bike lanes.
- **Step 4:**Evaluate wayfinding and signage for off-street loading zones to ensure awareness and easy access to available loading areas.
- Calculate the projected occupancy along 4th Ave to determine whether passenger loading zones are feasible along the corridor
- **Step 5:** Ensure that managed parking spaces are signed appropriately. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** The demand for outdoor dining does not exceed the capacity of the frontage zone and curb space should not be allocated for parklets or streateries.
- **Step 7:** Survey the adjacent land uses to ensure that block-faces with long-term parking also address their curb lane management needs.

Changes to the Curb Lane

- Survey adjacent land uses to determine if any businesses need access to on-street ADA parking
- In addition to red curb paint, consider adding No Parking signage at transit stops. Coordinate with Sun Tran to ensure curb lane activity does not imped transit service.
- Evaluate additional sidewalk and curb lane opportunities to enhance the pedestrian experience, such as adding curb bulb outs to shorten the pedestrian crossing distance and restriping crosswalks across intersections
- Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Low-Density Residential.

Recommended Curb Uses



Applying the Curb Decision Diamond to the 4th Ave from 12th St to 16th St case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: No. ADA parking is not provided along the block-faces being evaluated.

Question: If No, is one or more ADA parking space provided on the adjoining block-faces?

Answer: No. ADA parking spaces are not provided on the adjoining block-faces along this corridor.

Outcome: ADA parking on this corridor may be warranted. Survey the adjacent land uses to determine their ADA parking needs.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. There are transit stops at 4th Ave at 13th St and at 4th Ave between 14th St and 15th St.

Outcome: Ensure that there is No Parking signage at the transit stops. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there a curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: No. There are no curb bulb outs along the corridor.

Question: If No, evaluate the travel speed of the roadway. Is the roadway travel speed 20 MPH or more?

Answer: Yes. The posted speed limit is 25 MPH.

Outcome: Add curb bulb outs to shorten the pedestrian crossing distance and ensure the curb bulb out extends the width of the curb lane. Evaluate additional sidewalk and curb lane opportunities to enhance the pedestrian experience.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: No. There is no bike or scooter parking along the corridor.

Question: If No, are there impromptu bike/scooter parking locations, such as bikes parked along fences/sign posts or scooters left on the sidewalk?

Answer: No. There was 1 scooter parked across from Safford K-8 School.

Outcome: Parking demand does not exceed the current supply. However, bike racks that offer parallel parking should be added to the furniture zone along corridors proximate to bike lanes.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. There are no designated loading zones along the corridor.

Outcome: Evaluate wayfinding and signage for off-street loading zones to ensure awareness and easy access to available loading areas.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There are no passenger pick-up/drop-off zone on the block-faces being evaluated.

Question: If No, does the block-faces being evaluated contain a commercial vehicle loading zone?

Answer: No. There are no commercial vehicle loading zones along the corridor.

Question: Is the projected parking occupancy less than 75% after two (2) parking spaces are removed from the block-face?

Answer: If Yes, remove at least two (2) parking spaces at the start or end of a block-face and install a 10-minute loading zone for passenger and food pick-up/drop-off. If no, the parking occupancy on the block-face may not be able to accommodate the loss of on-street parking.

Outcome: Calculate the projected occupancy along 4th Ave to determine whether passenger loading zones are feasible along the corridor.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered/managed on the block-face being evaluated?

Answer: Yes. On-street parking is managed by residential permit 24 hours a day.

Outcome: Ensure that managed parking spaces are signed appropriately. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: No. Outdoor dining is not provided along the corridor.

Question: Can outdoor dining needs be accommodated along the business's frontage zone?

Answer: There are no dining needs along this corridor.

Outcome: The demand for outdoor dining does not exceed the capacity of the frontage zone and curb space should not be allocated for parklets or streateries

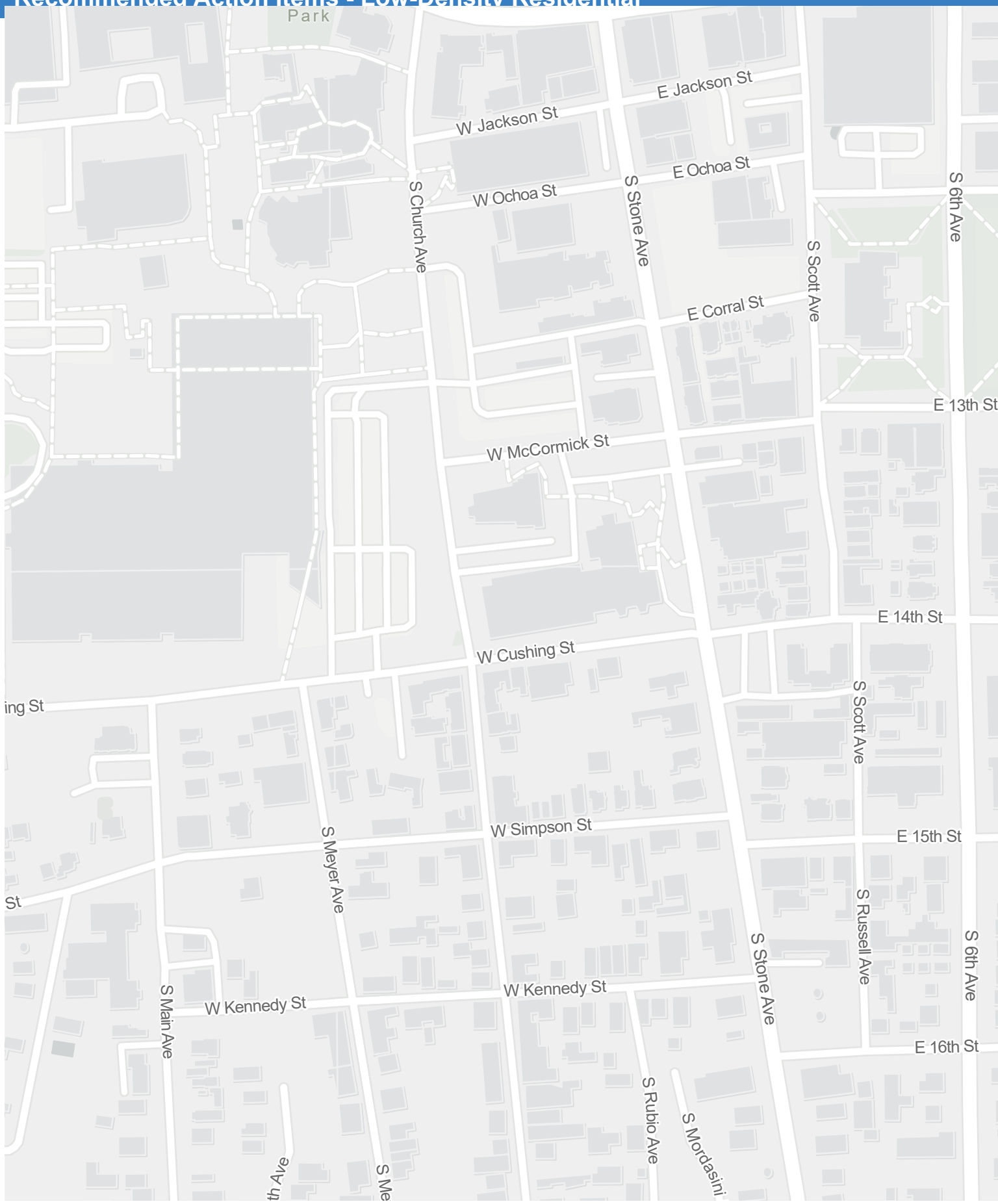
Step 7: Allowing Long-term Parking at the Curb

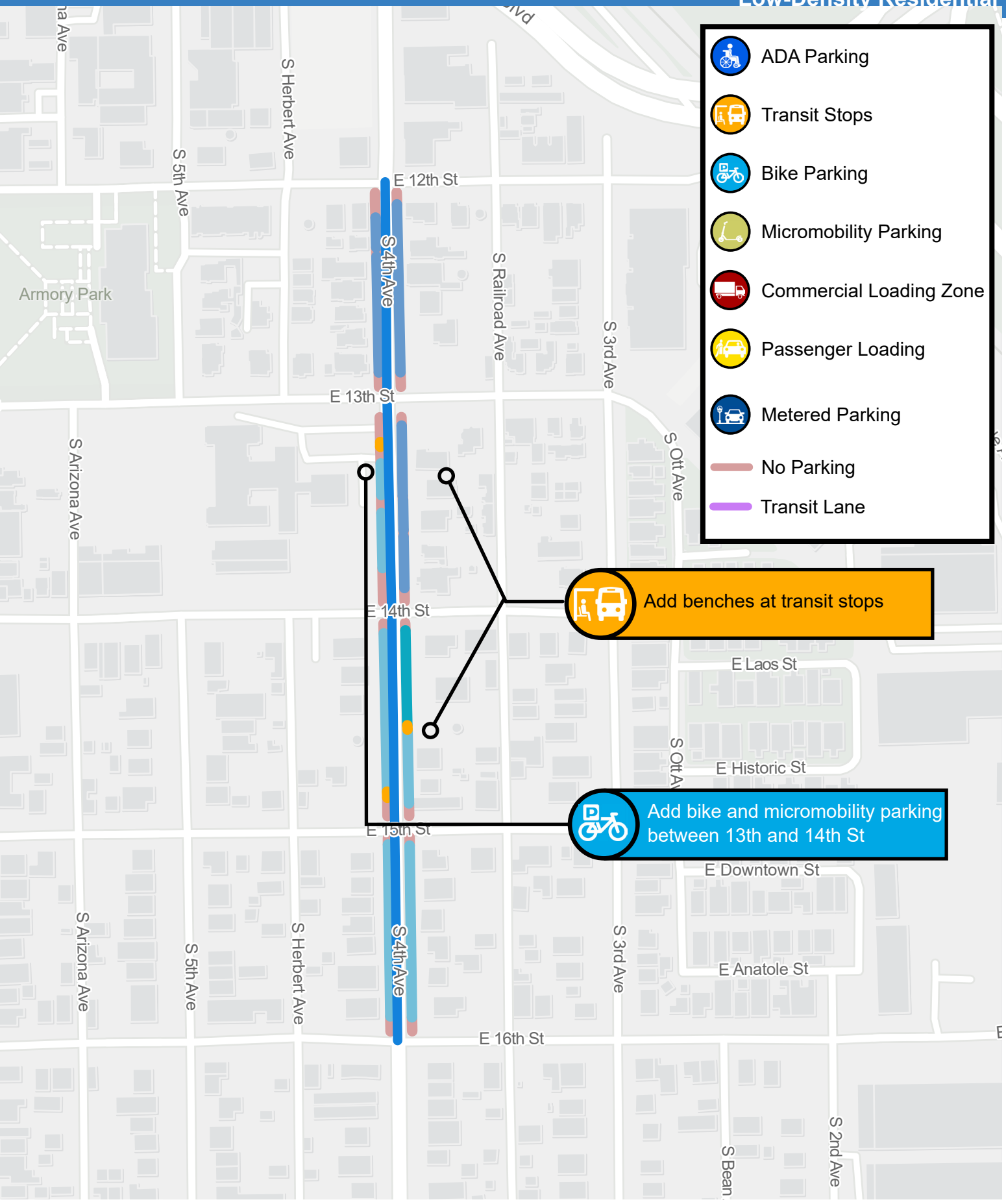
Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: Yes. There is residential permitted parking along the corridor.

Outcome: Survey the adjacent land uses to ensure that block-faces with long-term parking also address their curb lane management needs.

Recommended Action Items - Low-Density Residential




ADA Parking
Transit Stops
Bike Parking
Micromobility Parking
Commercial Loading Zone
Passenger Loading
Metered Parking
No Parking
Transit Lane
Add benches at transit stops
Add bike and micromobility parking between 13th and 14th St
E 12th St
E 13th St
E 14th St
E 15th St
E 16th St
E Laos St
E Historic St
E Downtown St
E Anatole St
S 4th Ave
S Railroad Ave
S 3rd Ave
S Ott Ave
S Herbert Ave
S 5th Ave
S Arizona Ave
S 2nd Ave
Armory Park

Mid- to High-Density Residential

Mid- to High Density Residential land uses typically have ground level retail, which require the curb to accommodate the needs of businesses and residents. Two examples of Mid- to High-Density Residential areas in Tucson are Congress Street, west of Scott Ave and E Broadway Blvd, from Stone Ave to 6th Ave.

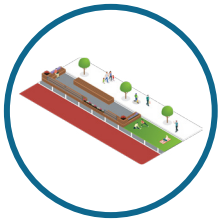
Stated Curb Priorities

Mobility

Storage for Vehicles

Access For People

Access For Goods



Public Space

As highlighted in the image below, Broadway Blvd provides mobility via two lanes of one-way traffic, a shared transit lane, and sidewalk space. The storage of vehicles is accommodated at the curb and is managed as 2-Hour metered parking. Access for People is provided at the Broadway @ Stone Ave transit stop, However, there is no curb space dedicated to passenger loading and unloading. Additionally, to accommodate Public Space, curb space that could be used for the Access for Goods is limited.

Intersection: E Broadway Blvd @ Stone Ave

The stated curb priorities for Mid- to High-Density Residential, shown below, places Mobility, Storage for Vehicles, and Access for People as the top three. The case study corridors examined for this neighborhood typology are along Congress St west of Scott Ave and E Broadway Blvd, from Stone Ave to 6th Ave.

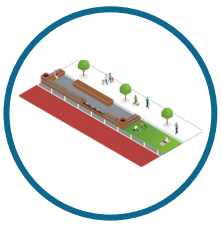
Stated Curb Priorities

Mobility

Storage for Vehicles

Access For People

Access For Goods



Public Space

Below are the common uses for the stated curb priorities in the Mid- to High- Density Residential area. In order for the existing conditions to match the stated priorities along the two corridors, these curb lane attributes should be present.

Mobility Priorities

Common curb lane usage related to the Mobility priority includes:

- Travel Lanes
- Bike Lanes
- No Parking Zones
- Crosswalks

Storage of Vehicles Priorities

Common curb lane usage related to the Storage for Vehicles priority includes:

- Bicycle Parking
- Free/Metered Parking
- EV Charging
- ADA Parking

Access for People

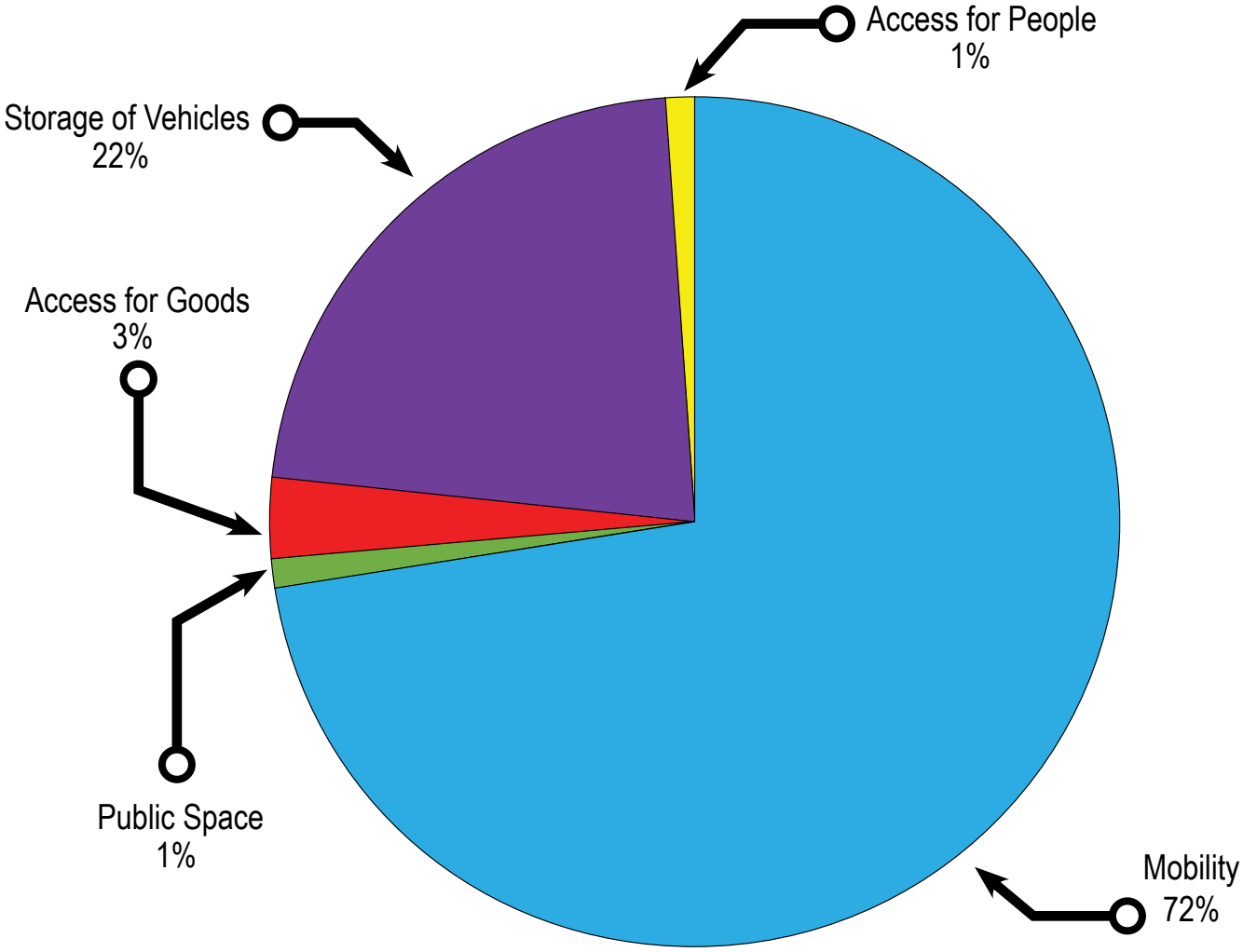
Common curb lane usage related to the Access for People priority includes:

- Passenger Loading Zones
- Micro-mobility Parking
- Transit Stops
- Specialized Loading/ Paratransit

The chart below displays the overall existing percentage of curb lane usage along the corridor. The existing curb uses prioritize Mobility and Storage of Vehicles.

- Mobility accounts for 72% of the curb lane attributes,
- Storage of Vehicles accounts for 22%, and
- Access for Goods accounts for 3%.
- Access for People and Public Space each account for 1% of the curb lane.

Actual Curb Lane Priorities for Mid- to High- Density Residential

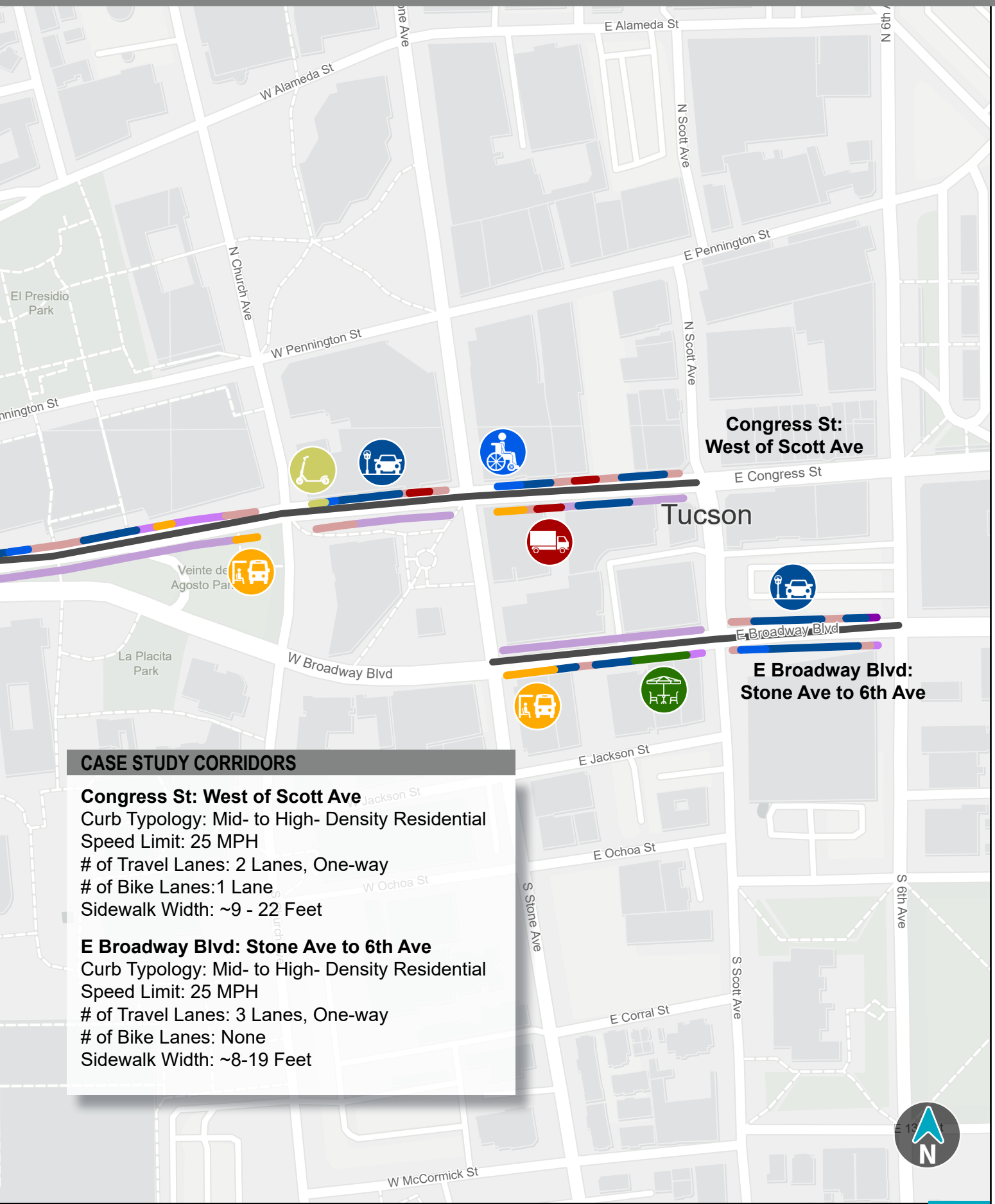


The existing conditions generally align with the Mid- to High-Density Residential stated priorities. However, Access for People is the third most important curb priority, but only represents 1% of the existing curb usage.

To improve, the corridor should evaluate:

- **The addition of more curb lane attributes related to Access for People, such as transit stops, micro-mobility parking and passenger loading zones**


W Paseo Redondo
W Alameda St
W Alameda St
W Alameda St
Sunset Park
W Congress St
W Broadway Blvd
W Congress St
N Freeway
S Central Ave
S Granada Ave
Curb Type
Micromobility Parking
Transit Stop
Freight Loading Zone
Streatery
ADA Parking
Metered Parking
Bike Lane
No Parking
Transit Lane
Travel Lane
0
0.125
0.25 Miles



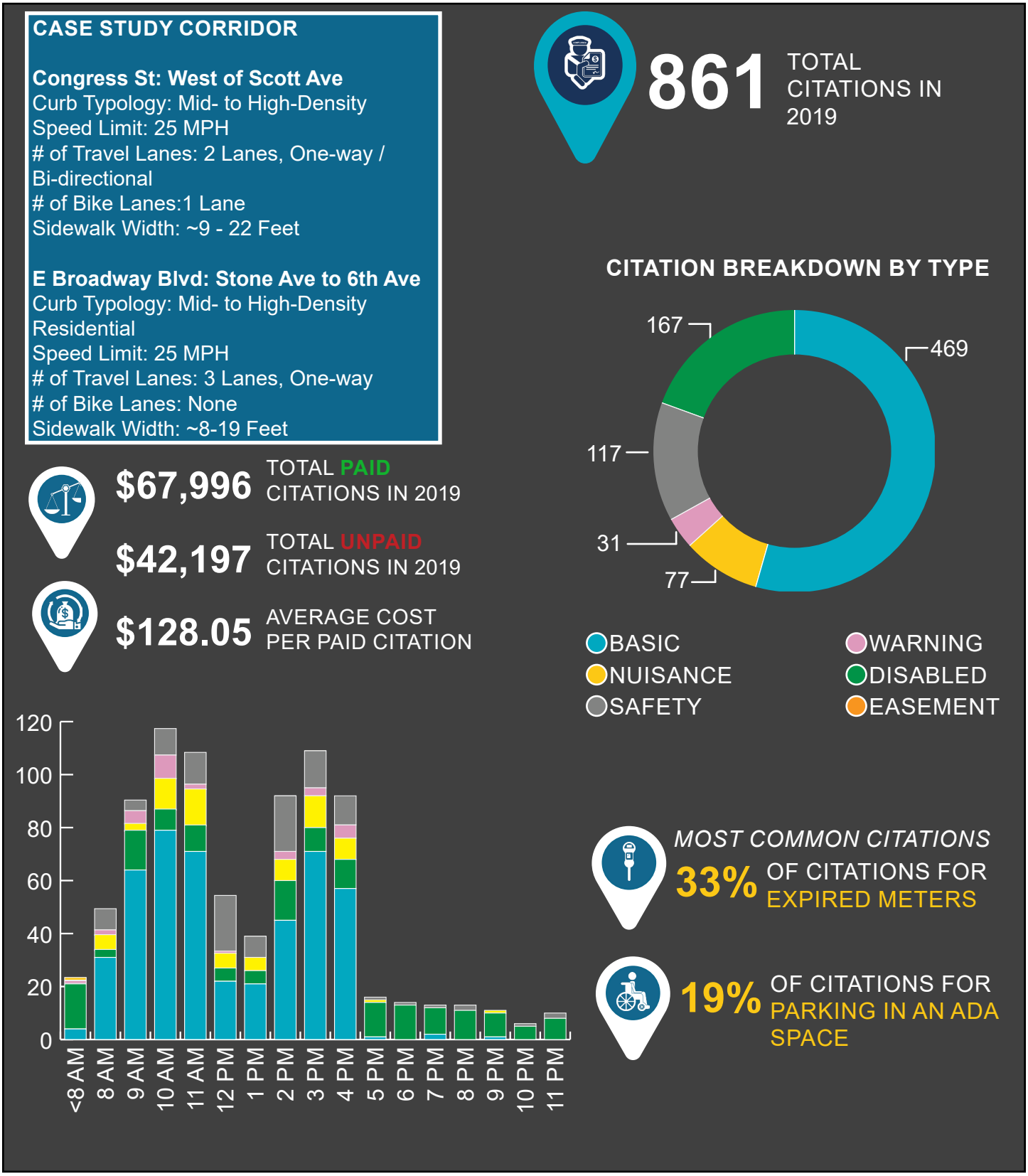
CASE STUDY CORRIDORS

Congress St: West of Scott Ave
Curb Typology: Mid- to High- Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, One-way
# of Bike Lanes:1 Lane
Sidewalk Width: ~9 - 22 Feet

E Broadway Blvd: Stone Ave to 6th Ave
Curb Typology: Mid- to High- Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, One-way
# of Bike Lanes: None
Sidewalk Width: ~8-19 Feet

Citations Analysis

Citations issued in 2019 were evaluated for corridors identified as Urban Core. A summary of the issued citations are detailed below.



Corridor Considerations

Based on the existing curb use allocation and citation issuance the following attributes warrant further evaluation for future use.

 **Access For Goods**	 **Access For People**	 **Mobility**
Increase the amount of curb space dedicated to support Access for Goods and ensure parcel delivery needs are met	Passenger loading zones at mixed-use residential developments are needed. Flex commercial loading zones to passenger pick-up/drop-off zones during evenings and weekends	Mobility needs are currently being met in Mid- to High-Density Residential areas. Evaluate ways to support active transportation

 **Public Space**	 **Storage for Vehicles**	 **Compliance**
Evaluate opportunities to install bioswales and greening in no parking areas	Evaluate roadway capacity and traffic volumes to identify opportunities to add on-street parking and other curb lane uses	Parking citations associated with meter violations are the predominant form of violations. Promote the usage of off-street parking for long-term parking needs

Curb Allocation Summary - Mid- to High-Density Residential

CASE STUDY CORRIDORS

Congress St: West of Scott Ave
Curb Typology: Mid- to High- Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 2 Lanes, One-way
# of Bike Lanes:1 Lane
Sidewalk Width: ~9 - 22 Feet

Curb Allocation Outcome Summary

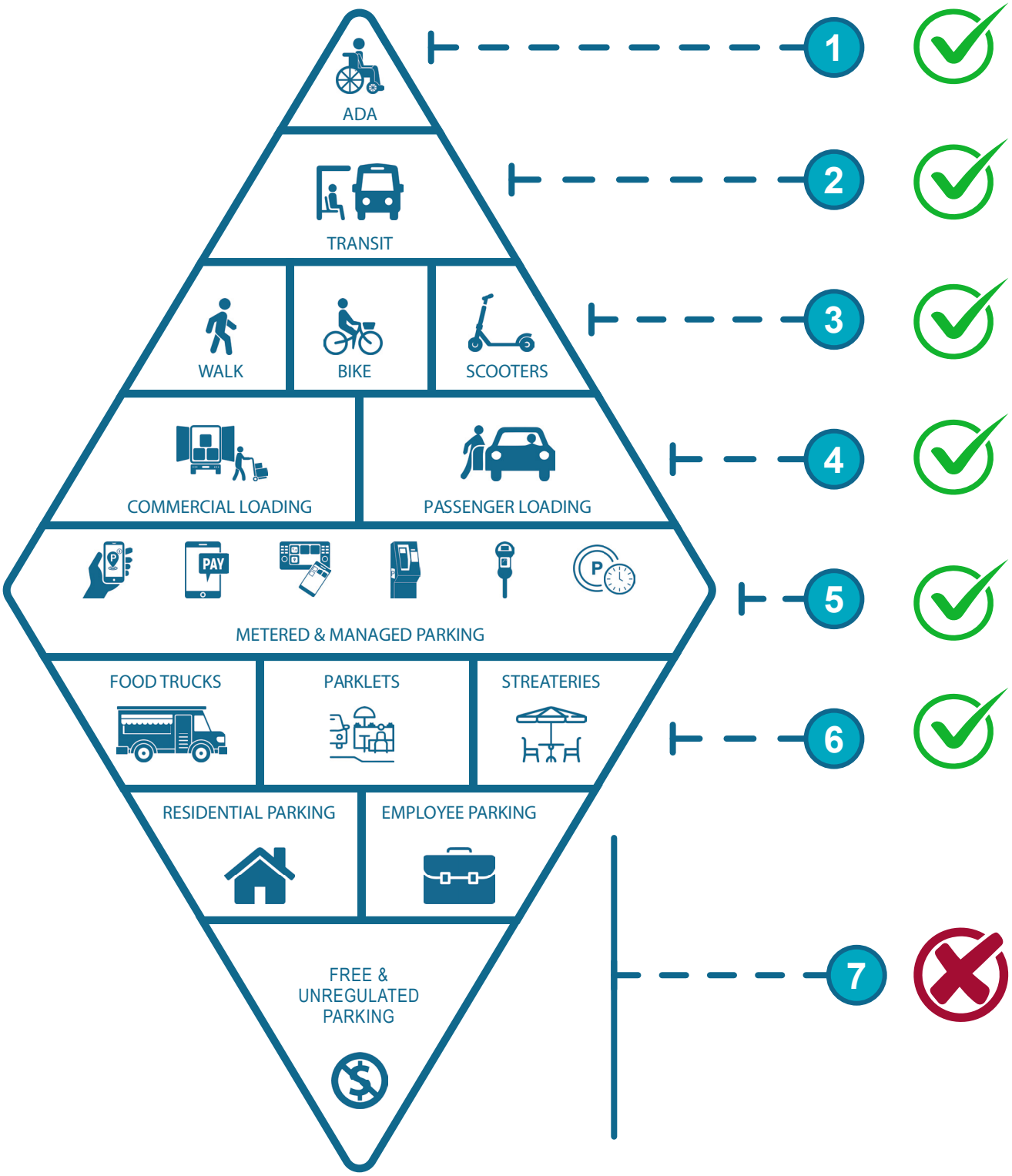
Using the Decision Diamond process, the following steps were identified to align the Congress St corridor with the stated priorities of Mid- to High-Density Residential Areas.

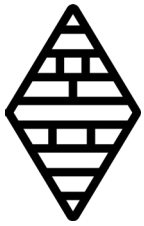
- **Step 1:** Ensure ADA parking signage, striping, and ramps are present and meet user needs.
- **Step 2:** Ensure that there is No Parking signage at transit stops. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.
- **Step 3:** Ensure that No Parking signage is provided on these block-faces and active curb lane users can maneuver from the curb lane to the adjacent travel lane without obstructions.
- Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.
- Add bike parking to the parking protected bike lane at the intersection of Stone Ave and Council St.
- **Step 4:** Ensure that loading zone signage and striping are easy to understand and visible to the user.
- Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.
- **Step 5:** Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Add one ADA parking space on the western block-face of Scott Ave near Congress St.
- Relocate the bike parking spaces at the intersection of Congress St at Church St and remove impediments to the ADA ramp.
- Add loading zone signage at all commercial loading zones that allow commercial, non-commercial permitted vehicles, and passenger vehicles to use the loading zone network.

Recommended Curb Uses





Applying the Curb Decision Diamond to the Congress Street west of Scott Ave

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: Yes. ADA parking spaces are provided on block-faces with a curb lane that are not used as travel lanes or on adjoining block-faces near the corridor being evaluated..

Outcome: Ensure ADA parking signage, striping, and ramps are present and meet user needs.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. There are in-lane streetcar stops at Congress St at Stone Ave, Congress St at Church Ave, and Congress at Granada Ave. Additionally, bus stops provide access for people along the Congress St case study corridor.

Outcome: Ensure that there is No Parking signage at the transit stops. Additional coordination with Sun Link and Sun Tran is needed to determine if there are any impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: Yes. There are curb bulb outs on the block-faces/sidewalks along the corridor.

Outcome: Ensure that No Parking signage is provided on these block-faces and active curb lane users can maneuver from the curb lane to the adjacent travel land without obstructions.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: Yes, bike parking is provided along the Congress St case study corridor from Scott Ave to S Granada Ave. Bike parking was not identified west of S Granada Ave.

Outcome: Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.

Add bike parking and designated micromobility parking areas along the furniture zones for block-faces west of S Granada Ave.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: Yes. There are designated commercial loading zones on three of the four curb lanes that can accommodate loading zones.

Outcome: Ensure that loading zone signage and striping are easy to understand and visible to the user.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There are no passenger pick-up/drop-off zones on the block-faces being evaluated.

Question: If No, do the block-faces being evaluated contain a commercial vehicle loading zone?

Answer: Yes. There are commercial vehicle loading zones along the corridor.

Outcome: Flex the commercial vehicle loading zone to pick-up/drop-off zones in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered or managed on the block-face being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit.

Outcome: Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: Yes. Outdoor dining is provided at multiple locations along the corridor.

Outcome: Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.

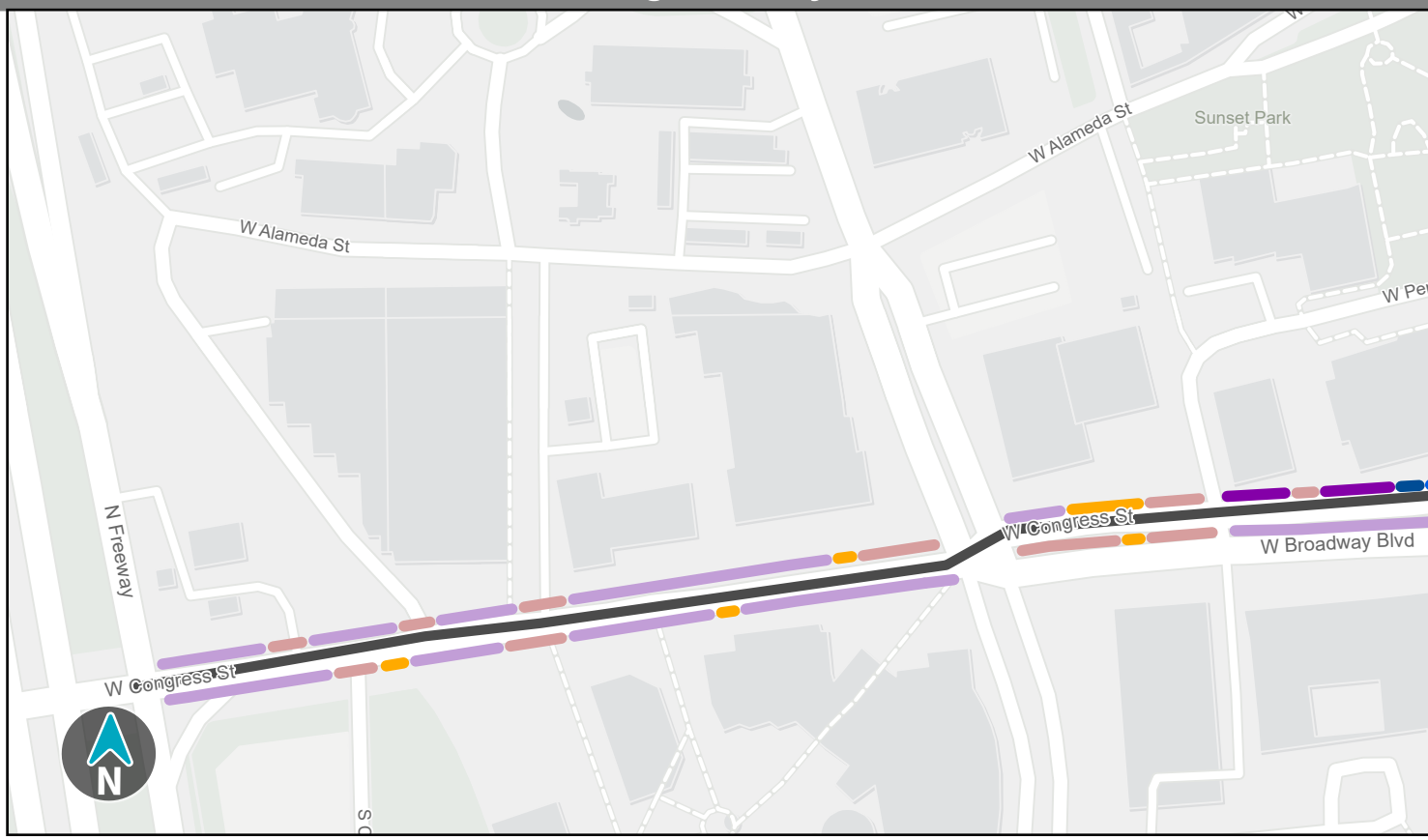
Step 7: Allowing Long-term Parking at the Curb

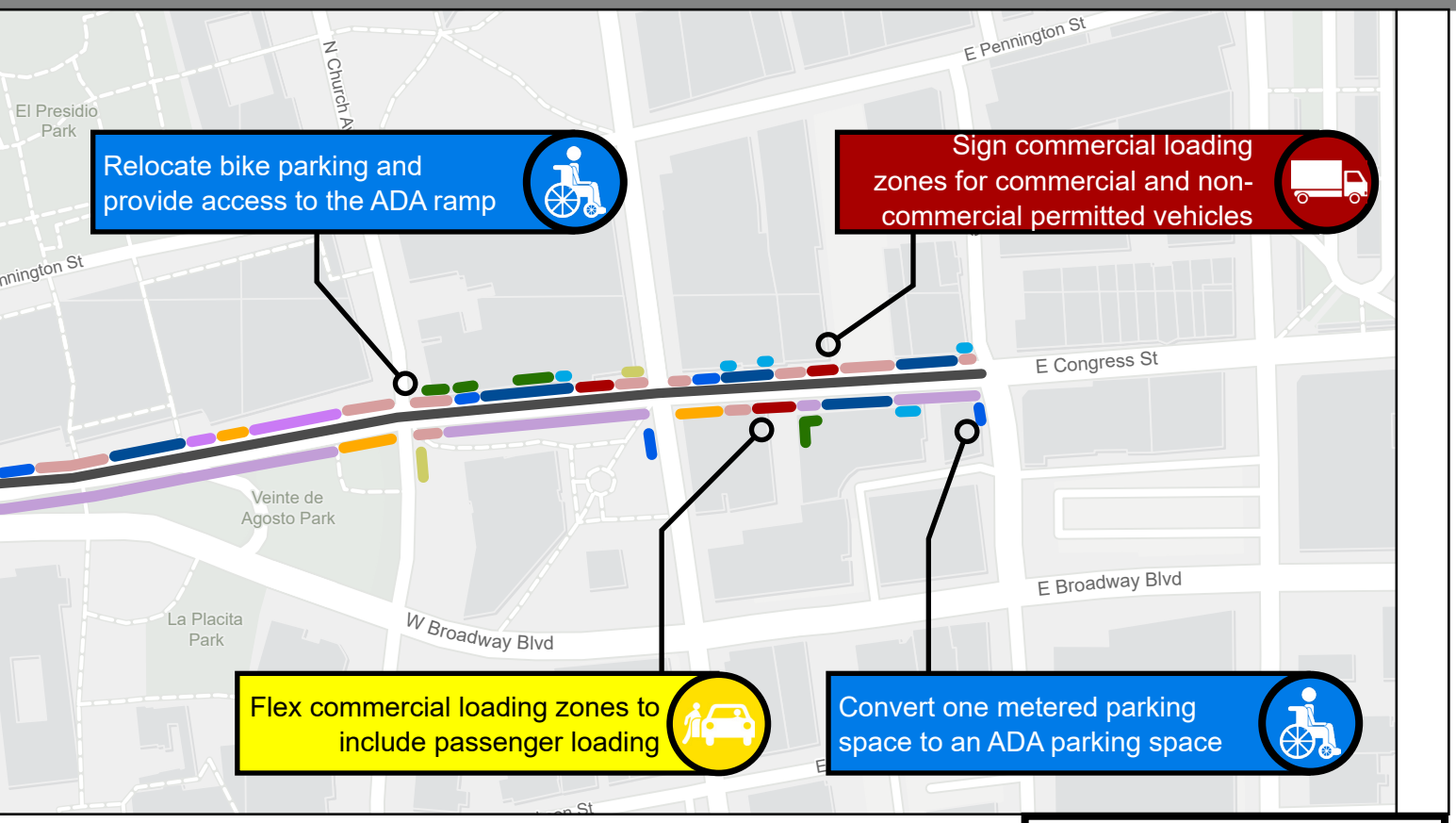
Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome: Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Recommended Action Items - Mid- to High-Density Residential





ADA Parking

Transit Stops

Bike Parking

Micromobility Parking

Commercial Loading Zone

Passenger Loading

Metered Parking

Streatery

Bike Lane

No Parking

Transit Lane

Metered & Managed Parking

Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Mid- to High-Density Residential to determine if extended hours of operation are needed.

Outdoor Dining

Ensure that all outdoor dining areas do not obstruct the pedestrian through zone. If impediments to pedestrian movement are identified, coordinate with the business owner to remove obstructions and ensure the outdoor dining areas use the frontage zone, furniture zone, or curb lane to meet their outdoor dining needs.

Curb Allocation Summary - Mid- to High-Density Residential

CASE STUDY CORRIDORS

E Broadway Blvd: Stone Ave to 6th Ave
Curb Typology: Mid- to High- Density Residential
Speed Limit: 25 MPH
# of Travel Lanes: 3 Lanes, One-way
# of Bike Lanes: None
Sidewalk Width: ~8-19 Feet

Curb Allocation Outcome Summary

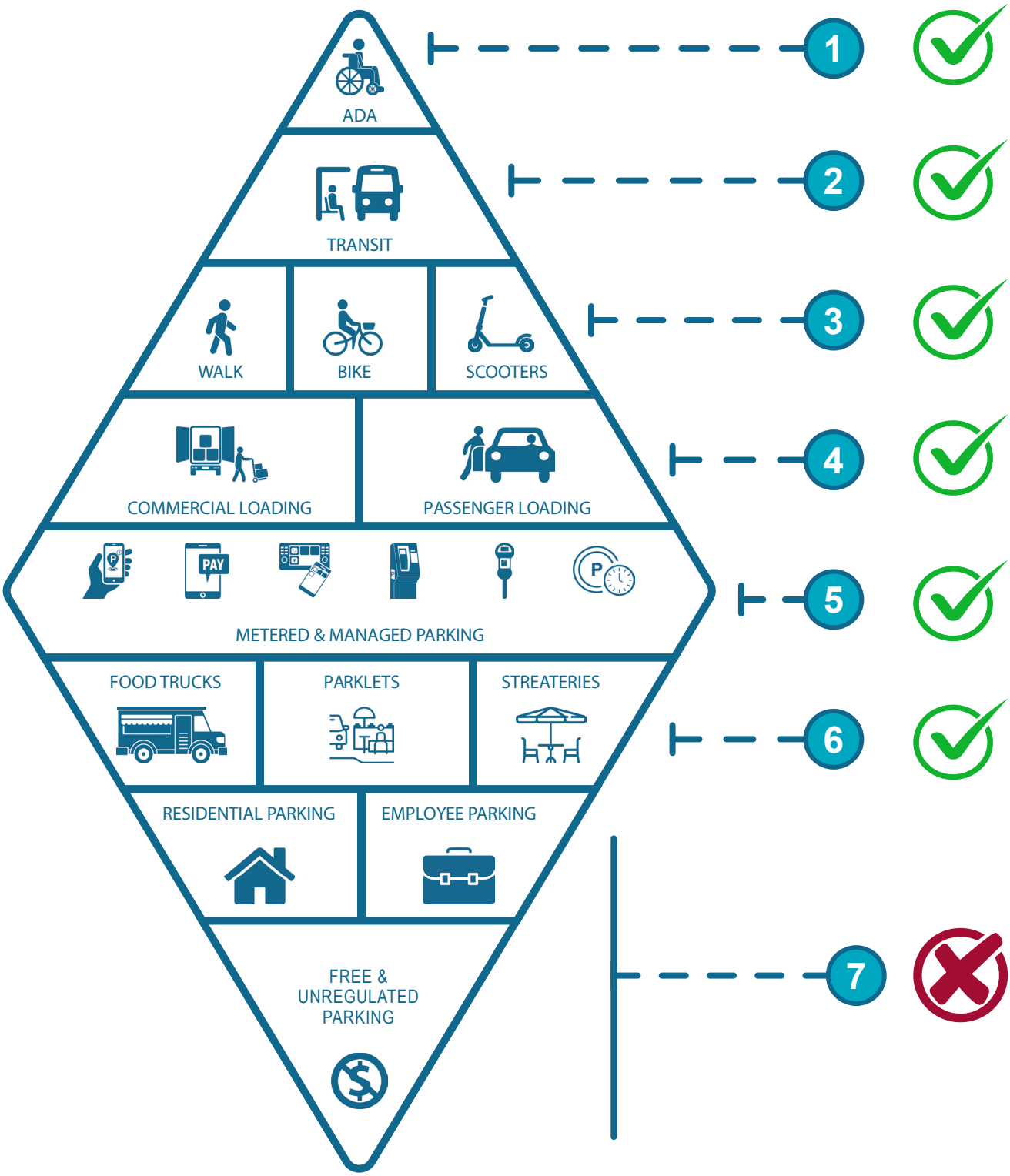
Using the Decision Diamond process, the following steps were identified to align the Broadway Blvd corridor with the stated priorities of Mid- to High-Density Residential Areas.

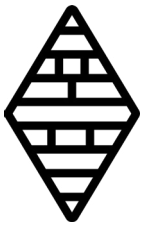
- **Step 1:** Designate ADA parking spaces on the block-faces being evaluated.
- **Step 2:** Ensure that there is No Parking signage at the transit stops. Additional coordination with Sun Link is needed to determine if there are any impediments to transit service.
- **Step 3:** Ensure that No Parking signage is provided on these block-faces and active curb lane users can maneuver from the curb lane to the adjacent travel lane without obstructions.
- Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.
- Designate areas for scooter parking based on the results of the demand analysis.
- **Step 4:** Remove two (2) parking spaces at the start or end of a block-face and install a loading zone. Ensure the loading zone is designated with signage, striping, and smart loading zone technology.
- Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.
- **Step 5:** Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Add three (3) ADA parking spaces on the adjoining block-faces to expand accessibility. This will require removal of one metered parking space.
- Install micromobility parking along the sidewalk adjacent to No Parking zones to enhance access for people in Mid- to High-Density Residential areas with sidewalks <10-Feet wide.
- Add a commercial loading zone on Broadway Blvd between Stone Ave and Scott Ave. Ensure loading zone signage allows for commercial and non-commercial permitted vehicles.
- Flex the commercial loading zone to passenger loading zone to minimize conflict with transit during evenings and on weekends.
- Remove any objects that impede the pedestrian through zone or require pedestrians to enter the roadway as a detour for outdoor dining.

Recommended Curb Uses





Applying the Curb Decision Diamond to the E Broadway Blvd from Stone Ave to 6th Ave case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: No. Only one of the block-faces being evaluated on this corridor provides ADA parking.

Question: If No, is one or more ADA parking space provided on the adjoining block-faces?

Answer: No. ADA parking is not provided on the adjoining block-faces at a proximity that can serve ADA parking needs.

Outcome: Designate ADA parking spaces on the block-faces being evaluated.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. The Broadway Blvd at Stone Ave streetcar stop is on this case study corridor.

Outcome: Ensure that there is No Parking signage the transit stop. Additional coordination with Sun Link is needed to determine if there are any impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: Yes. There are curb bulb outs on the block-faces/sidewalks along the corridor.

Outcome: Ensure that No Parking signage is provided on these block-faces and active curb lane users can maneuver from the curb lane to the adjacent travel land without obstructions.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: Yes, bike parking is provided along the Broadway Blvd case study corridor.

Outcome: Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.

Designate areas for scooter parking based on the results of the demand analysis.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. Commercial loading zones were not identified on the Broadway Blvd case study corridor.

Question: If No, do the adjacent land uses need/want an on-street loading zone on the block-faces being evaluated?

Answer: Yes. An on-street loading zone is needed on the southern block-face of Broadway Blvd between Stone Ave and Scott Ave.

Question: If Yes, is the projected parking occupancy <75% after two (2) parking spaces are removed from the block-face?

Answer: Yes. Parking occupancy is projected to be <75%.

Outcome: Remove two (2) parking spaces at the start or end of a block-face and install a loading zone. Ensure the loading zone is designated with signage, striping, and smart loading zone technology.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There is only one passenger pick-up/drop-off zone on the block-faces being evaluated.

Question: If No, do the block-faces being evaluated contain a commercial vehicle loading zone?

Answer: No. Commercial loading zones are not currently provided on the block-faces being evaluated, but will be added to this case study corridor.

Outcome: Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered or managed on the block-faces being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit.

Outcome: Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: Yes. Outdoor dining is provided on the southern block-face of Broadway Blvd between Stone Ave and Scott Ave.

Outcome: Ensure that outdoor dining amenities such as tables, chairs, umbrellas, signage, and protective barriers do not interfere with the pedestrian through zone. Restrict outdoor dining to the curb frontage zone, street furniture zone, or curb lane as needed.

Step 7: Allowing Long-term Parking at the Curb

Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome: Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Implementation Actions

ADA Parking

Add three (3) ADA parking spaces on the adjoining block-faces to expand accessibility. This will removal of one metered parking space.

Transit Stops

Coordinate with Sun Link to ensure curb lane activity does not imped transit service.

Pedestrian, Bicycle, and Micromobility Enhancements

Install micromobility parking along the sidewalk adjacent to No Parking zones to enhance access for people in Mid- to High-Density Residential areas with sidewalks <10-Feet wide.

Commercial & Passenger Loading Zones

Add a commercial loading zone on Broadway Blvd between Stone Ave and Scott Ave. Ensure loading zone signage allows for commercial and non-commercial permitted vehicles.

Flex the commercial loading zone to passenger loading zone to minimize conflict with transit during evenings and on weekends.

Metered & Managed Parking

Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Mid- to High-Density Residential.

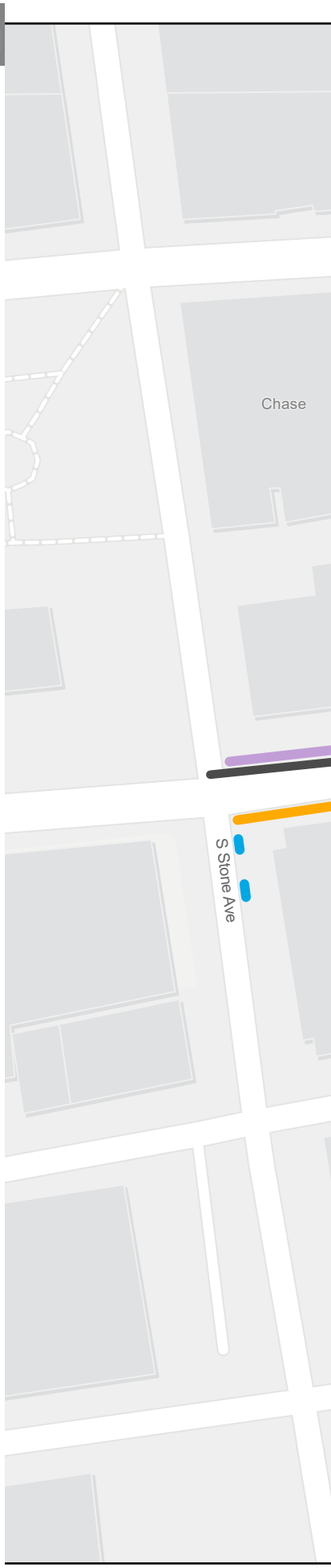
For curb lanes in Mid- to High-Density Residential, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Saturday, 8:00 AM - 8:00 PM.

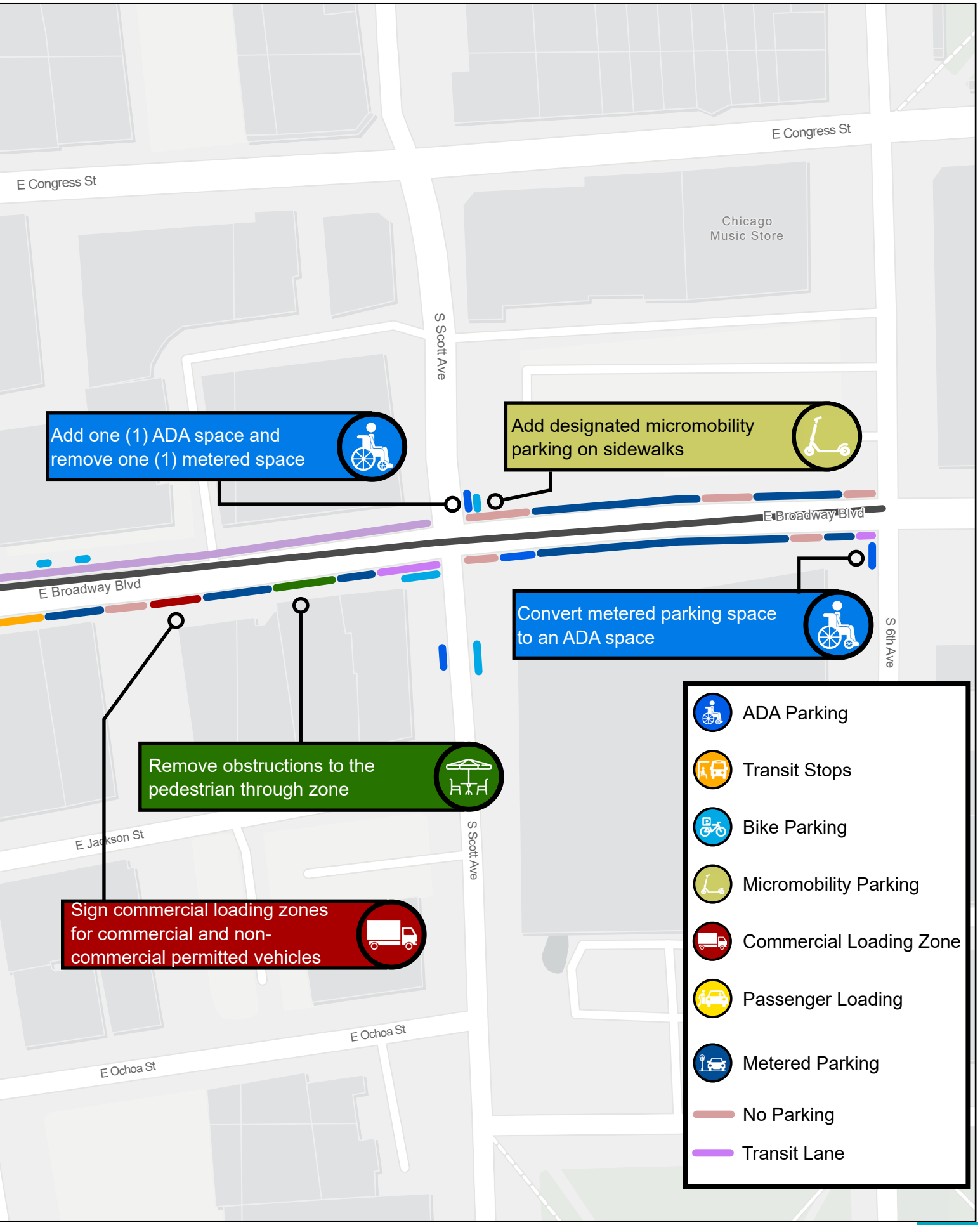
Outdoor Dining

Remove the outdoor dining provided on the southern block-face of Broadway Blvd between Stone Ave and Scott Ave and relocate this dining area to the curb lane. Allow the current operator of the streatery to apply for an outdoor permit and incorporate fees associated with renting the on-street parking spaces along their store front.

Remove any objects that imped the pedestrian through zone or require pedestrians to enter the roadway as a detour for outdoor dining.

Limit the outdoor dining area to the length of the business's frontage and repurpose recovered curb space to enhance storage of vehicles and access for people.




E Congress St
E Congress St
Chicago
Music Store
S Scott Ave
Add one (1) ADA space and
remove one (1) metered space
Add designated micromobility
parking on sidewalks
E Broadway Blvd
E Broadway Blvd
Convert metered parking space
to an ADA space
S 6th Ave
Remove obstructions to the
pedestrian through zone
E Jackson St
S Scott Ave
Sign commercial loading zones
for commercial and non-
commercial permitted vehicles
E Ochoa St
E Ochoa St
ADA Parking
Transit Stops
Bike Parking
Micromobility Parking
Commercial Loading Zone
Passenger Loading
Metered Parking
No Parking
Transit Lane

Adaptive Re-use / Industrial

Adaptive Re-use / Industrial corridors typically are traffic carrying roadways that prioritize the movement of vehicles between destinations, which are usually not along this corridor. Prioritization of Mobility along the curb lane results in minimal accommodation for other curb lane uses. An Adaptive Re-use / Industrial corridor example can be seen on Toole Ave from Stone Ave to 6th Ave.

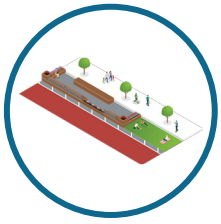
Stated Curb Priorities

Mobility

Access For People

Access For Goods

Storage for Vehicles



Public Space

Toole Avenue has 3 lanes dedicated to automobile movement. Additionally Mobility needs are accommodated through two bike lanes and sidewalk space. There is limited vehicle storage along the corridor, which is managed by meters. However, there is ample off-street parking available throughout the corridor. There is a transit stop at E Toole Street @ N 7th Avenue. To accommodate Public Space, curb space that could be used for the access of goods is limited.

Intersection: E Toole St @ 6th Ave

The stated curb priorities for Adaptive Re-use / Industrial, shown below, places Mobility, Access for People, and Access for Goods as the top three. The case study corridor examined for this neighborhood typology is along Toole Ave from Stone Ave to 6th Ave, shown on the following page.

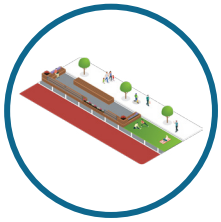
Stated Curb Priorities

Mobility

Access For People

Access For Goods

Storage for Vehicles



Public Space

Below are the common uses for the stated curb priorities in the Adaptive Re-use / Industrial area. In order for the existing conditions to match the stated priorities along the Toole Avenue corridor, these curb lane attributes should be present.

Mobility Priorities

Common curb lane usage related to the Mobility priority includes:

- **Travel Lanes**
- **Bike Lanes**
- **No Parking Zones**
- **Crosswalks**

Access for People

Common curb lane usage related to the Access for People priority includes:

- Passenger Loading Zones
- Micromobility Parking
- Transit Stops
- Specialized Loading/ Paratransit

Access for Goods Priorities

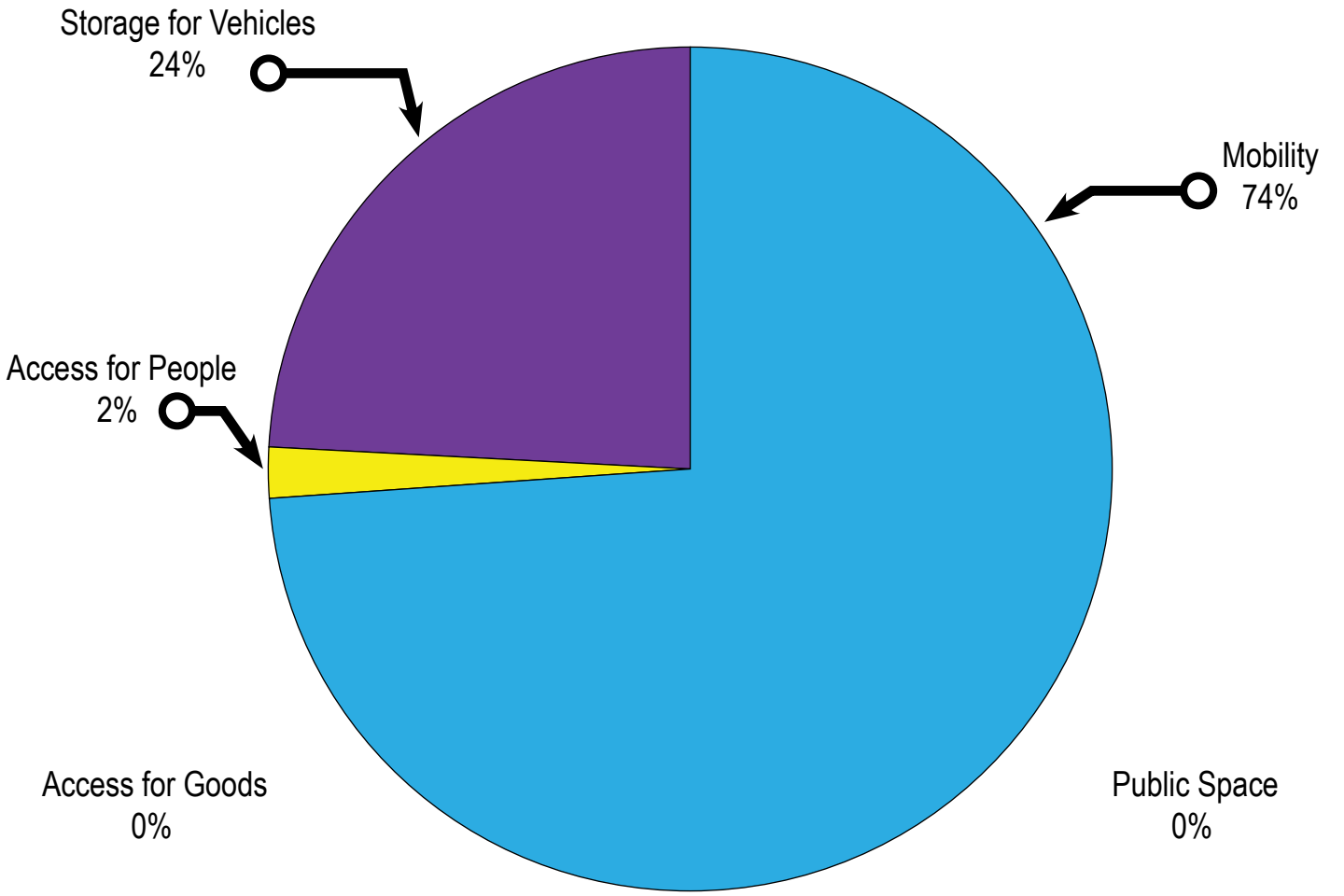
Common curb lane usage related to the Access for Goods priority includes:

- Commercial Vehicle Loading Zones
- General Short Term Parking
- Food Delivery Zones
- General Delivery

The chart displays the existing percentage of curb lane usage along the corridor. The stated curb priorities place Mobility and Access for People as the top two. The existing curb uses prioritize Mobility and Storage of Vehicles with the following details:

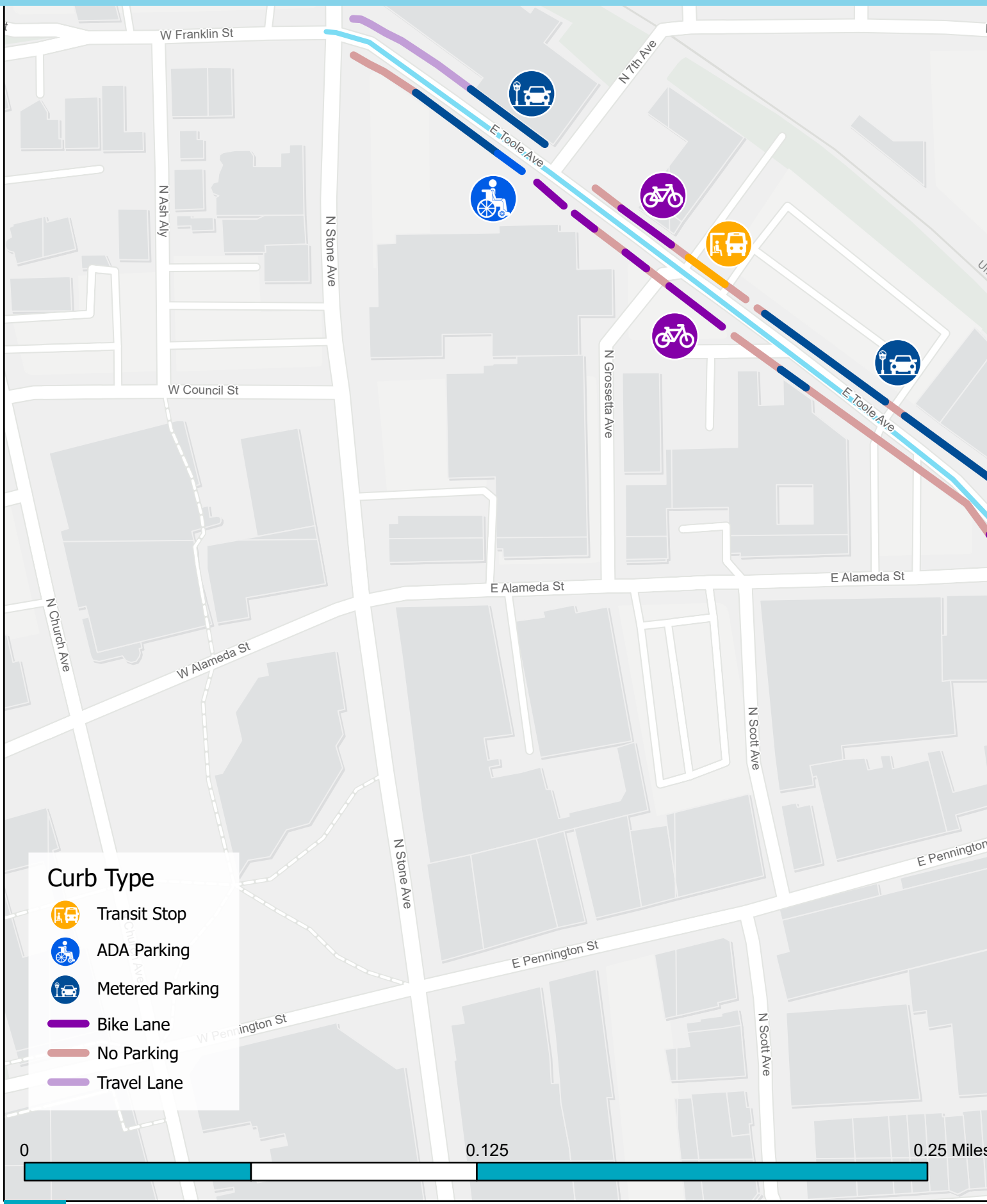
- Mobility accounts for 74% of the curb lane attributes,
- Storage of Vehicles accounts for 24%, and
- Access for People accounts for 2%.
- There is no dedicated curb space for Access for Goods or Public Spaces.

Actual Curb Lane Priorities for Toole Ave



Although Mobility is both an existing and stated priority, the other stated priorities do not match the existing conditions. To align with the stated curb priorities, this corridor should evaluate:

- Removal of some vehicular storage
- Addition of curb uses related to Access for People such as micromobility parking, passenger loading zones, and commercial vehicle loading zones.
- Addition of curb uses related to Access for Goods, such as commercial vehicle loading zones, short-term parking, and delivery zones.


W Franklin St
N 7th Ave
E Toole Ave
N Ash Aly
N Stone Ave
W Council St
N Grossetta Ave
E Toole Ave
E Alameda St
E Alameda St
N Church Ave
W Alameda St
N Scott Ave
E Pennington
N Stone Ave
E Pennington St
N Scott Ave
Curb Type
Transit Stop
ADA Parking
Metered Parking
Bike Lane
No Parking
Travel Lane
0
0.125
0.25 Miles

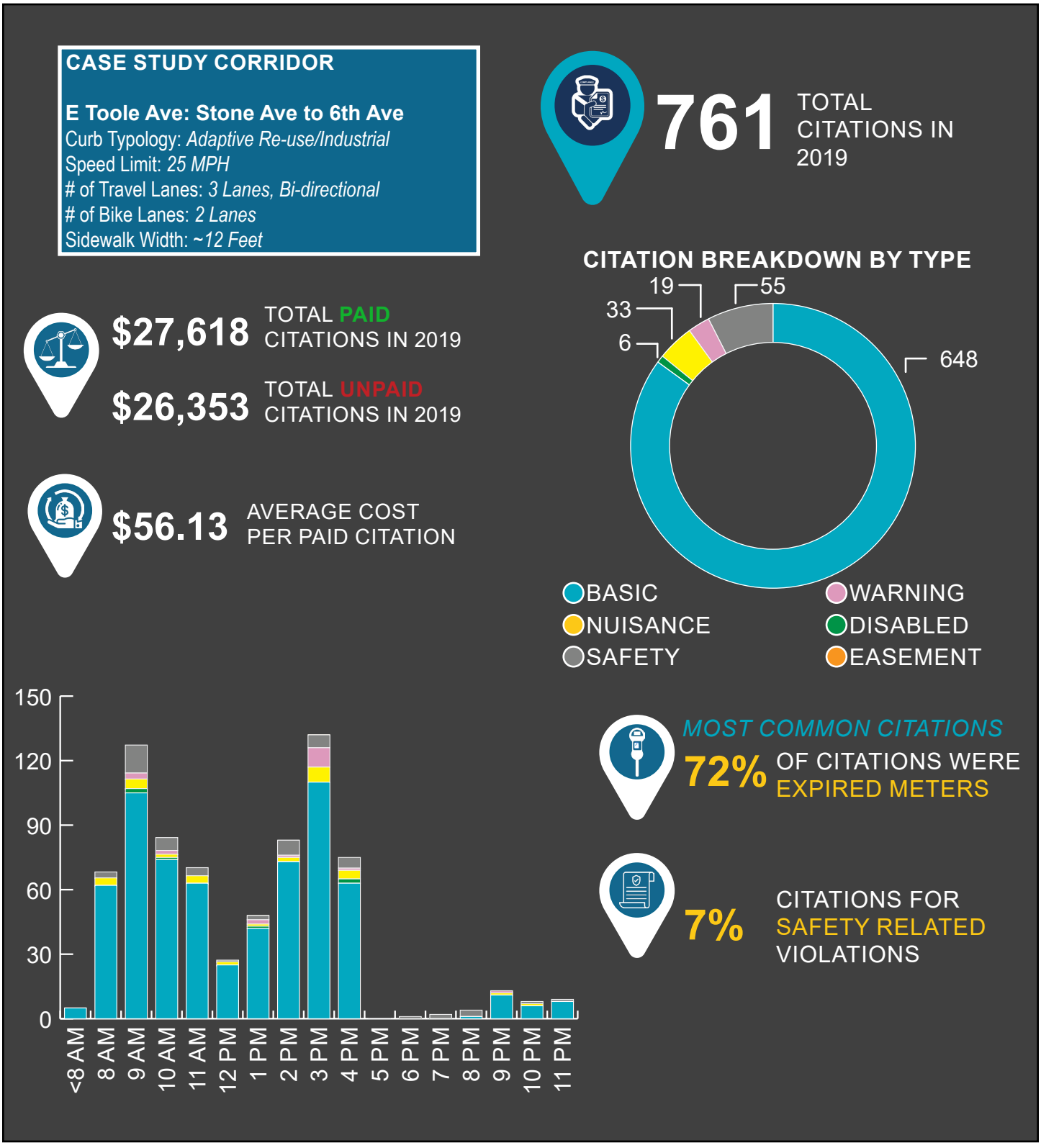
The map details the different curb uses for Toole Ave corridor. Approximately 40% of the curb lane is used as No Parking zones, whether that be for driveways or as buffers from the curb for a bicycle/travel lane.

The Storage for Vehicles priority, which comprises of 24% of the total curb, is almost all metered parking, with only 1% of the curb used for ADA parking.

The only Access for People priority is a transit stop.

Citations Analysis

Citations issued in 2019 were evaluated for corridors identified as Adaptive Re-use/Industrial. A summary of the issued citations are detailed below.



Corridor Considerations

Based on the existing curb use allocation and citation issuance the following attributes warrant further evaluation for future use.

 **Access For Goods**	 **Access For People**	 **Mobility**
Loading zone infrastructure along adaptive re-use/industrial corridors should be increased to support the delivery of goods	Passenger loading zones should be evaluated along the adaptive re-use/industrial corridors and intersecting streets	Evaluate traffic volumes in adaptive re-use/industrial areas to determine the feasibility of decreasing No Parking areas and increasing active curb space

 **Public Space**	 **Storage for Vehicles**	 **Compliance**
Public Space was not identified along curb space priorities in the adaptive re-use/industrial corridor. Landscaping and activation should be considered after other curb lane needs are met	The Storage of Vehicles is the 4th stated priority but the 2nd most common curb lane use in this area. Diversifying curb space along the corridor to promote Access for People and Goods should be considered	Parking citations in the adaptive reuse area decreases after 6:00 PM because parking is free after 5:00 PM. Evaluate parking behaviors during evenings and weekends.

Curb Allocation Summary - Adaptive Re-use/Industrial

CASE STUDY CORRIDOR

E Toole Ave: Stone Ave to 6th Ave
Curb Typology: *Adaptive Re-use/Industrial*
Speed Limit: *25 MPH*
# of Travel Lanes: *3 Lanes, Bi-directional*
# of Bike Lanes: *2 Lanes*
Sidewalk Width: *~12 Feet*

Curb Allocation Outcome Summary

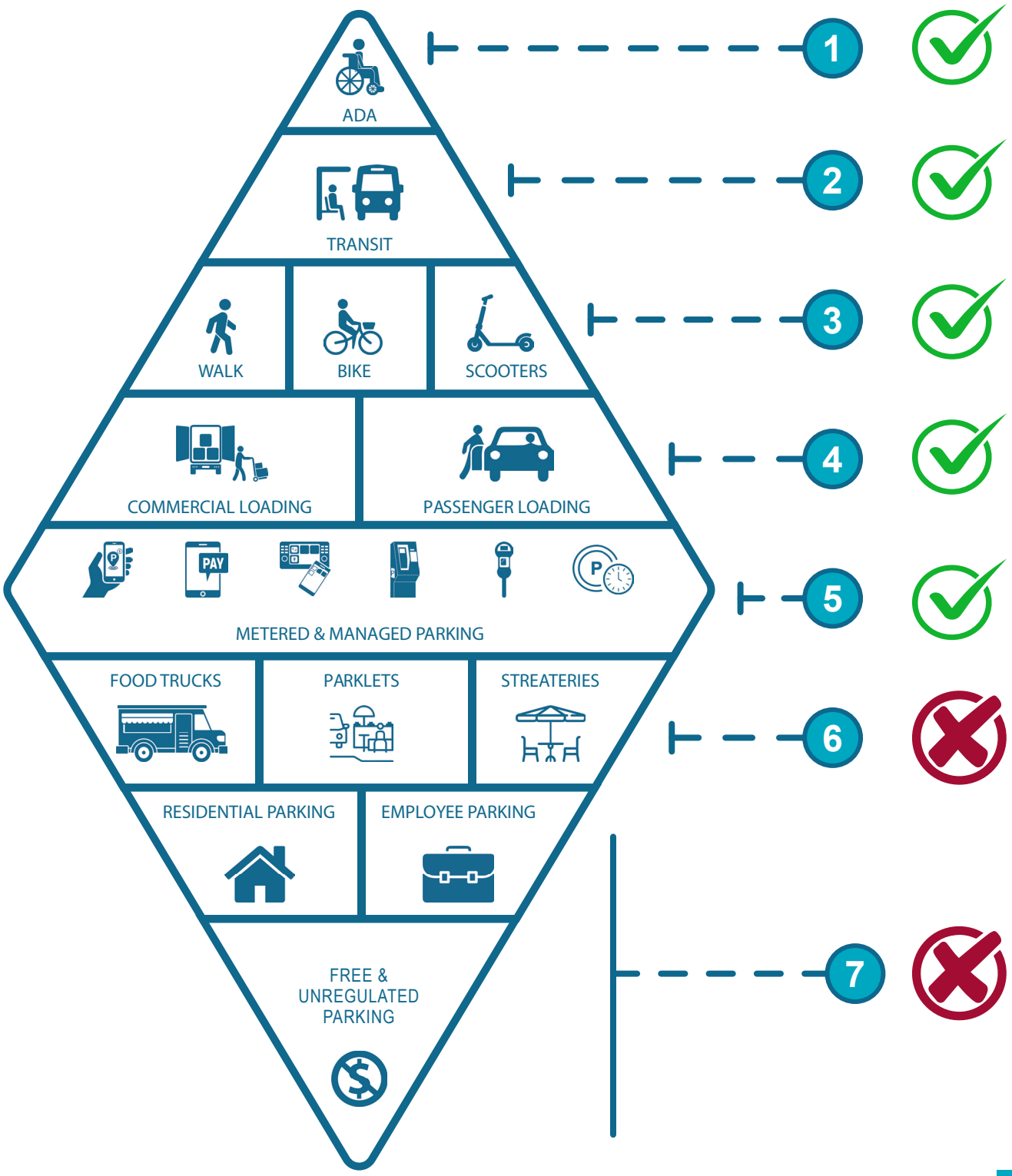
Using the Decision Diamond process, the following steps were identified to align the E Toole Ave corridor with the stated priorities of Adaptive Re-use/Residential Areas.

- **Step 1:** Designate ADA parking spaces on the block-faces being evaluated.
- **Step 2:** Ensure that there is No Parking signage at the transit stops. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.
- **Step 3:** Designate this corridor as an area that warrants a curb extension and stripe the curb bulb outs as a low-cost alternative until additional funding for the curb extension is allocated.
- Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.
- Add bike parking to the southern block-face on Toole Ave between Stone Ave and N 7th Ave.
- **Step 4:** Remove two (2) parking spaces at the start or end of a block-face and install a loading zone.
- Flex the commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings.
- **Step 5:** Ensure that metered and managed parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.
- **Step 6:** Outdoor dining needs are met with off-street patio dining areas. No additional outdoor dining is needed for the land uses along the Toole Ave case study corridor.
- **Step 7:** Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Changes to the Curb Lane

- Remove two (2) metered parking spaces on N 7th Ave at Toole Ave and add one (1) ADA parking space.
- Add No Parking signage at the ends of the transit stop and coordinate with Sun Tran to identify other curb management needs to support transit service.
- Areas that are designated as adaptive re-use/industrial should require sidewalk and streetscape improvements as a part of the redevelopment process. Tucson's Complete Street Design Guide should be used when restructuring curb lanes to enhance the pedestrian experience.
- Commercial vehicle loading zone signage should be updated to reflect access by commercial vehicles and non-commercial vehicles with loading zone permits.
- Add commercial loading zones and flex loading zones for passenger pick-up and drop-off during nights and weekends.

Recommended Curb Uses



Applying the Curb Decision Diamond to the E Toole Ave from Stone Ave to 6th Ave case study corridor

Step 1: Allocating Space for ADA Parking Needs

Question: Is one or more ADA parking space provided on the block-faces being evaluated?

Answer: No. Only one of the block-faces being evaluated provides ADA parking.

Question: If No, is one or more ADA parking space provided on the adjoining block-faces?

Answer: No. The adjoining block-faces do not provide ADA parking.

Outcome: Designate ADA parking spaces on the block-faces being evaluated.

Step 2: Designating Space for Transit

Question: Is there a transit stop on the block-face being evaluated?

Answer: Yes. There is a transit stop at Toole Ave between N 7th Ave and Grossetta Ave.

Outcome: Ensure that there is No Parking signage at the transit stops. Additional coordination with Sun Tran is needed to determine if there are any impediments to transit service.

Step 3: Enhancing the Pedestrian Experience and Allocating Space for Bikes and Scooters

Pedestrian Enhancements Assessment

Question: Are there curb bulb outs on the block-faces/sidewalks being evaluated?

Answer: No. Curb bulb outs are not provided on the block-faces/sidewalks being evaluated.

Question: If No, is the pedestrian crossing distance greater than two travel lanes?

Answer: Yes. Pedestrians must cross two travel lanes, a center turning lane, and two bike lanes.

Outcome Designate this corridor as an area that warrants a curb extension and stripe the curb bulb outs as a low-cost alternative until additional funding for the curb extension is allocated.

Bike and Micromobility Space Allocation

Question: Is there bike and/or scooter parking available along the block-faces being evaluated?

Answer: Yes, bike parking is provided along the Toole Ave case study corridor.

Outcome Use data collection methods such as video analytics, micromobility data streams, in-person visual inspections, or user feedback to evaluate the utilization rate of existing bike and scooter parking infrastructure to determine if parking demand exceeds the existing supply.

Add bike parking to the southern block-face on Toole Ave between Stone Ave and N 7th Ave.

Step 4: Providing Commercial Loading Zones and Designating Passenger Loading Zones

Commercial Loading Zone Allocation Process

Question: Are there designated loading zones on the block-faces being evaluated?

Answer: No. Loading zones are not provided on the block-faces being evaluated.

Question: If No, do the adjacent land uses need/want on-street loading zones on the block-faces being evaluated?

Answer: Yes. Commercial land uses along the Toole Ave case study corridor need on-street loading zones.

Question: If Yes, is the projected parking occupancy <75% after two (2) parking spaces are removed from the block-faces being evaluated?

Answer: Yes. Parking occupancy would be <75% after two (2) parking spaces are removed.

Outcome: Remove two (2) parking spaces at the start or end of a block-face and install a loading zone.

Passenger Loading Zone Allocation Process

Question: Are there designated passenger pick-up/drop-off zones on the block-faces being evaluated?

Answer: No. There are no passenger pick-up/drop-off zone on the block-faces being evaluated.

Question: If No, does the block-faces being evaluated contain commercial vehicle loading zones?

Answer: Yes. Commercial loading zones are recommended along the Toole Ave corridor.

Outcome: Flex the recommended commercial vehicle loading zone to a pick-up/drop-off zone in the afternoons and evenings. Add short-term parking signage to the loading zone to designate the area for passenger and food pick-up/drop-off.

Step 5: Implementing Metered & Managed Parking

Question: Is on-street parking metered/managed on the block-face being evaluated?

Answer: Yes. On-street parking is metered with a two-hour max time limit.

Outcome Ensure that metered parking spaces are signed appropriately and parkers have multiple payment options that increase the rate of parking compliance. Evaluate parking occupancy, duration, and turnover to identify options to increase system efficiency.

Step 6: Public Activation in the Curb Lane

Question: Is outdoor dining provided on the block-faces being evaluated?

Answer: No. Outdoor dining is not provided on the block-faces being evaluated.

Outcome Outdoor dining needs are met with off-street patio dining areas. No additional outdoor dining is needed for the land uses along the Toole Ave case study corridor.

Step 7: Allowing Long-term Parking at the Curb

Question: Is long-term parking currently provided on the block-faces being evaluated?

Answer: No. There are no long-term parking spaces on the block-faces being evaluated.

Outcome Assess parking occupancy and duration to ensure that parking behavior does not warrant long-term parking conditions such as parking occupancy <50% and parking durations <4 hours.

Implementation Actions

ADA Parking

Remove two (2) metered parking spaces on N 7th Ave at Toole Ave and add one (1) ADA parking space.

Transit Stops

Add No Parking signage at the ends of the transit stop and coordinate with Sun Tran to identify other curb management needs to support transit service.

Pedestrian, Bicycle, and Micromobility Enhancements

Areas that are designated as adaptive re-use/industrial should require sidewalk and streetscape improvements as a part of the redevelopment process. Tucson's Complete Street Design Guide should be used when restructuring curb lanes to enhance the pedestrian experience.

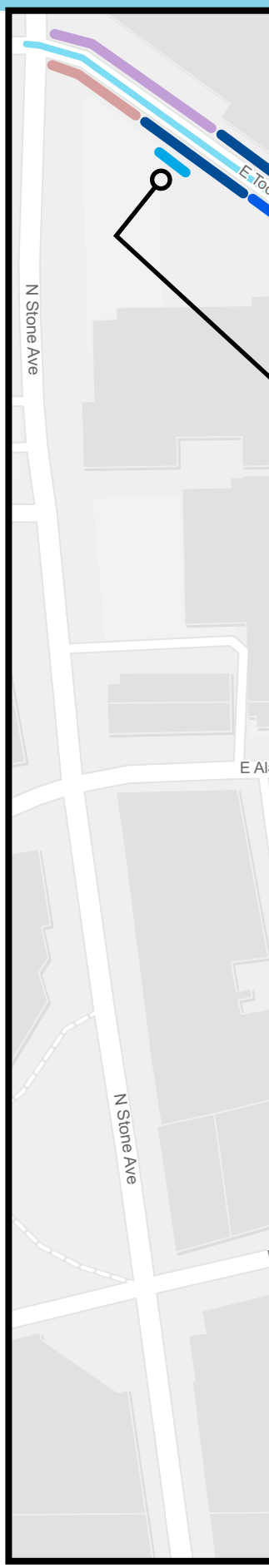
Commercial & Passenger Loading Zones

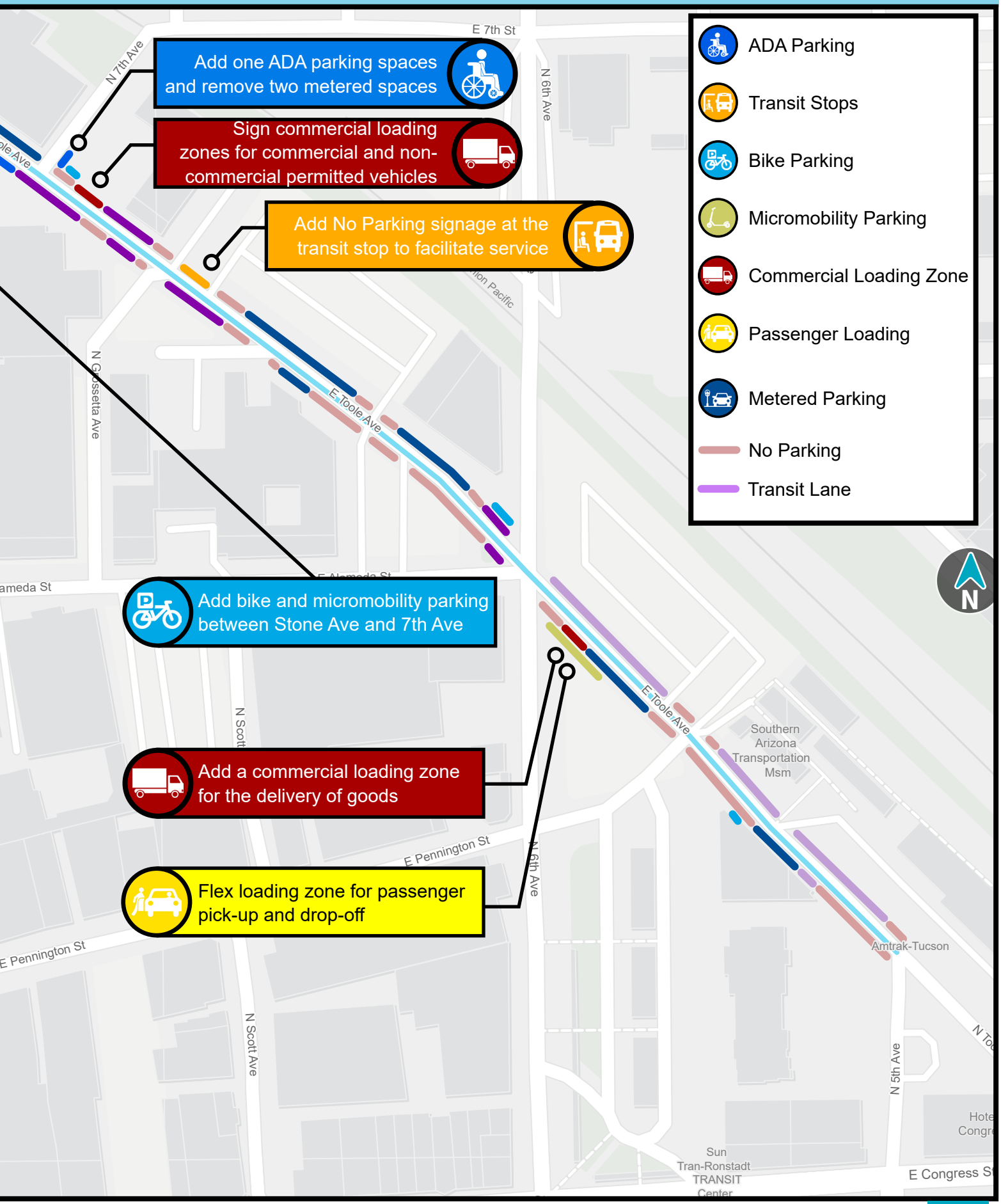
Commercial Vehicle Loading Zone signage should be updated to reflect access by commercial vehicles and non-commercial vehicles with loading zone permits.

Add commercial loading zones and flex loading zones for passenger pick-up and drop-off during nights and weekends.

Metered & Managed Parking

Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Adaptive Re-use/Industrial.

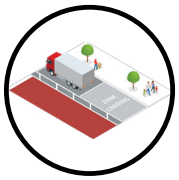



Add one ADA parking spaces and remove two metered spaces
Sign commercial loading zones for commercial and non-commercial permitted vehicles
Add No Parking signage at the transit stop to facilitate service
Add bike and micromobility parking between Stone Ave and 7th Ave
Add a commercial loading zone for the delivery of goods
Flex loading zone for passenger pick-up and drop-off
ADA Parking
Transit Stops
Bike Parking
Micromobility Parking
Commercial Loading Zone
Passenger Loading
Metered Parking
No Parking
Transit Lane
E 7th St
N 7th Ave
N 6th Ave
E Toole Ave
N Grossetta Ave
N Scott Ave
E Pennington St
Southern Arizona Transportation Msm
Amtrak-Tucson
N 5th Ave
Sun Tran-Ronstadt TRANSIT Center
E Congress St
N

Action Item Summary

Tucson should improve the efficiency of its curb lanes and enhance the customer experience by ensuring curb space is allocated in a fair and strategic manner. A summary of the action items identified using this curb framework are detailed in this section.

Access For People



Access For Goods

Avenida Del Convento: Congress Street to Cushing Street

Neighborhood Commercial

(N.C.Action Item)

N.C.1 - Incorporate bike racks and scooter parking zones at future curb bulb outs and along sidewalks >10 feet wide.

N.C.2 - Only place bike and scooter parking in the curb lane when sidewalk space is inadequate.

N.C.3 - In neighborhood commercial areas, provide loading zones near commercial land uses and ensure loading zone signage allows loading for commercial and non-commercial vehicles.

N.C.4 - Add passenger loading zones on blocks with less than 75% occupancy.

University Boulevard: Euclid Avenue to Park Avenue

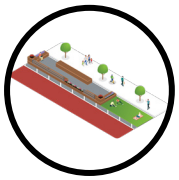
Entertainment Districts

(E.D.Action Item)

E.D.1 - Install micromobility parking along the sidewalk adjacent to No Parking zones to enhance access for people in Entertainment Districts with sidewalks <10-Feet wide.

E.D.2 - Commercial vehicle loading zone signage should be updated to reflect access by commercial vehicles and non-commercial vehicles with loading zone permits.

E.D.3 - Angled parking limits the ability to use passenger loading zones for large commercial vehicles. Designate angled parking for passenger loading and parallel parking for a mixture of commercial and passenger loading.



Public Space

N.C.5 - Add wayfinding signage to support local businesses, increase vibrancy, and promote the use of off-street dining areas.

Storage for Vehicles

N.C.6 - No additional ADA parking is needed on this corridor. Allocate future ADA parking spaces at a maximum of 15% of the total spaces on a corridor.

N.C.7 - Evaluate the use of existing ADA parking spaces and repurpose any over committed curb space to other uses.

N.C.8 - Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as neighborhood commercial.

N.C.9 - Convert time limited parking spaces to metered parking if the occupancy is greater than 75% or the parking duration exceeds 2-hours.

E.D.4 - Conduct a comprehensive assessment of on-street parking occupancy and duration.

E.D.5 - Adding ADA parking on curb lanes with angled parking with require removal of two parking spaces for one ADA parking space. Evaluate the placement of existing ADA parking spaces and ensure ADA ramps can be accessed safely.

E.D.6 - Consider expanding the hours and days of operation to align with parking demand. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM, Thursday - Saturday: 8:00 AM - 12:00 AM.

Mobility

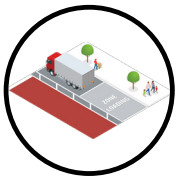
N.C.10 - Inventory all transit stops and ensure adequate No Parking signage is provided along transit corridors.

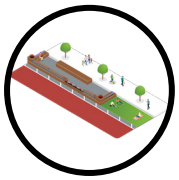
N.C.11 - Evaluate options to automate parking enforcement at transit stops and along transit routes.

N.C.12 - Design future transit stops with an in-lane stop design and inset parking to minimize conflicts between transit and parked vehicles.

E.D.7 - Coordinate with Sun Link to ensure curb lane activity does not imped transit service. Understanding the interaction between passenger loading zones and transit lanes will be critical to minimizing interference with transit service.

Action Item Summary

	 Access For People	 Access For Goods
4th Avenue: University Boulevard to Congress Street Entertainment Districts **(E.D.Action Item)**	E.D.9 - Loading zones along this corridor should be flexed to metered parking or passenger loading to address user demand.	E.D.10 - Expand the network of loading zones along the 4th Ave corridor. Install four (4) loading zones along the 4th Ave corridor to allow for efficient loading and unloading before 11:00 AM.
Congress Street: East of Scott Avenue Entertainment Districts **(E.D.Action Item)**		E.D.16 - Flex passenger loading zones to allow for commercial loading during times when demand for the delivery of goods is at its peak.



Public Space

E.D.11 - 4th Ave between University Blvd and Congress St should be evaluated for a complete streets overhaul and future sidewalk beatification.

E.D.17 - Remove the outdoor dining provided on the northern block-face of Congress St between 6th Ave and Scott Ave and relocate this dining area to the curb lane. Allow the current operator of the streatery to apply for an outdoor permit and incorporate fees associated with renting the on-street parking spaces along their store frontage.

Storage for Vehicles

E.D.12 - Evaluate potential safety hazards associated with providing ADA parking spaces along a streetcar route.

E.D.13 - For curb lanes in Entertainment Districts, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM, Thursday - Saturday: 8:00 AM - 12:00 AM.

E.D.18 - No additional ADA parking spaces are needed along this corridor

E.D.19 - ADA parking at the adjoining block-faces on 6th St could present a hazard for persons with disabilities. Traffic calming measures are needed before ADA parking spaces can be placed at this location.

E.D.20 - Identify locations for scooter parking on sidewalks and share bike parking areas for scooter parking.

E.D.21 - Only place bike and scooter parking in the curb lane when sidewalk space is inadequate.

E.D.22 - For curb lanes in Entertainment Districts, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Wednesday, 8:00 AM - 8:00 PM, Thursday - Saturday: 8:00 AM - 12:00 AM.

Mobility

E.D.14 - Coordinate with Sun Link to ensure curb lane activity does not imped transit service. Understanding the interaction between passenger loading zones and transit lanes will be critical to minimizing interference with transit service.

E.D.15 - Use striping to install curb bulb outs to shorting the pedestrian crossing distance along this corridor and incorporate curb bulb outs into future roadway improvements.

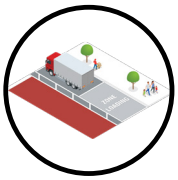
E.D.23 - Add No Parking signage along this transit corridor.

E.D.24 - Evaluate options to automate parking enforcement at transit stops and along transit routes.

E.D.25 - Remove any objects that imped the pedestrian through zone or require pedestrians to enter the roadway as a detour for outdoor dining.

Action Item Summary

Access For People



Access For Goods

Stone Avenue: North of Broadway Blvd

Urban Core

U.C.Action Item)

U.C.1 - Flex commercial loading zone in the Urban Core to provide passenger pick-up/drop-off zones.

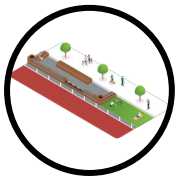
U.C.2 - Remove two on-street parking spaces on Stone Ave near Broadway Blvd and install a loading zone that accommodates commercial and permitted non-commercial loading.

University Boulevard: Main Avenue to Euclid Avenue

Low-Density Residential

(L.D.R.Action Item)

L.D.R.1 - Survey local residents on their need for commercial and passenger loading zones. If they desire one, determine the parking occupancy in this area.



Public Space

Storage for Vehicles

U.C.3 - Add one ADA parking space on the northern block-face of W Pennington St where it intersects Stone Ave.

U.C.4 - Add bike parking to the parking protected bike lane at the intersection of Stone Ave and Council St.

U.C.5 - Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Urban Core to determine if extended hours of operation are needed.

L.D.R.2 - Consider adding ADA parking surrounding the University Blvd and 4th Ave intersection to service the businesses and transit stop around this intersection. Survey these land uses to see if ADA parking is warranted.

L.D.R.3 - Most users parking along this corridor will be able to park their bikes off-street at residences. However, consider adding bike racks that offer parallel parking to the furniture zone of businesses along the corridor.

L.D.R.4 - Consider adding metered or managed parking along University Blvd between Herbert Ave and 5th Ave to accommodate the needs of businesses along that block-face.

Mobility

U.C.6 - In addition to red curb paint, consider adding No Parking signage at transit stops. Coordinate with Sun Tran to ensure curb lane activity does not imped transit service.

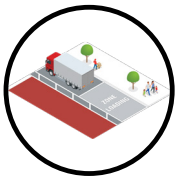
L.D.R.5 - In addition to red curb paint, consider adding No Parking signage at transit stops. Coordinate with Sun Tran to ensure curb lane activity does not impede transit service.

L.D.R.6 - Make sure sidewalks are consistent throughout the corridor.

L.D.R.7 - Consider adding curb bulb outs to shorten pedestrian crossing distances.

Action Item Summary

Access For People



Access For Goods

4th Avenue: 12th Street to 16th Street

Low-Density Residential
(L.D.R.Action Item)

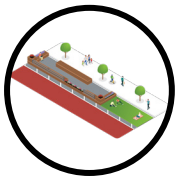
L.D.R.8 - Survey local residents on their need for commercial and passenger loading zones. If they desire one, determine the parking occupancy.

L.D.R.9 - Ensure there is proper signage for off-street commercial and passenger loading zones.

Congress Street: West of Scott Ave

Mid- to High-Density Residential
(M.H.D.R.Action Item)

M.H.D.R.1 - Add loading zone signage at all commercial loading zones that allow commercial, non-commercial permitted vehicles, and passenger vehicles to use the loading zone network.



Public Space

L.D.R.10 - Consider adding benches and other infrastructure at the transit stops for passengers.

M.H.D.R.2 - Ensure that all outdoor dining areas do not obstruct the pedestrian through zone. If impediments to pedestrian movement are identified, coordinate with the business owner to remove obstructions and ensure the outdoor dining areas use the frontage zone, furniture zone, or curb lane to meet their outdoor dining needs.

Storage for Vehicles

L.D.R.11 - Survey adjacent land uses to determine if any businesses need access to on-street ADA parking.

L.D.R.12 - Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Low-Density Residential.

L.D.R.13 - Survey adjacent land uses to ensure their needs are met without on-street parking management.

M.H.D.R.3 - Add one ADA parking space on the western block-face of Scott Ave near Congress St.

M.H.D.R.4 - Relocate the bike parking spaces from the intersection of Congress St at Church St to the sidewalk of Church St near Congress St.

M.H.D.R.5 - Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Mid- to High-Density Residential to determine if extended hours of operation are needed.

Mobility

L.D.R.14 - Coordinate with Sun Link to ensure there is No Parking signage and striping.

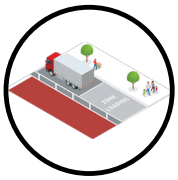
L.D.R.15 - Evaluate additional sidewalk and curb lane opportunities to enhance the pedestrian experience, such as adding curb bulb outs to shorten the pedestrian crossing distance and restriping crosswalks across intersections

M.H.D.R.6 - Relocate the bike parking spaces at the intersection of Congress St at Church St and remove impediments to the ADA ramp.

M.H.D.R.7 - In addition to red curb paint, consider adding No Parking signage at transit stops. Coordinate with Sun Link and Sun Tran to ensure curb lane activity does not impede transit service.

Action Item Summary

Access For People



Access For Goods

E Broadway Blvd: Stone Avenue to 6th Avenue

Mid- to High-Density Residential
(M.H.D.R.Action Item)

M.H.D.R.8 - Flex the commercial loading zone to a passenger loading zone to minimize conflict with transit during evenings and on weekends.

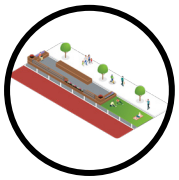
M.H.D.R.9 - Add a commercial loading zone on Broadway Blvd between Stone Ave and Scott Ave. Ensure loading zone signage allows for commercial and non-commercial permitted vehicles.

E Toole Ave: Stone Avenue to 6th Avenue

Adaptive Re-Use/Industrial
(A.R.U.I.Action Item)

A.R.U.I.1 - Add commercial loading zones and flex loading zones for passenger pick-up and drop-off during nights and weekends.

A.R.U.I.2 - Commercial vehicle loading zone signage should be updated to reflect access by commercial vehicles and non-commercial vehicles with loading zone permits.



Public Space

M.H.D.R.10 - Remove the outdoor dining provided on the southern block-face of Broadway Blvd between Stone Ave and Scott Ave and relocate this dining area to the curb lane. Allow the current operator of the streetery to apply for an outdoor permit and incorporate fees associated with renting the on-street parking spaces along their store frontage.

M.H.D.R.11 - Limit the outdoor dining area to the length of the business's frontage and repurpose recovered curb space to enhance storage of vehicles and access for people.

A.R.U.I.3 - Areas that are designated as adaptive re-use/industrial should require sidewalk and streetscape improvements as a part of the redevelopment process. Tucson's Complete Street Design Guide should be used when restructuring curb lanes to enhance the pedestrian experience.

Storage for Vehicles

M.H.D.R.12 - Add three (3) ADA parking spaces on the adjoining block-faces to expand accessibility. This will require the removal of one metered parking space.

M.H.D.R.13 - Install micromobility parking along the sidewalk adjacent to No Parking zones to enhance access for people in Mid- to High-Density Residential areas with sidewalks <10-Feet wide.

M.H.D.R.14 - Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Mid- to High-Density Residential.

M.H.D.R.15 - For curb lanes in Mid- to High-Density Residential, consider expanding the hours and days of operation to align with parking demand and activity in this neighborhood typology. Recommended hours of operation are Monday - Saturday, 8:00 AM - 8:00 PM.

A.R.U.I.4 - Remove two (2) metered parking spaces on N 7th Ave at Toole Ave and add one (1) ADA parking space.

A.R.U.I.5 - Conduct a comprehensive assessment of on-street parking occupancy and duration on streets designated as Adaptive Re-use/ Industrial.

Mobility

M.H.D.R.16 - Coordinate with Sun Link to ensure curb lane activity does not imped transit service.

M.H.D.R.17 - Remove any objects that impede the pedestrian through zone or require pedestrians to enter the roadway as a detour for outdoor dining.

A.R.U.I.6 - Add No Parking signage at the ends of the transit stop and coordinate with Sun Tran to identify other curb management needs to support transit service.

Information

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