DDA ANN ARBOR

Downtown Ann Arbor

Curb Management Plan

August 2024

Acknowledgements

Thank you to those who provided input and feedback to create an implementable plan.

Downtown Development Authority Board
Downtown Development Authority Operations Committee
Ann Arbor Commission on Disability Issues
Ann Arbor Street Design Team
Ann Arbor Transportation Commission
City of Ann Arbor Office of Community Standards
City of Ann Arbor Police Department
City of Ann Arbor Department of Engineering

Ann Arbor Downtown Development Authority Staff

Jada Hahlbrock Amber Miller Maura Thomson

Consultant Team

Lead: Walker Consultants

Jim Corbett
Chrissy Mancini Nichols
Bobby Mordenti
Elizabeth Mercer
Tania Schleck
Ben Weber

Beckett & Raeder

Brian Barrick
Christy Summers

The Greenway Collaborative

Norman Cox

Curb Inventory: Curb IQ

All images from Walker Consultants unless otherwise noted.

NAVIGATING THE DOWNTOWN ANN ARBOR CURB MANAGEMENT PLAN

Three documents make up the Curb Management Plan:

- **The Downtown Ann Arbor Curb Management Plan** details overall findings, the digital curb inventory, curb typologies prioritization, and the recommended strategies and action matrix.
- **The Downtown Ann Arbor Curb Management Playbook**: Appendix A is a companion document that details the implementation steps for each recommended strategy.
- **The Downtown Ann Arbor Existing Curb Conditions Memo**: Appendix B provides research and analysis of current curb conditions used to identify needs and opportunities, and develop recommended strategies.

Curb Management Plan

Overall findings, recommendations, digital inventory, and curb typolgies and prioritization

Curb Management Playbook

A companion document with recommended strategies, including action items, priorities, timing, cost, responsibily entity, and best practices

Existing Conditions

Evaluation of current conditions to identify needs, issues, and opportunities

CONTENTS

1 | EXECUTIVE SUMMARY

Why Manage Curbs?

Downtown Ann Arbor's curbs are in demand. New ways to travel such as e-scooters, ridehailing, and private shuttles compete with package and food delivery, outdoor dining, and parking. Recently built bike lanes and pedestrian spaces at the curb support citywide goals for sustainable transportation options.

These competing demands for limited space cause congestion, accessibility, and safety issues.

At the same time, downtown curbs are more than just vehicle storage or a path of travel. Curbs are where mobility meets the destination, and one of Ann Arbor's most extensive and valuable pieces of real estate. Curbs are also a finite space, and, given the growing demands, they must be managed and prioritized to support a new dynamic environment.

The good news is that when it comes to prioritizing curb space, Ann Arbor is ahead of the curve.

The Ann Arbor Downtown Development Authority and the City have taken significant steps to rethink curb space to create a more accessible, vibrant, and active downtown where people want to be.

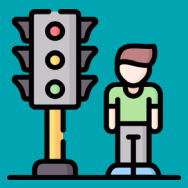
People-Friendly Streets projects like Curbless State Street have built pedestrian zones, bike lanes, outdoor dining, and festive spaces. The success of these projects proves that effective use of curbs can increase access by making it comfortable to bike and walk and that curbs can support businesses by encouraging people to visit, linger, and have fun.

It also shows that as downtown continues to grow and evolve, there will be more competition for limited curb space.

This curb management plan builds on the momentum by establishing a holistic set of strategies to prioritize and manage downtown Ann Arbor's curb space for the future. It recognizes a balanced and nuanced approach to meet many access needs to support business, while working toward citywide goals for active transportation, transit, safety, and climate.

This plan provides a set of curb management guides, designs, and operational strategies focused on implementation to make it all work. It sets a framework for prioritizing finite curb space, a playbook of curb strategies, and a toolkit for implementation. It is considered a living document and should be updated to reflect changing policies, trends, and demands.

Curb Management Goals and Guiding Principles



Safe and Comfortable Downtown Streets

Increase curbside safety through design, management, and enforcement to support Vision Zero goals where no one dies or is seriously injured in crashes on streets

Resilient, Energy Responsible Downtown

Reduce traffic congestion and transportation emissions to save time, money, and support the goal for a carbon

Equitable, Just Access for All People

People of all abilities, stages, income, race, and culture have equitable access to and at the curb

Vibrant and Thriving Economy

Efficient curb space allocation provides greater access for commercial activites, delivery, and customers whether they walk, bike, drive, or ride transit

Increase Multi-Modal Travel

Allocate space and build infrastructure that creates safer spaces for biking and walking and promotes their use to get to and around downtown

Connected Community with Streets as Civic Space

Create safe spaces for people-centered activities including dining, recreation, and entertainment

Increase Curb Utilization and Manage Demand

Maximize the use of limited curb space through allocation, operations, policy, and design so the right uses, have access to the right places, at the right times

Why Downtown Ann Arbor Needs to Manage Its Curbs

Downtown Ann Arbor's growth comes with changes to how people travel to and around downtown, where they choose to live, and how they work and play. This creates greater demands on curb space and increases the resources needed to meet those needs.

Ann Arbor's Growth Adds Pressure

The City of Ann Arbor has been steadily growing, with a population growth of nearly 10 percent over the last decade. As Ann Arbor grows, there will be greater pressure on curb space to meet more demand.

Walkable, People-Friendly Streets are Vital to Downtown's Success

The DDA's People-Friendly Streets projects create a network of downtown streets that prioritize people, placemaking, and resiliency. The goal is that Downtown Ann Arbor is safe and comfortable for people of all ages and abilities using all modes of transportation. Through People-Friendly Streets, the DDA has invested millions in streetscaping, bike and pedestrian infrastructure, pedestrian plazas, and other critical infrastructure and utilities.

A Bold Transportation and Climate Vision

Ann Arbor's Comprehensive Transportation Plan is based on two goals: 1. Accomplishing Vision Zero by 2025 to eliminate fatalities and serious injuries from traffic crashes, and 2. Achieving carbon neutrality of the transportation system by 2030.

Keeping Downtown Accessible

Curb equity means that people of all ages, abilities, and income levels have equitable access to and at curb "hot spots," and by means other than driving and parking.

Travel is Changing, and New Options Provide Opportunities

Ann Arbor and the DDA have made significant investments in transportation infrastructure and services to build new pedestrian space and bike lanes, provide micromobility travel options, and increase transit service.

New Multi-Family Residential Development Increases Short-Term Parking and Commercial Loading Needs

Dense residential buildings have been built across downtown, adding thousands of housing units. Multi-family housing has unique curb demands such as increased package delivery from residents' online shopping and short-term pickup and drop-off from food delivery and ride hailing. Buildings need safe and accessible short-term parking spaces to support these needs.

Responding to Diverse Delivery Demands

Delivery demands and patterns vary greatly depending on each block's land uses, businesses, specific needs, and the type of delivery. This includes package delivery from online shopping, on-demand food pickup and delivery and gig workers, box and semi-trucks for retail and restaurant supplies, and more. Each delivery type has unique needs, and continued growth will increase pressure on short-term curb space parking.

The curb is the link between a city's transportation system and land use. At the curb, vehicles pause or end their journey, and people step on the sidewalk to go to shops, restaurants, and home. Historically, the curb has been primarily used for parking personal vehicles with limited space for loading zones and bus stops.

Today and going forward, curbs are multi-dimensional spaces for many functions: passenger pickup and drop-off, smart commercial loading zones, bike and scooter parking, streeteries for outdoor dining, short-term parking, future autonomous vehicles, and more.

Curbs are vital to city life but also challenging to manage because so many different users and functions compete for limited space, sometimes at a very fast pace.
Curb management aims to prioritize and optimize this finite space to unlock its value.

Curb Management is a Journey

While every city is at a different stage on thier curb management journey based on density, infrastructure, demand, land uses, and policies and practices already in play, each journey has one element in common: the need to account for the evolving and wide-ranging nature of curb needs.

Ann Arbor is ahead of many cities on its curb management journey by pricing curb space for parking, allocating space for delivery vehicles, building bike lanes to expand travel options, and exploring pilots and infrastructure.

Now, Ann Arbor is establishing policies, regulations, and technology that support equitable and efficient curbs of the future, recognizing the essential nuance for successful implementation.

Key Findings About Curb Use

Curb planning and infrastructure support a more walkable and bike-friendly downtown. As part of this curb management plan, downtown curbs were inventoried, mapped, and digitized to understand how curb space is allocated.

In the S. University study area, almost 20% of all curb sessions were violations, 100 per day, not including citations. With a median duration of only 4 minutes, this is challenging to enforce.

Curbs are meeting access needs, with significant utilization and turnover. Study area data shows most curb sessions are very short, granting access to many people:

- Approximately 60% of curb sessions are under 15 minutes.
- Almost 20% of all curb sessions are less than 2 minutes.

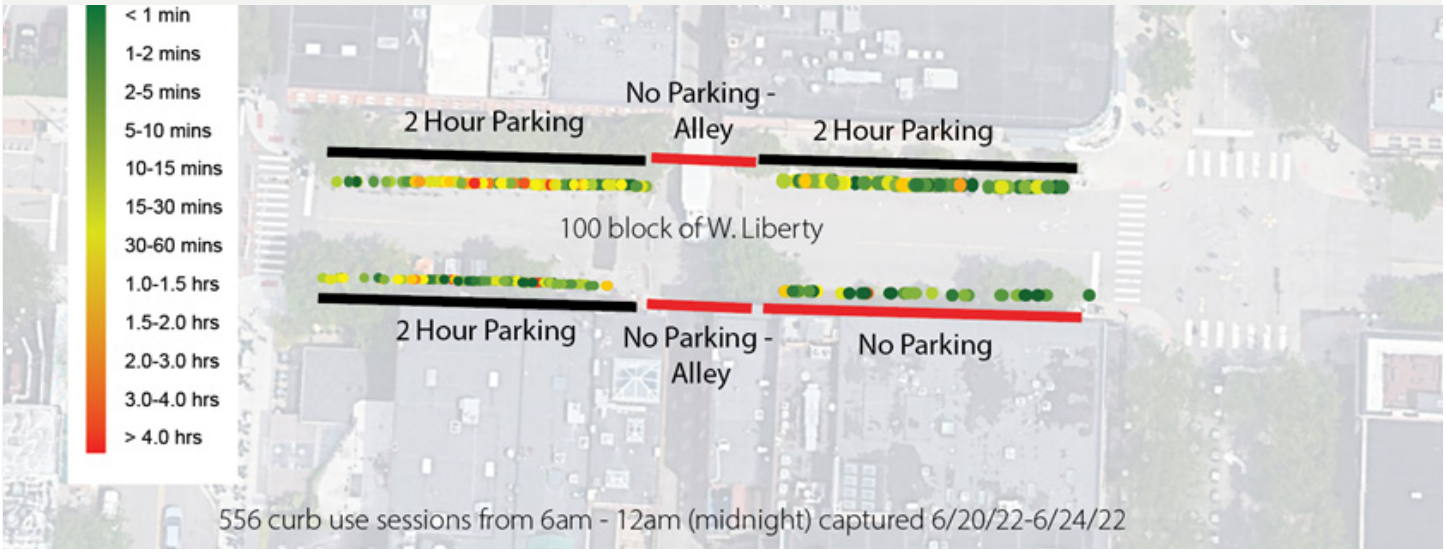
The significant amount of short-term parking demand is leading to curb violations, safety issues, congestion, and preventing access to business. Because so many parking sessions are short-term, parkers are using any space, no matter how it is regulated - no parking areas, commercial loading zones, in front of driveways and fire hydrants, and crosswalks.

There are challenges with enforcing curb regulations. The high number of short-term sessions and constant turnover make it challenging to manually enforce curb time limits and meter payment. To address these challenges, improved enforcement strategies, goals, technology, resources, and metrics are necessary.

Curb behavior can change block by block. Within the footprint of Downtown Ann Arbor, there are many varied land uses (restaurants, retail, housing, office) that affect curb behavior on a block by block level and different users have different needs.

Figure 1 shows Liberty Street's legitimate curb sessions and violations. The southwest side of the street is regulated for no parking. However, the curb activity looks similar to the northwest side, which is regulated for 2-hour parking. Most of these curb violations are short-term, just a few minutes, which is challenging to manually enforce. A coffee shop on the southwest corner of the street likely contributes to the short-term curb activity, showing how land use affects curb use.

Figure 1: Liberty Street Curb Use



Source: Walker Consultants

Many curb parkers are not paying the meter. Non-compliance with paid parking at metered spaces is significant, especially in areas with a high number of short-term stays, which hampers curb optimization and affects resources.

Paid parking and enforcement ends during the highest demand times, leading to curb inequity. Demand for curb space is high after 6 p.m., a peak utilization period when parking is no longer paid and enforced, creating a policy misalignment. This also contributes to curb inequity as people visiting for daytime activities must pay for parking, while those attending evening events can park without paying the meter.

While a diverse range of users need curb access, there is an inequitable fee structure. The only curb users who pay for access are people parking personal vehicles, scooter operators, and businesses with outdoor dining streeteries. In the long term, developing a diversified and equitable pricing strategy will be essential where more users pay for access to generate adequate resources to ensure fiscal sustainability and put back into managing curbs.

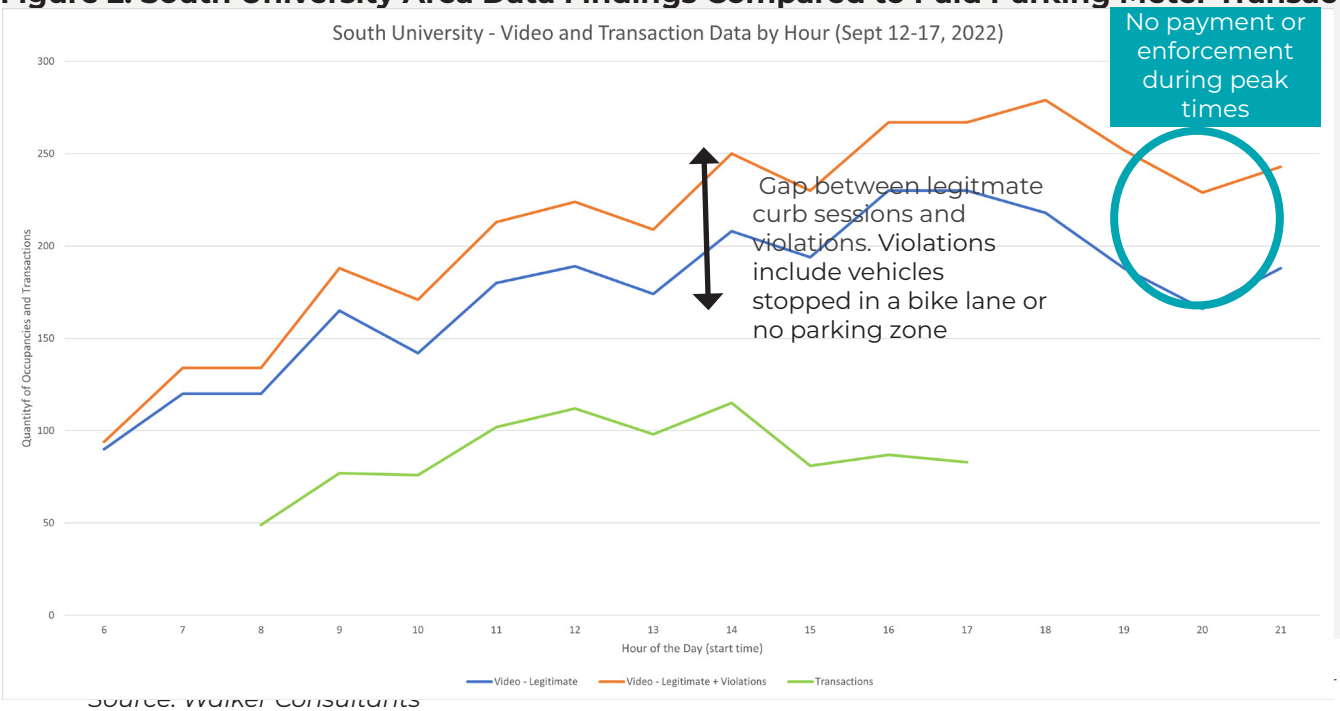
A wide range of delivery needs. Delivery pressure on curb space is growing and needs and schedules vary greatly depending on the user, such as packages, food, business supplies, passenger pickup and drop-off, and more.

New developments need a plan to support their increased curb demands. Thousands of new housing units have been built downtown. These developments add unique demands to the curb, including increased delivery from the density of residents' online shopping and short-term pickup and drop-off from on-demand food delivery and ride hailing.

First comes planning, then comes optimization. Curb planning and prioritization sets the stage for optimization and strategy implementation, which requires resources, policy change, data, and technology.

Figure 2 shows the South University study area curb use data findings compared to paid parking meter transactions. The red arrow points to the gap of non-payment compliance, challenging to enforce when 60% of all curb sessions are less than 15 minutes. Also demand for curb space peaks after 6 p.m., when parking is no longer paid and enforced.

Figure 2: South University Area Data Findings Compared to Paid Parking Meter Transactions



Source: Walker Consultants

Curb Demand is Tied to Land Use

Data findings show curb management will vary based on land use. Hot spots need intense management, while many areas such as small-scal residential streets require minimal management. Three diverse typologies are clear, and the importance of a nuanced approach for success is highlighted.

Curb Type: Dense residential and commercial areas with fast-casual restaurants and retail, such as S. University Street and State Street.

Observations: Significant short-term curb sessions of less than 15 minutes and a high number of violations.

Recommendations: Curbs in these areas are good candidates for supporting walking and biking while maintaining some short-term parking and delivery spaces. Long-term parkers (over two hours) should use off-street facilities. Increasing meter rates and expanding hours of enforcement will manage peaks and ensure access to businesses.

Nuance: In dense areas, people and delivery drivers need access to businesses to pick up food and deliver packages and supplies to businesses. These short-term parking needs result in significant illegal and unsafe parking. When repurposing parking for other uses, preventing illegal parking in bike lanes requires enforcement and infrastructure such as concrete bollards. It is also important to identify areas for short-term parking to reduce violations and provide safe, accessible spaces for delivery and ride hailing drivers.

Curb Type: Neighborhood commercial with small-scale residential and retail establishments such as Kerrytown.

Observations: Lower curb utilization, fewer violations (and areas to violate); still, most curb sessions are short-term and less than 30 minutes. Off-street parking serves its purpose, and the curb parking supply supports shorter-term demand.

Recommendations: On-street parking can be removed for other uses, but first, off-street parking must be considered to absorb spillover and future development based on data.

Nuance: Higher curb utilization and activity during events such as the weekly Farmers Market.

The Importance of a Holistic System

Ann Arbor's curbside and off-street parking work together as part of a holistic system.

Off-street garages and lots provide low-cost parking and space for longer-term parkers. This frees up limited curb spaces for intenser uses such as bike lanes, pedestrian activities, delivery vehicles, ADA spaces, and short-term uses.

Off-street parking facilities are more expensive to operate and maintain than curbside parking - curbside parking subsidizes those costs. When making decisions about removing curbside parking and priorities, it is necessary to evaluate the effects of the system as a whole and understand any tradeoffs that affect fiscal sustainability.

Another factor for consideration is that 20 percent of gross parking revenues are contributed to the City's General Fund.

Curb Type: Outside of dense areas with small-scale residential such as Catherine Street, east of Division Street.

Observations: Curbs support longer-term residential parking needs, while bike lanes on some streets provide seamless active transportation links. Curb supply supports demand.

Recommendations: On-street parking can be removed for other uses, considering that off-street parking absorbs spillover and will be used for future development based on data.

Nuance: The effects of spillover must be studied in future development.

Relationship to Existing Policies

Ann Arbor and the DDA have provided the community with successful examples of how curb management relates to plans and policies supporting economic, equity, and environmental goals. The Curb Management Plan builds on that solid foundation, connected with the following plans, policies, and projects. See Appendix B, Existing Conditions Memo, for more details.

Downtown Plan (2009): Provides the vision that downtown is a compact, walkable area that balances a diversity of uses and users to ensure downtown fosters business, is accessible to everyone, has quality design and infrastructure, and is guided by sustainability.

DDA Development Pan (2003 – 2033): The long-term plan that guides DDA planning and projects and calls for promoting walking, biking, and transit, scaling downtown design for pedestrians, and managing all on-street parking.

Street Design Manual (2024): Guides curb needs and uses during the development review process. Priorities related to the curb include curbside loading zones, café dining on streets with high levels of pedestrian and commercial activity, short-term parking and drop-off locations, and bicycle infrastructure.

People-Friendly Streets (Ongoing): A DDA program with projects to make streets more walkable and bikeable, creating bike lanes, pedestrian areas, and Curbless State Street. The projects have significantly increased biking and created more comfortable pedestrian areas.

Healthy Streets Pilot Projects (2020): Pilot projects during the pandemic that provided additional space to walk and bike by reconfiguring traffic lanes. This resulted in reduced vehicle speeds and traffic crashes, and increased biking.

Comprehensive Transportation Plan (2021): This plan develops a policy to allocate resources to deliver the most benefit to achieve Vision Zero and carbon neutrality goals. The Plan outlines key curb management policies, including curb extensions, curbless streets, additional curbside fees, curb prioritization, digital curbs, and curb data collection and dissemination.

A2Zero Living Carbon Neutrality Plan (2020): Outlines a path to achieving climate neutrality by 2030. Related to curb management, the plan calls for tiered parking and complete streets by removing excess on-street parking to support pedestrians, bicyclists, transit, and street activities such as outdoor restaurant seating. Strategy 4.7 calls for establishing tiered parking rates to increase walking and biking in the downtown corridor by 10 percent.

Parking & TDM Study – Parking Management Plan (2016): This plan outlines strategies to manage peak parking demand through pricing, regulations, enforcement, technology, and transportation demand management.

Curb Management Case Study
William Street Bikeway

The Downtown Development Authority conducted a thoughtful process to build the downtown William Street bikeway, which converted a travel and parking lane into a protected bike lane.

The bike lane eliminated 16 total parking spaces. To preserve access to business and prevent spillover, parking remained on one side of the street. Loading zones and short-term parking spaces were created on adjacent blocks. Accessible parking remained on the adjacent block.

The initial installation used delineators to deter illegal parking and loading in the bike lane. However, field observations and data showed that vehicles went around the delineator and parked in the bike lane. Based on those findings, the DDA built concrete curbs to keep vehicles out of the bike lane and ensure safety.

The bikeway has been a success, with thousands of cyclists, and shows how data collection and pilots can support and inform decision-making regarding curb distribution changes.

Action Plan: Recommended Strategies

This Matrix presents a summary of strategic recommendations. The "Priority" column represents Walker's opinion regarding when each recommendation should be implemented. However, the DDA and City may choose to implement these recommendations in a different order based on their needs and conditions at the time of implementation. For details on each strategy, See Appendix A: Curb Management Playbook.

ID	Strategy	Description	Priority	Relative Cost $-$$$
A. Curb Policy and Regulations				
A1	Adopt curb typology	Adopt curb typology, prioritization, and allocation as part of the process for guiding downtown street design and as needed during the permitting process for new developments to ensure that curbs both accommodate demand and advance broader goals.	Near Term	$
A2	Develop performance metrics for the curb	Develop performance metrics for the curb, i.e., reduced double parking, increased payment compliance, meeting occupancy goals, pedestrian activity, equity and access.	Near Term	$ $ $
A3	Define curb management in the development permitting process	When new development or a change of use is proposed, there will be changes to curb demand, which should be considered as part of the permitting and planning process.	Near Term	$
A4	Public electric vehicle charging program	Monitor use and expand public electric vehicle charging infrastructure when needed, adding capacity in underutilized off-street parking facilities first.	Medium Term	$ $ $
B. Curb Access and Equity				
B1	Allocate curb space based on the day of week and time of day needs of different users, i.e., flex the space	Continue to regulate commercial and passenger loading zones during peak times of those uses (i.e., early mornings or evenings).	Near Term	$

Action Plan: Recommended Strategies

ID	Strategy	Description	Priority	Relative Cost $-$$$
B2	Allocate curb space for greater multimodal access, including creating mobility hubs	Continue to support multi-modal travel through future improvements as planned through the Downtown Circulation study, People-Friendly Streets, and new mobility hubs.	Near Term	$ $ $
B3	Allocate curb space to create safe, comfortable places for people and business	Continue planning for pedestrian-oriented street implementation through the People-Friendly Streets projects and Curbside Occupancy Permit program for outdoor dining.	Near Term	$ $
B4	Develop a standard for ADA parking spaces	Review existing ADA signed spaces to understand if there are better placement options within the block perimeter. For new ADA spaces, installed on newly or substantially reconstructed streets, follow PROWAG (Proposed Public Rights-of-Way Accessibility Guidelines).	Near and Long Term	$ $ $
B5	Monitor and expand commercial and passenger loading zones	Monitor commercial and passenger loading zones use. Create new commercial and passenger loading zones when needed.	Near Term	$ $
B6	Prepare curb space for future autonomous vehicles (AV) and robots	Connect with other Michigan cities to develop a joint strategy for AV regulations including tracking federal and state legislation, monitoring technology development, establishing a permit structure, and data sharing requirements. Establish passenger loading zones for autonomous pickup at the appropriate time.	Long Term	$ $ $
C. Curb Economics				
C1	Modernize curbside parking pricing	Implement a strategy to modernize parking rates to help manage the parking supply, including incrementally increasing rates, modifying hours, and creating new short-term spaces.	Near and Long Term	$ $
C2	Charge a fee to all users for curb access to increase equity	Explore implementation of curb access fees for commercial loading zones, beginning with metered commercial delivery zones and over the long-term, smart loading zones. Explore the potential to amend State law to establish a local TNC fee for curb access.	Medium and Long Term	$ $

Action Plan: Recommended Strategies

ID	Strategy	Description	Priority	Relative Cost $-$$$
C3	Develop a smart loading zone program to create more efficient curb space for commercial loading and delivery	Monitor utilization of existing commercial loading zones and explore the need for additional loading zones with freight carriers and businesses. Conduct a planning study to explore smart loading zone implementation, including charging a per-use fee for commercial delivery zones. Explore payment and technology options.	Long Term	$ $ $
C4	Update parking permit programs	Set a minimum utilization threshold when creating new residential parking districts. Continue to market off-street monthly permits to existing and new developments.	Near Term	$
C5	Package locker hubs	Expand package locker hubs and explore creating a shared delivery locker program for small and medium-sized packages near commercial loading zones or in parking garages and commercial and residential buildings.	Medium Term	$ $
D. Curb Operations and Processes				
D1	Target enforcement and add additional resources to ensure compliance	Develop enforcement strategy to increase compliance and reduce violations, including program goals, performance targets, and evaluation measures. Increase resources and funding, develop an education and awareness campaign, identify new technology, and develop performance metrics.	Near Term	$ $ $
D2	Continually update wayfinding and signage to ensure clear communications for curb users	Share digital curb inventory and regulations information with the public and all curb usersthrough websites, communications portals, apps, and open APIs. Explore the potential for automated parking guidance systems to on and off-street parking spaces that provide information to drivers as they enter downtown with information directing them to available curb spaces.	Near and Long Term	$ $
D3	Conduct curb management pilots to test strategies and inform decision-making	Develop pilots in an iterative way based on past lessons learned.	Medium Term	varies

Action Plan: Recommended Strategies

ID	Strategy	Description	Priority	Relative Cost $-$$$
E. Curb Data and Digital Governance				
E1	Maintain curb inventory database	Establish a point person responsible for digital curb inventory maintenance. Allocate annual funding for cub inventory database maintenance and establish a process for updates. Determine how the digital curb inventory will be hosted and the appropriate platform, and open source information. Long-term look for opportunities to use APIs to support planning, management, enforcement, and payment.	Near and Medium Term	$ $ $
E2	Monitor curb use	Develop a process to collect and monitor curb use for decision-making.	Medium Term	$ $ $
E3	Develop a process to share curb inventory and communicate with curb users	Develop a process to share curb inventory and communicate with curb users (freight operators, parkers, and the public) about regulations and space availability through the Curb Data Specification. Allocate annual funding for curb use sharing and communications. Over the long term, develop the strategy, plan, and tools for sharing digital curb inventory. Use the information to collect curb use data, guide users to open spaces, accept payments, and target enforcement.	Long Term	$ $ $

2 | INTRODUCTION

Today, downtown Ann Arbor's curbs are multi-dimensional places that must be prioritized to accommodate changing and growing demands beyond auto travel. Curbs must support local businesses and priorities for comfortable and safe streets, equity, and sustainability. To do so will advance Ann Arbor's ambitious goals to achieve carbon neutrality by 2030, Vision Zero, where no one dies or is seriously injured in crashes on streets by 2025, and improve the attractiveness, walkability, and vitality of downtown.

The Downtown Development Authority (DDA) manages curb space in downtown Ann Arbor. The DDA is a government entity permitted under the Downtown Development Authority Act passed by the State of Michigan in 1975 to strengthen economic vibrancy and quality of life in the downtown area. The Ann Arbor DDA area encompasses 67 city blocks and four unique neighborhoods:

- Main Street Area
- State Street District
- South University Area
- Kerrytown District

In 1992, the City and DDA entered into a "Parking Agreement" (amended in 2002, 2005, and 2011) granting the DDA permission to operate the curbside and off-street parking system. Under the terms of the agreement, the DDA has the sole authority to determine the location of all parking and loading zones used at the curb and in off-street facilities and the parking meter rates and hours. The DDA transfers 20 percent of gross parking revenues to the City's General Fund.

DDA parking revenues also fund free bus passes for downtown employees.

The City is responsible for parking enforcement and collects all related fines.

The DDA has responded to ongoing travel and consumer trends by working with stakeholders and the community to implement transformative projects that have unlocked the value of downtown curb space. Some recent successes include the People-Friendly Streets and bike lane projects, bike share support, supplemental transit service, streetscaping, and technology upgrades.

This Curb Management Plan builds on the DDA's achievements by establishing policies and management strategies to continue supporting downtown Ann Arbor's diverse neighborhoods and wide-ranging needs in an equitable, sustainable, safe, and systematic way.

KEY CURB MANAGEMENT CHALLENGES

The Curb Management Plan will support Downtown Ann Arbor in addressing existing key curb management challenges and providing a roadmap for the future. Challenges include:

- No single responsible entity for curb management
- Significant non-compliance with existing curb regulations and paid parking
- Most curbside stays are 30 minutes or less, and 20 percent are between two and five minutes, making it challenging to enforce regulations manually
- Mismatch between paid parking hours and times of high demand
- Curb pricing is not based on performance
- Not all users pay for curb access
- New development or change of use permits need a plan to meet their increased curb demand
- No ADA standard
- Growing demands on curb space mean increased management costs

What is Curb Management

Curb space, streets, and the right-of-way make up most of the public space in Ann Arbor. Because curbs are a finite space with many demands, the goal is to maximize efficiency of the space. The term “curb management” is a catch-all that defines the policies, strategies, administrative practices, and technology to inventory, allocate, optimize, and manage curb space in the public right-of-way.

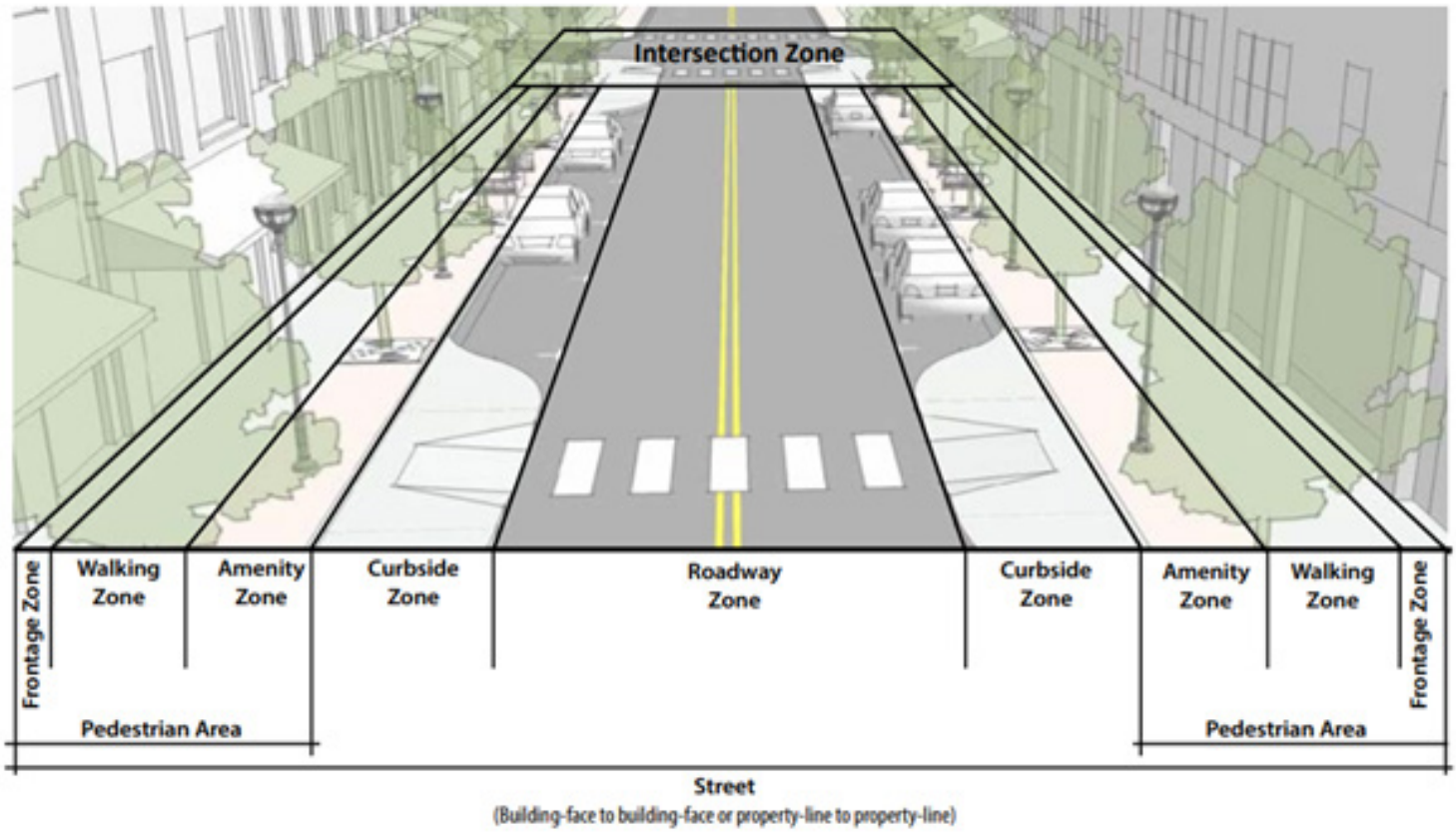
People interact with the curb in Ann Arbor in many ways, depending on the area, street, and adjacent land use. Generally, there are three main ways that people interact with the curb space, as illustrated in Figure 3.

1. **Curbside Zone** includes the curb and adjacent uses such as parking, loading zones, bike lanes, or travel lanes.

2. **Walking Zone** to permit pedestrian movement. Standard design guidelines recommend a minimum sidewalk width of five (5) feet, enough for two people to walk side by side comfortably. Sidewalk zones often serve other needs like trash containers, signage, bike parking, transit stops, and planting areas.

3. **Amenity Zone** between the curb zone and the sidewalk zone this area includes streetlights, bike parking, signage, benches, litter containers, sidewalk cafes, and street trees.

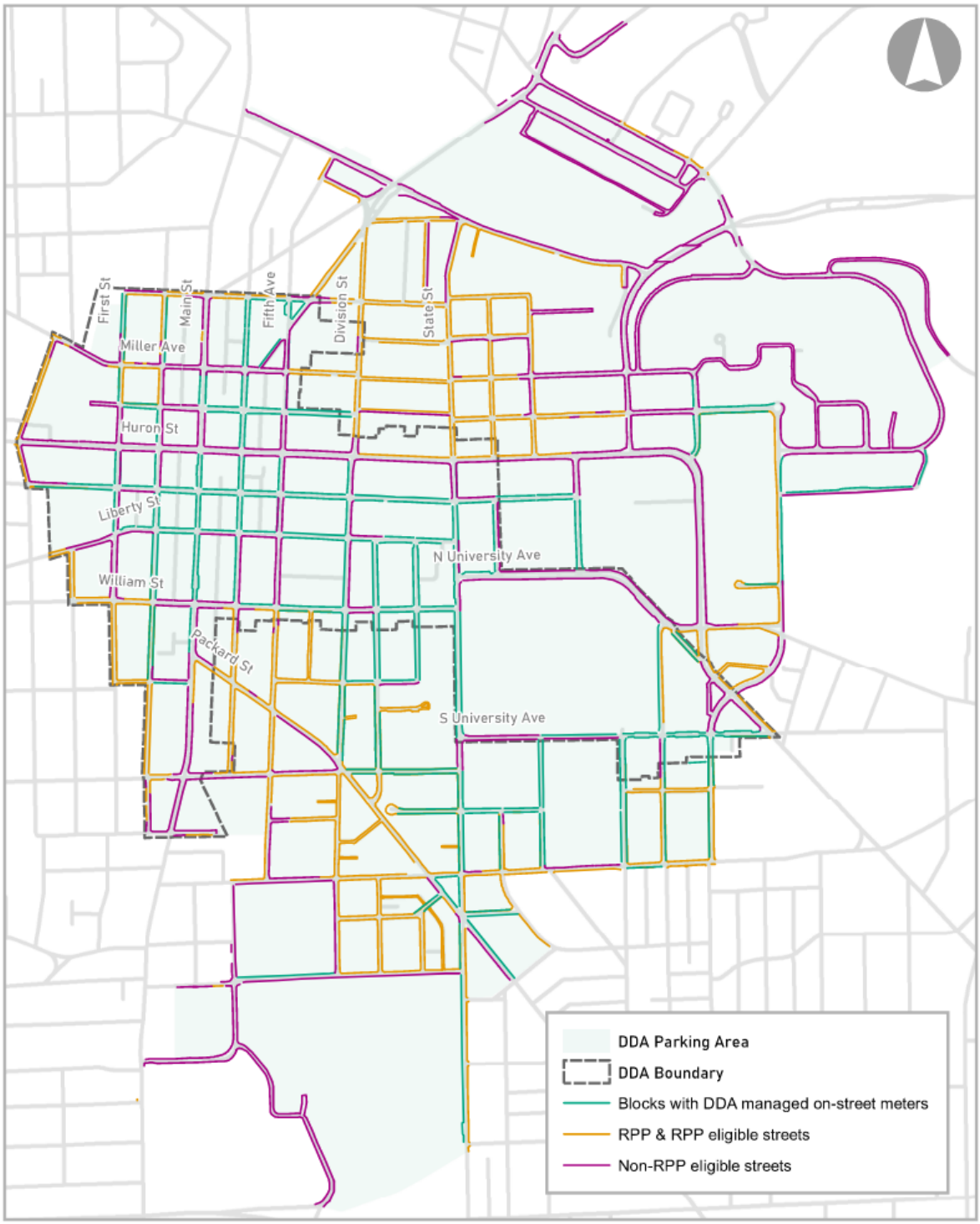
Figure 3: Illustration of Street and Curb Zones in Downtown Ann Arbor



Source: Ann Arbor Downtown Street Design Manual.

The Ann Arbor Curb Management Plan study area includes the boundaries of the Downtown Development Authority and the larger Parking Area as defined in the City/DDA Parking Agreement. Figure 4 shows that this area encompasses 67 city blocks, including all of downtown Ann Arbor, some areas of the University of Michigan Campus, Kerrytown, and some residential areas adjacent to downtown.

Figure 4: Study Area Map



2022 *Source: Ann Arbor DDA*

Who Has a Role in Curb Management

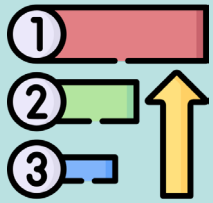
Everyone interacts with curb space and many organizations and businesses have an interest in efficient curb management. This includes the various curb users and decision makers responsible for curb activity and optimization.

Figure 5: Curb Management Players

Type	Interaction/Role
Curb users going to destinations such as work, shops, restaurants, services, and other activities	• Pedestrians use sidewalk space • Cyclists use striped and protected bike lanes • Transit riders wait at bus stops • Buses and airport shuttles use travel lanes and the curb to pick up passengers • Businesses use sidewalk cafes and streeteries • Delivery drivers and businesses use commercial loading zones • Drivers use travel lanes and on-street parking, including unregulated, hourly restricted, paid, and permitted • Ride hailing apps and taxis use passenger loading zones • Residences have curb cuts to their driveways
Decision makers who set policy and adopt values that guide management	• DDA Board • City Council • Transportation Commission • Commission on Disability Issues
Managers, planners, and implementers who implement the policies by developing and implementing curb plans and operations	• DDA staff • City staff • Downtown Street Design Team • Fire and Police Services • Enforcement officials • Parking operator
Organizations who care about curb policies and outcomes	• Community organizations • Business organizations • Active transportation organizations • Disability advocates • Businesses and employers
Operators who are public and private entities providing mobility options	• Ann Arbor Area Transportation Authority (TheRide) • Micromobility operators • Airport shuttle operators • TNC and taxis • Autonomous shuttles and future autonomous vehicle
Entities and vendors supporting curbside activity and optimization	• Technology companies • Parking vendors

How Effective Curb Management Will Support Downtown Ann Arbor

Effective curb management is key to supporting downtown Ann Arbor as it grows and evolves. This Curb Management Plan will set forth the path to successfully manage and optimize resources by the following:



Prioritization

Prioritize finite curb space in line with DDA and citywide goals and plans that prioritize people, safety, equity, sustainability, active travel, and support business.

Pricing

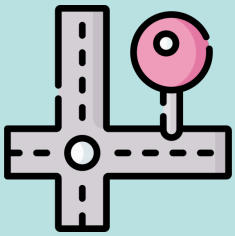
Use pricing to create a standard way of valuing the curb and to generate revenue that will be reinvested in curb space management.

Operations and Processes

Institutionalize and operationalize curb management and enforcement across agencies and departments and create clear roles and processes.

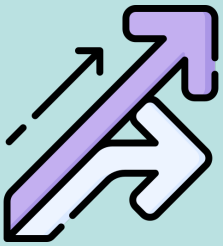
Policy

Set the policies to use curb space efficiently and support broader policies such as eliminating off-street parking requirements for new development.



Infrastructure and Technology

Leverage infrastructure and technology for optimization to create efficiency, communicate with curb uers, and increase safety.



Flexibility

Adjust curb regulations throughout the day to optimize infrastructure as demands shift, such as mornings for commercial loading and evenings for passenger loading.

3 | CURRENT CONDITIONS

Key Current Conditions Findings

- Dense commercial areas such as Main Street, State Street, and South University Street are the most active, with lots of pedestrian activity, retail, and dense residential. There are frequent short-term stays at the curb from various types of delivery drivers ranging from box trucks to semi trucks, and private vehicles for restaurants and coffee shops. These areas have ample off-street parking.
- Dense residential areas are growing and have a high demand for goods and food delivery. Some new residences have off-street loading, but many delivery drivers park at the curb.
- Several areas have small-scale retail and restaurants surrounded by streets with single-family houses. These areas have paid curb and off-street parking. One block off the retail/restaurant areas, the residential streets have 2-hour curb parking and residential parking permits.
- Many areas have small-scale housing with curb cuts and off-street parking. Curb demand in these locations is for long-term parking and bike lanes.
- Most University of Michigan student residential areas have off-street loading and parking. Curbs in these areas support parking, bike lanes, sidewalks, green areas, and bus stops.
- Many streets have a very narrow right-of-way and the Walkway Zone must accommodate varied uses that can interfere with pedestrian access such as outdoor dining cafes, bike and scooter parking, sandwich boards, and green space.

Curb Management Roles

Curb Function	Responsibility
Planning	The DDA and City work together to plan curbspace, including design review and permitting for new developments.
Policy and Regulations	The DDA is charged with developing curb zone policy. City Planning Services develop policies such as sidewalk occupancy permits.
Permits	The City administers the on-street residential parking permit program, and the DDA administers the off-street parking permit program.
Pricing	The DDA sets parking rates and hours in consultation with City Council.
Operations	Under contract with the DDA, a national private operator manages off-street parking garages and surface lots and maintains and collects on-street revenue for paid parking and parking meter reservations. The DDA oversees where on-street reservations are permitted, ensuring short-term parking is available in prime locations.
Enforcement	Ann Arbor Police Department Community Standards Division conducts enforcement.
Capital infrastructure	The City and DDA develop and implement capital infrastructure plans.
Technology	A range of technology is employed, including smart parking meters, parking payment apps, and data integration with enforcement efforts.

Curb Regulations

Downtown Ann Arbor has several curb regulations to support adjacent land uses and demand.

Paid Parking

In commercial areas, on-street parking is paid and regulated with a 2-hour time limit. Paid parking is enforced from 8 a.m. to 6 p.m. Monday through Satruday by the City Police Department Community Standards Division. Parking is $2.40 per hour and can be paid by cash or with a credit card at a meter or on the DDA's parking app (with the $0.20 app transaction fee covered by the DDA).

Residential Parking Permits

Most residential streets near commercial areas (a block away) require a permit for on-street parking. A new residential permit fee is $68, and a replacement fee is $38.

Passenger Loading Zones

Passenger pickup and drop-off from ride hailing apps, taxis, and private vehicles are permitted in any curb space designated for passenger loading as long as a passenger is actively entering or exiting the vehicle and there is no interference with traffic. There are currently no local curb access fees for ride hailing apps (or Transportation Network Companies such as Uber and Lyft) that the rider or company pays to access the curb space. Some loading areas serve a dual purpose for both passenger and commercial loading zones.

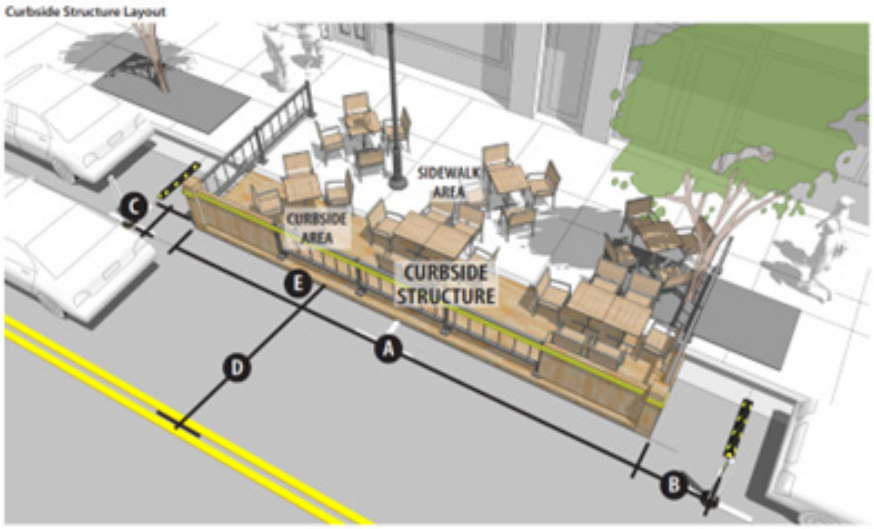
Commercial Loading Zones

Downtown has designated commercial loading zones. Vehicles must be actively loading and unloading freight to be parked in these zones.

Outdoor Dining/Sidewalk Cafes

In March 2023, standards and regulations were established for curbside occupancy for structures to support dining and retail, such as streeteries. The program is managed through the sidewalk occupancy permit process. A building permit, sidewalk occupancy permit, and a meter bag contract are required for approval annually. The maximum length is four parking spaces.

Sidewalk Occupancy Permits are granted for outdoor seating and public vending on the sidewalk. Permits can be granted for daily or annual use. Annual permit costs are $1.00 per square foot of space, and daily permit costs are $0.05 per square foot.

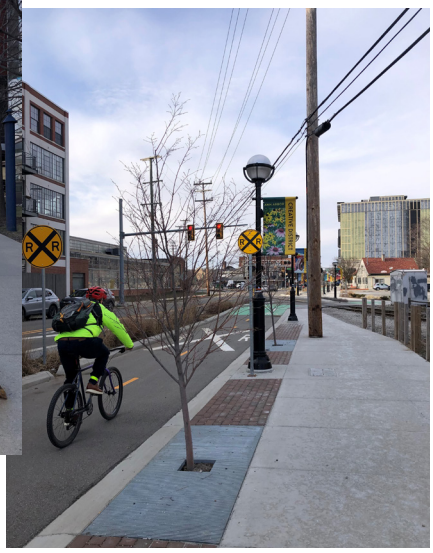


Travel Lanes and No Parking Areas

Some curb space is allocated to travel lanes and no parking or stopping areas, such as in front of fire hydrants, near crosswalks, driveways, and curb cuts.

Bike Lanes

Different types of bike lanes exist, from protected to sharrows.



Street Closures/People Focused Streets

Seasonally, several streets are closed to cars to encourage foot traffic and provide extra restaurant outdor dining space. Street closures are directed annually by the City Council. These closures are seasonal in the warmer months and typically inculde:

- Main Street from William to Washington Street Thursday
- Washington Street between Main Street and Ashley Street
- Liberty Street from Ashley to Fourth Avenue

Current Curb Infrastructure and Uses

Within the footprint of Downtown Ann Arbor there are many land uses that can change block by block. These land use shifts affect curb infrastructure and behavior at the block level.

Downtown Core

The Curbside Zone is mainly used for paid parking, commercial delivery, and bike lanes, the Amenity Zone is for trees and signage, and the Walking Zone must accommodate many uses, including sidewalks, sandwich boards, and outdoor dining.

Dense Residential/Curb Travel Lanes

Streets like Huron Street have dense residential buildings with a travel lane at the Curbside Zone and no areas for parking or delivery. This results in illegal double parking to deliver goods or pick up passengers. Because Huron Street is under the purview of the Michigan Dept. of Transportation, the curbside cannot be regulated locally. The Amenity Zone is used for signage and plantings.

Adjacent to Downtown Core

Within a few blocks of the main downtown commercial area are multi-family and small-scale residential streets. The immediate adjacent residential blocks typically have paid parking, and further out have on-street parking regulated for two hours or with residential permits. There are many curb cuts to provide driveway and parking garage access. The Amenity Zone in these areas typically has a grass strip and tree planting, and the Walking Zone is fully available to pedestrians.

Dense Residential Areas with Curb Access

Near campus are several areas with higher residential density and a concentration of retail and restaurants. Curbs in these areas are mainly used for paid parking and commercial/passenger loading zones. The Walking Zone is wide in some locations, with plenty of space for pedestrians, signposts, and lighting.

Small Scale Neighborhoods

Several locations in the study area are primarily small-scale housing. These locations have ample off-street parking. The curb zone provides on-street parking, with many curb cuts to driveways. The Amenity Zone has plantings, and the Walking Zone has space for pedestrians with no sidewalk clutter.

Alleys and Off-Street Parking

Alleys provide space for commercial delivery loading and unloading. Many off-street parking lots and garages are spread throughout downtown

Curbless State Street

In 2023, State Street was redesigned to be curbless from North University to Washington Street. The street is flush with the sidewalk, allowing a flexible space for business and events, creating more access and increasing safety for pedestrians and people with mobility impairments. Some parking spaces remain to ensure access to business businesses for pickup and delivery.

Narrow Street Widths

Many downtown streets have a very narrow right-of-way with limited space to allocate for all of the competing demands.

Digital Curb Inventory

An inventory of curb assets and regulations helps understand how much curb space is allocated to different uses, such as parking, bike lanes, travel lanes, or loading zones. Since new curb dynamics involve multiple agencies, private-sector partners, and changing demands, a new way to digitally inventory curbs can visualize, analyze, and optimize curb space and communicate with users (see page 29).

This plan created a digital curb inventory of all downtown curb space. We now know in detail how space is allocated to what use. Findings show there are approximately 1,550 paid spaces in the study area. Figures 6 and 7 on pages 30 and 31 show select curb inventory data, including commercial and passenger loading zones, bike lanes, and bus stops.

Source: Curb IQ

What is a Digital Curb?

Just like buses talk to riders about their location and schedule through smartphone apps and travel navigation apps show traffic delays, talking curbs are a not so distant reality. Communicating curb regulations and availability with drivers, delivery operators, micromobility riders, and others will create efficiency for the private sector, and make it easier for the public to access their destination.

Historically cities have inventoried and mapped their curb assets and regulations in a static document, either in a spreadsheet or map. Cities also used their own terminalogy for curb regulations, which was likely different from a neighboring city. For example, spaces to deliver goods might be called loading zones in one city and commercial vehicle zones in another. Curb information such as parking areas might be posted on a website, but not regulairly updated. This can lead to inefficiences in how cities, businesses, private sector companies, and others optimize curb space.

Through this plan, Downtown Ann Arbor's curb assets and the associated regulations were collected and mapped in a new, digital curb inventory tool. The curb information was then transfered to a new common digital language called the Curb Data Specification.

The Curb Data Specification (or CDS) is a way for cities to use a common language to talk to curb users and guide them where to park a vehicle, e-scooter, or delivery truck. Developed by the Open Mobility Foundation, a non-profit member organization of cities worldwide, the CDS is similar to public transit's General Transit Feed Specification (GTFS) that uses a common language and APIs to track and communicate bus stop locations, schedules, and timing to riders on their computer or smart phone. Similairly the Mobility Data Specification (MDS) for e-scooters and bike share shows riders the location of available bikes or scooters on an app and cities where scooters are parked.

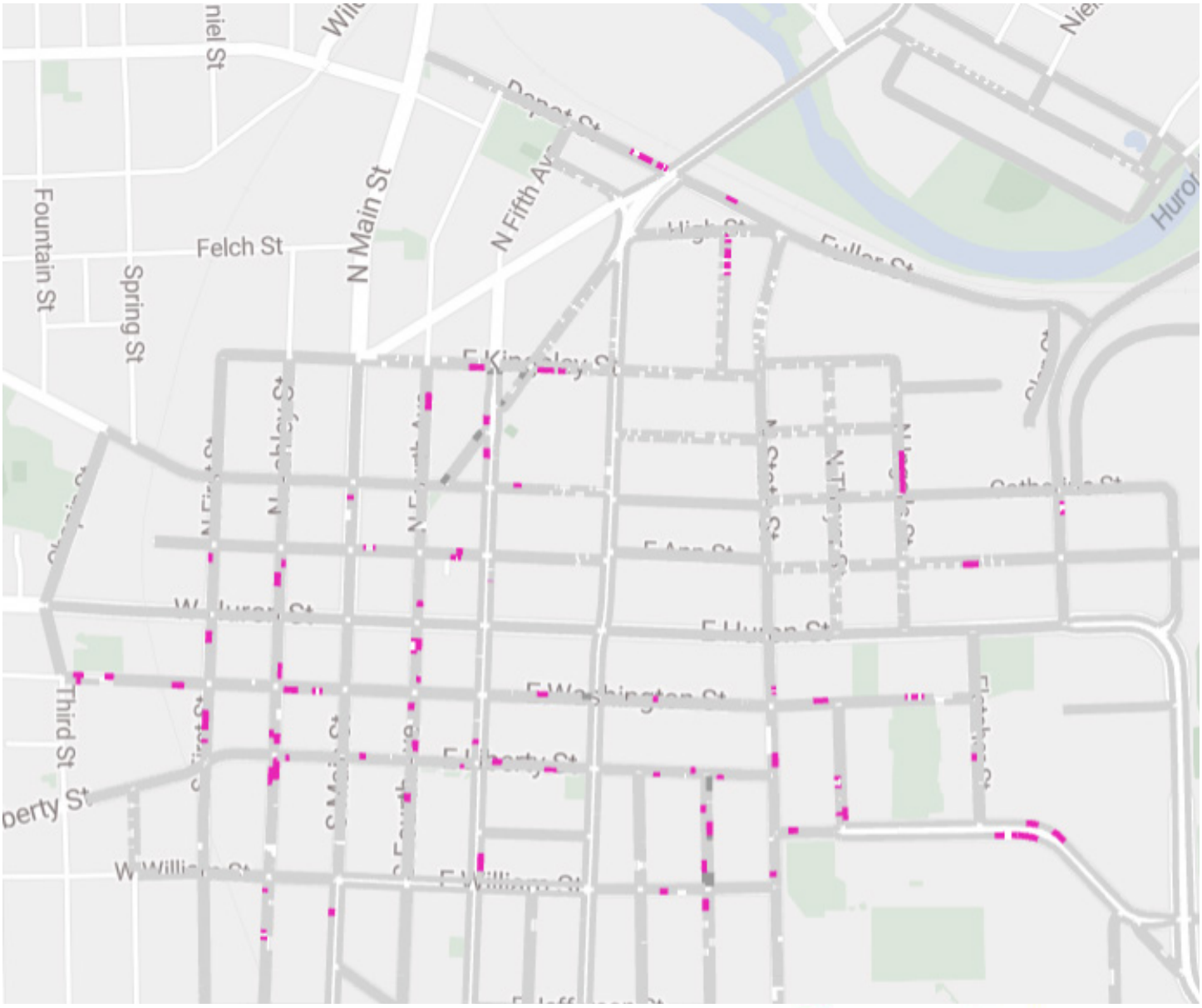
Once optimized, the digital curb inventory will allow anyone to quickly understand where they can access the curb, for example:

- **Communicate with drivers about where to park vehicles or deliver goods**
- **Share loading zone locations with delivery companies to direct vehicles to available spaces, and those delivery vehicles can communicate about when and where they accessed the curb to pay a usage fee**
- **Communicate if a curb space is removed for an event, construction, snow emergency, or street closure**
- **Target curb enforcement strategy**
- **Evaluate curb uses to better plan for demand, safety, equity, and efficiency**
- **Advance policy goals for prioritization and optimize finite curb space**

The digital curb inventory is a new concept, and Ann Arbor is now prepared to to deploy it when the education, technology, resources, policy, and partnerships are ready.

Figure 6 shows curb space allocated for loading zones. There are loading zones across downtown, with concentrations in areas of high demand, such as Liberty Street and Fourth Avenue.

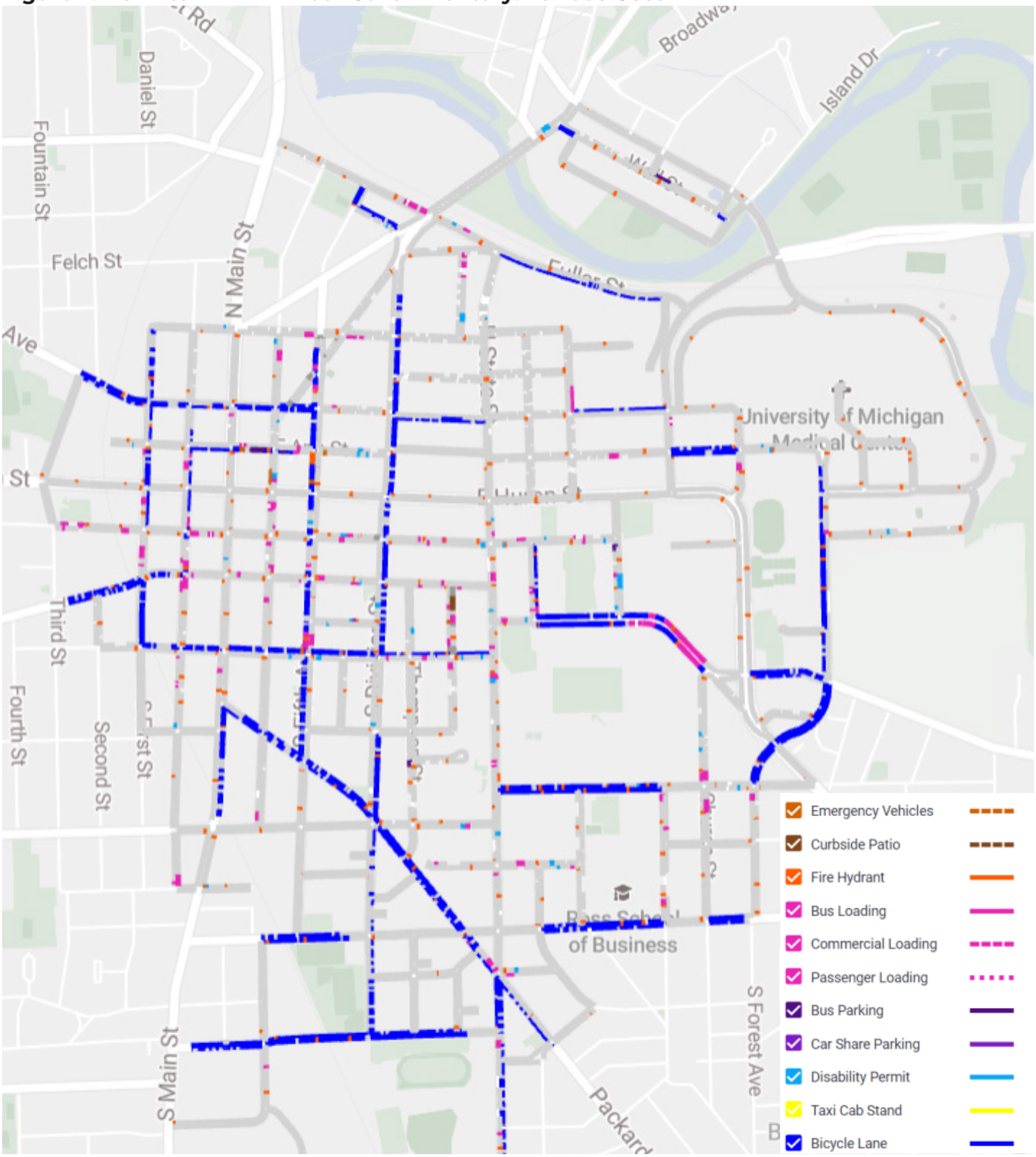
Figure 6: Downtown Ann Arbor Curb Inventory: Loading Zones



Source: Curb IQ

Figure 7 shows where downtown curb space is allocated for uses other than parking or travel, such as bike lanes and bus stops. It illustrates how Ann Arbor is achieving goals to create more spaces for safer, active transportation by providing curb infrastructure for cyclists and pedestrians.

Figure 7: Downtown Ann Arbor Curb Inventory: Various Uses



Source: Curb IQ

Current Curb Activity

Three data collection locations assumed to have high curb activity were selected to understand how the curb is used in the study area. The data collection effort was designed to answer the following key questions:

- What areas have the greatest use?
- Who is using these areas, and how long are they staying?
- How do use patterns compare to existing regulations and goals?

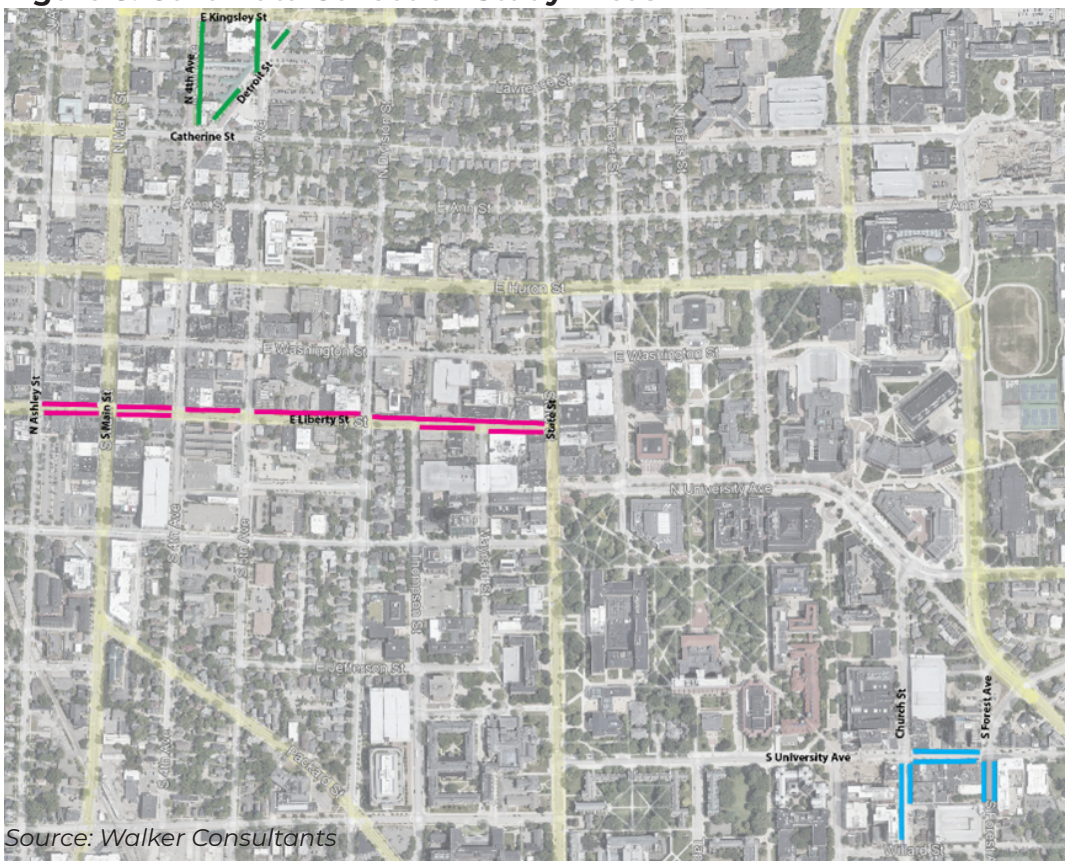
Data Collection Methodology and Overall Findings

Figure 8 shows the data collection study areas. It was challenging to select data collection locations that represented a typical "normal" time because of the many street construction projects and street closures in the study area; for example, both Main and State Street were closed during data collection. Because so many downtown streets are closed to vehicle traffic during the warmer months of the year (and for the many construction projects), these closures may represent a "new normal."

Cameras were used to collect data in the three study areas during the following days and times:

- **Green** – Kerrytown: June 18th to 24th , 2022 from 6:00am to 1:00am
- **Pink** – Liberty Street: June 18th to 24th, 2022 from 6:00am to 1:00am
- **Blue** – South University Area: September 12th, 2022 to 18th from 6:00am to 1:00am

Figure 8: Curb Data Collection Study Areas



Source: Walker Consultants

The video footage was analyzed using computer vision tools to produce detailed session activity data for each block face (occupancy, dwell time, vehicle type). Data shows every curb use, whether it was legitmate or a violation.

Overall Curb Activity Findings:

- Curbs are meeting access needs, with significant utilization and turnover.
- Very short-term curb stays:
- A significant amount of illegal parking.
- There are significant violations in no parking areas; short-term parkers are parking in any open space.
- A significant percentage of parkers do not pay the meter.
- Vehicles without a commercial license plate are parked in some areas regulated for commercial loading.
- Areas regulated for passenger loading show a higher use of commercial vehicle delivery.
- Low or no commercial vehicle use on weekend.
- Utilization is high after 6 p.m. when meters are not enforced.

Figures 9 and 10 detail curb activity length of stay. Almost 20% of all curb sessions are less than 2 minutes. A majority of curb sessions are under 30 minutes (75% in S. University and 71% in Kerrytown and Liberty Street), and a significant number of sessions are less than 15 minutes (66% in S. University and 60% in Kerrytown and Liberty Street).

Figure 9: Curb Activity Lenght of Stay Summary: Kerrytown and Liberty Street

	Under 2 mins	Under 5 mins	Under 15 mins	Under 30 mins	Under 1 hour	Under 2 hours
Personal	18%	37%	61%	71%	82%	93%
Commercial	12%	29%	57%	75%	87%	92%
Overall	17%	37%	60%	71%	83%	93%

Figure 10: Curb Activity Lenght of Stay Summary: Universtiy Study Area

	Under 2 mins	Under 5 mins	Under 15 mins	Under 30 mins	Under 1 hour	Under 2 hours
Personal	20%	43%	67%	76%	85%	93%
Commercial	10%	26%	53%	68%	89%	95%
Overall	19%	41%	66%	75%	85%	93%

Source: Walker Consultants

Video Data Compared to Parking Meter Transactions

The curb use video data was compared to parking meter transaction data (multi-space meter and parking app data) to understand compliance with existing regulations and enforcement practices, especially given the number of short-term sessions.

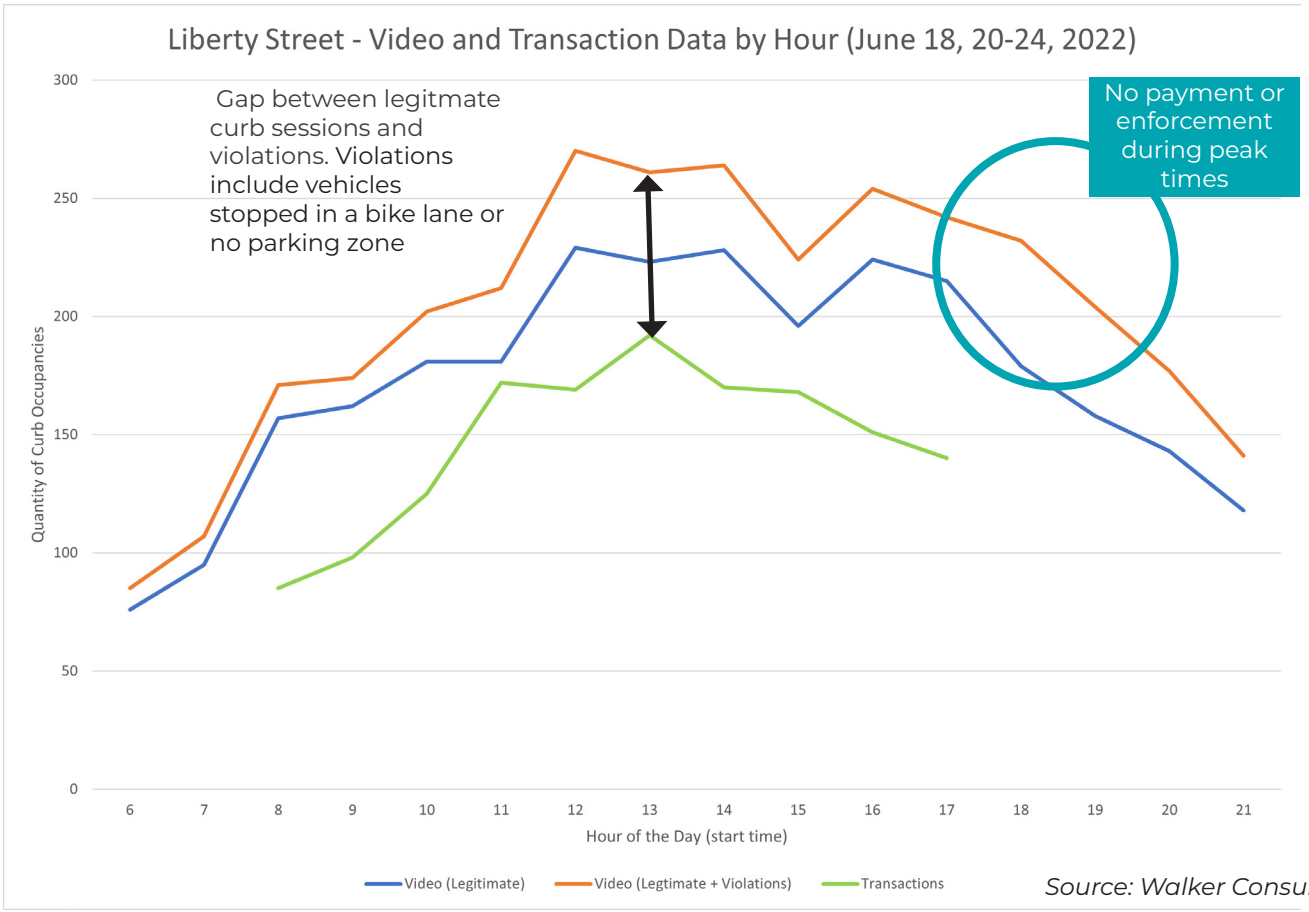
There was a significant gap between curb sessions and paid parking transactions on both Liberty Street and in the South University Area study areas, all of which have paid parking.

For example, Figure 11 shows Liberty Street data collection compared to paid parking transactions. The arrow points to the gap of non-compliance. Further, there is still high demand after 6 p.m., when parking is no longer paid.

Figure 12 shows the South University Area data collection compared to paid parking transactions. The arrow points to the gap of non-compliance. Further, demand for curb space peaks after 6 p.m., when parking is no longer paid.

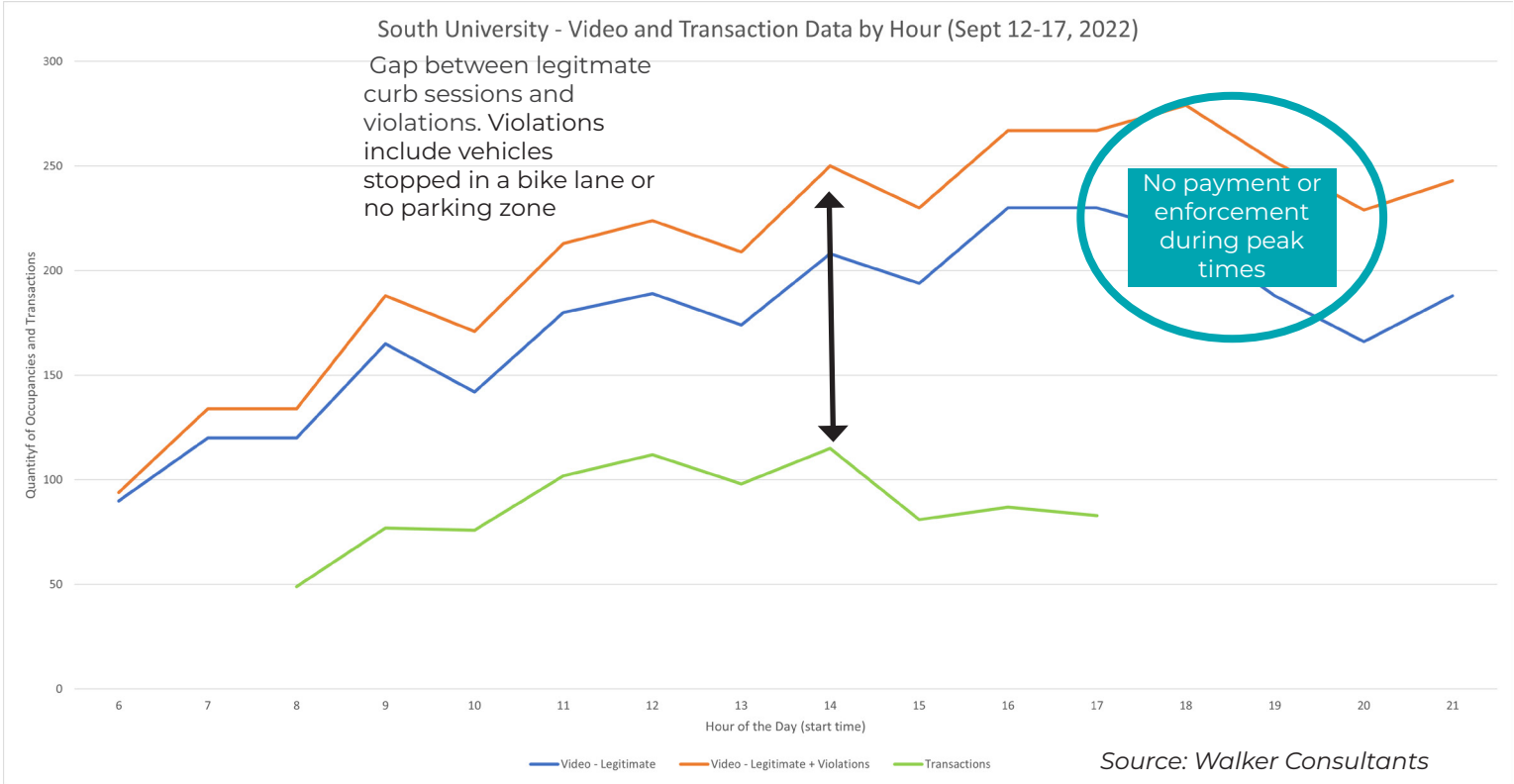
Example of a vehicle illegally parked in a no parking zone

Figure 11: Liberty Street Curb Use Data Compared to Parking Meter Transactions



Source: Walker Consultants

Figure 12: South University Area Curb Use Data Compared to Parking Meter



Source: Walker Consultants

Curb Utilization Mapping

The curb video data was mapped to understand compliance with existing regulations and enforcement practices from a visual perspective. These visualizations help show how and where violations are occurring and what is driving those violations.

Generally, most curb sessions are short-term, and those people are parking in any open space, whether it is regulated for no standing, no parking, or in front of a driveway or alley.

Figures 13 through 15 show violations from the camera data collected, for example, parking in a no-parking areas. This does not include non-payment violations. To illustrate how much these violations matter, **on the streets studied near the South University study area, there are over 100 violations per day.** This is concerning because violations cause congestion and safety conflicts and prevent access to local businesses. **With the high number of short-term sessions of less than 15 minutes, issuing citations for these violations is nearly impossible with manual enforcement.**

Many of these violations result from the dense housing, retail, and commercial uses, with food pickup and delivery. Given how pedestrian and bike-friendly downtown Ann Arbor is, some of these trips could likely be made by walking or biking.

Figure 13 shows Liberty Street's legitimate stays and curb violations. The southwest side of the street is regulated for no parking. However, the curb activity looks similar to the northwest side, which is regulated for 2-hour parking. A coffee shop on the southwest corner of the street likely contributes to the curb activity and violations.

Figure 13: Liberty Street Curb Sessions: Legitmate Stays Compared to Violations in No Parking Areas

Source: Walker Consultants

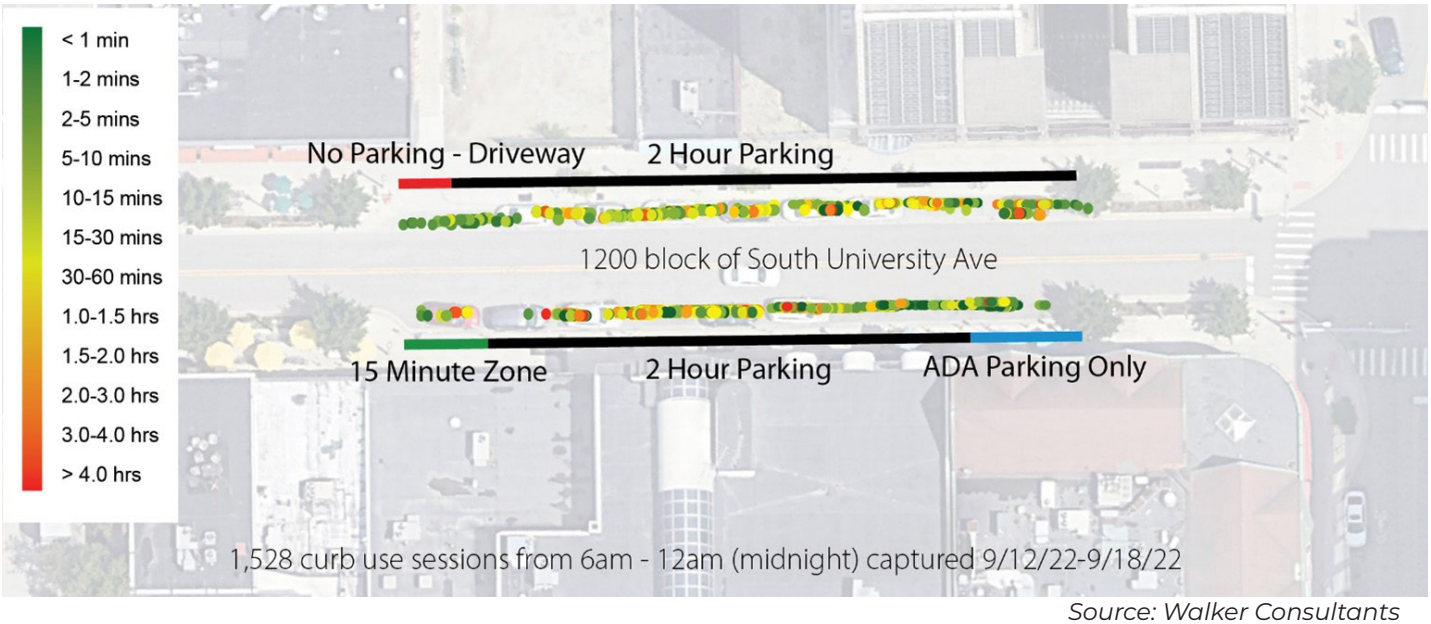
In Kerrytown, there was similar curb activity, with violations in no parking areas. The block in Figure 14 is on a commercial street, with several restaurants and shops, as well as the farmers' market. The curb area regulated for 15 minutes works; there were almost no curb sessions in this space longer than 15 minutes. However, many vehicles parked in the no parking zone, with most of those sessions parking less than 15 minutes.

Figure 14: Kerrytown Curb Sessions: Legitmate Stays Compared to Violations in No Parking Areas

Source: Walker Consultants

Figure 15 displays curb use data on South University, one of the most dense areas of downtown, with many restaurants, shops, and denser housing. It shows a significant number of curb violations and constant turnover. Most sessions are less than five minutes, likely from passenger pick up and drop-off for the residential or restaurants/ bars or food pickup and delivery from restaurants on the block.

Figure 15: South University Curb Sessions: Legitmate Stays Compared to Violations in No Parking Areas



Source: Walker Consultants

4 CURB PRIORITIES GUIDE

This Plan details curb management strategies that will advance Ann Arbor's goals, priorities, and critical objectives for downtown curbs. There are two components:

- **Curb Priorities Guide** to help practitioners determine how to distribute curb space along a block or corridor.
- **Curb Strategies Playbook** (Appendix A) detailing strategy recommendations and implementation steps.

Community and Stakeholder Engagement

Throughout the study process, the team presented and received input to inform the plan from the DDA Board, Operations Committee, several City departments and committees.

- DDA Board
- DDA Operations Committee
- Ann Arbor Commission on Disability Issues
- Ann Arbor Street Design Team
- Ann Arbor Transportation Commission

The DDA has engaged the community extensively on many planning efforts, that feedback was used to develop this plan.

Downtown Ann Arbor Curb Priorities Guide

Given the findings about demands from different curb users, limited space must be prioritized. The Downtown Ann Arbor Street Design Manual provides design standards and best practices for designing and allocating space on downtown streets. It lays out a helpful guide for organizing the curbside zone on each downtown block. This Curb Priorities Guide provides further guidance on allocating the Curbside Zone for each block's unique needs in alignment with the Downtown Street Design Manual. The two should be used in coordination to plan and allocate curb space.

What is a Curb Priorities Guide?
The Curb Priorities Guide groups Ann Arbor's curbs into types based on the following:

- **Overall Goals and Priorities.** Ann Arbor has worked with the community on several efforts to develop goals for mobility, equity, access, sustainability, safety, economic development, and more. This includes the Downtown Street Design Manual, Climate Action Plan, Comprehensive Transportation Plan, and People-Friendly Streets. This Curb Management Priorities Guide is grounded in those goals and priorities.
- **Land Use.** Land use is a primary element that guides how the curb functions on a block and along a corridor. For example, many downtown areas have dense shops and restaurants that drive commercial delivery and food pickup activity. Other areas consist of smaller scale houses with the need for parking vehicles longer term for residents and visitors.
- **Infrastructure.** The width of the street and existing infrastructure often dictate how the curb can function. Wide streets can provide greater flexibility to support many curb uses. Wide streets may also be better for moving people and vehicles depending on the adjacent land uses. Narrow streets are more pedestrian and activity-oriented.
- **Stakeholders and Users.** People who use curbs should play a role in how they are designed. For example, a coffee shop or restaurant may need space for short-term pickups to prevent illegal parking. The Ann Arbor Fire Department requires access to a curbside fire lane for new denser developments.
- **Local Context and Needs**. While all downtown curb space is a valuable public asset, not every block requires intense management. Blocks with more dynamic and dense housing, retail, and restaurants are areas that require the most attention and active management. Areas that are primarily small scale residential require minimal management.

Curb Functions and Uses

The first step in setting curb priorities is to identify how the curb functions. City streets provide a broad range of functions, including through traffic, pedestrian travel, bike lanes, and transit stops. Ann Arbor's Curb space is prioritized into eight functions., each associated with a menu of uses.

Curb Functions and Uses Menu

Pedestrian and Bicycle Access	Transit	Commercial Support	Vehicle Travel	Long-Term Parking	Balanced	Seasonal	All
Active transportation and people-oriented activities	Supports people moving along a block or corridor riding transit	Supports businesses by providing space for food and goods pickup and delivery, and shorter-term vehicle parking	Allocates space for vehicle travel	Provides space for longer-term parking for residents and visitors	Recognizes that some downtown blocks have unique needs that could and should support a mix of curb uses	Seasonal changes for curb use such as street closures during warmer months	Green space, utilities, and lighting are integrated into all functions
Bicycle/Scooter infrastructure •Bike/scooter parking •Bike/scooter lanes Activated and recreational space for pedestrians •Sidewalks •Street furniture/art •Public parklets •Pedestrian curb bump outs •Performance space •Food trucks	Transit lanes Bus queue jump lane Transit loading •Bus stops •Charter bus	Vehicle parking •Short-term •Metered •ADA Commercial delivery loading zones •Semi trucks •Box trucks •Delivery vans •UPS/FedEx/Amazon/USPS Food/on-demand pick-up and delivery •Vehicles •E-bikes	Travel lanes Driveways and curb cuts Fire access lanes	Vehicle parking •Long-term •Permit •Metered •ADA •EV Charging	No default, Mix of all functions based on each block's unique needs	Street Closures Streetearies	Green space •Street trees •Planting areas •Raingardens, bioswale •Stormwater management Utilities Street lighting

Curb Types

The second step in setting curb priorities is to identify the various curb types in Downtown. Because land use plays a key role in how people use curb space, curbs can be grouped into types based on adjacent land uses.

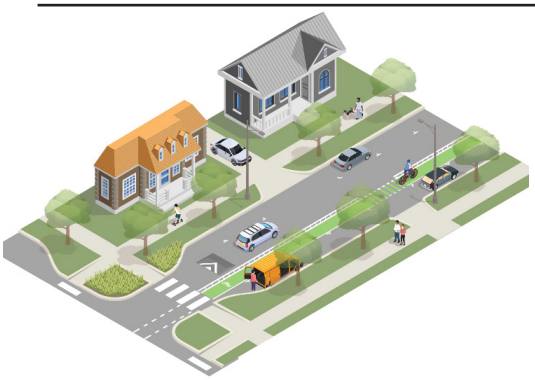
Downtown Ann Arbor has five curb types (detailed on the following pages), based on and aligned with the Street Design Manual Frontage Contexts. The additional Dense Residential curb type recognizes how downtown Ann Abor is growing to support denser, multi-family housing. Some blocks have unique needs that do not fit into a single type. The Mixed Curb Type allows flexibility for these unique circumstances.

Some curb types are very active and will require intensive management, such as Destination Commercial and Commercial. Others will need minimal management such as Near Neighborhood.

For example, Destination Commercial areas include Main Street, which is a destination in itself, a gathering place attracting pedestrians, with shops and restaurants that need space for pickup and delivery activity and short-term parking. Therefore, Pedestrian and Bicycle Access and Commercial Support are the highest priority functions for this curb type. In areas requiring minimal management, such as Near Neighborhood with small-scale housing, people and cycling are a priority, which aligns with citywide goals. In minimually managed areas, for the most part, the curb will support residents' and visitors' needs for long-term parking.

Seasonal and All Curb functions can be integrated across curb types. The Balanced curb function may be applied on a case-by-case basis.

Downtown Ann Arbor Curb Types

Curb Type	Street Examples	Land Use Context
Destination Commercial		
	Main Street State Street Fourth Avenue Division Street	• High density and intensity area with dense office, retail, restaurant, moderate density residential • High levels of transit, bike, and pedestrian activity • Significant pickup and delivery demand and passenger pickup/drop-off for multi-family residences, retail, and restaurants • Well served by transit, bike and scooter share, bike and pedestrian infrastructure, parking lots and garages
Commercial		
	Kerrytown Liberty Street South Ashley Street	• Small-scale retail is surrounded by predominately single-family and small-scale residential • A mix of restaurants, coffee shops, corner stores, and office spaces. Moderate delivery demand and passenger pickup/drop-off
Near Neighborhood		
	Packard/South Fourth/South Fifth Catherine Street – East of Division	Predominantly single-family and small-scale residential

Downtown Ann Arbor Curb Types

Curb Type	Street Examples	Land Use Context
Dense Residential		
	Landmark Towers East Huron	• Higher density residential buildings in various areas across the city • First-floor retail serving residents such as convenience stores, dry cleaners, coffee shops, and fast-casual restaurants • High amount of delivery demand and passenger pickup/drop-off
Mixed		
	Various	• Some blocks are complex have a diversity of uses and needs from small scale, single use buildings to denser areas • A mix of curb functions can serve these blocks depending on the context, such as a parking lane, bike lane, or transit lane • Activity can vary

Dense Residential: Parking Protected Bike Lane

Dense Residential: Bike Lane and Single Parking Lane

Dense Residential: Bike Lanes and Dual Parking

Curb Prioritization and Allocation

The next step in the curb prioritization process is developing a recommended guideline for prioritizing and distributing curb space over time for each curb type. The recommendations are guidelines only, using target ranges that do not add up to 100 percent. This provides flexibility to allocate space based on land uses, stakeholder needs, citywide goals for travel mode and climate, and professional judgement.

The prioritization and allocation guidelines recognize that many downtown locations have plenty of off-street parking lots and garages to support long-term parkers or those parking for more than two hours. This leaves valuable curb space for people, active-oriented people, and short-term uses to support businesses such as safe and accessible loading zones. Data collection shows that most curb users in areas with the most intensity are staying less than 15 minutes.

The allocation guides the space along the curb, not the width of the street. For many streets, the lanes within the width of the street will be for travel.

Functions such as Pedestrian and Bicycle Access and Transit have a wide allocation range that recognizes some streets may be shut down to vehicles, have curb side protected bike lanes, or flex spaces that support a mix of passengers, commercial vehicles, and parking during different days of the week or times of the day. During warmer months, a street may be 100 percent allocated to Seasonal activities such as street fests and pedestrian spaces. A function may have a lower priority, but still occupy considerable curb space, such as short and long-term parking and loading in Commercial, Near Neighborhood, and Dense Residential areas.

The curb prioritization guidelines show the Curb Hierarchy including each curb type and guidance for prioritization and allocation.

Curb Prioritization Guidelines

Destination Commercial		Commercial		Near Neighborhood		Dense Residential		Mixed	
Prioritization Hierarchy	**Allocation**	**Prioritization Hierarchy**	**Allocation**	**Prioritization Hierarchy**	**Allocation**	**Prioritization Hierarchy**	**Allocation**	**Prioritization Hierarchy**	**Allocation**
Pedestrian and Bike Access	0% - 100%	Pedestrian and Bike Access	0% - 100%	Pedestrian and Bike Access	0% - 100%	Pedestrian and Bike Access	0% - 100%	Varies based on each blocks unique needs, planning efforts, and capital projects	
Commercial Support	10% - 20%	Commercial Support	25% - 75%	Long Term Parking	25% - 100%	Commercial Support	10% - 25%		
Transit	0% - 100%	Vehicle Travel	0% - 100%	Vehicle Travel	0% - 100%	Transit	0% - 100%		
Vehicle Travel	0% - 100%	Transit	0% - 100%	Transit	0% - 100%	Vehicle Travel	0% - 100%		
Long Term Parking	0% - 10%	Long Term Parking	0% - 10%	Commercial Support	0% - 5%	Long Term Parking	0% - 10%		

How to Use the Curb Priorities Guide

The Curb Priorities Guide is a recommended guideline that planners can use as part of the planning process to allocate curb space on a block or along a corridor. It should be used in coordination with the Street Design Manual. Final curb allocation and designs should be developed with staff, stakeholders, and the community, depending on the project. These guidelines can support the following processes:

- **Development/Project Review Process.** Project applicants, DDA/City staff, and decision makers can use the guide to support curb needs for proposed projects.
- **Capital and Public Planning.** Projects with curb design elements should consider the guidelines as part of the planning process.
- **Ongoing Planning and Curb Operations.** Curb management decisions are made daily unrelated to major development reviews or planning efforts. The guide supports decision makers on strategy, allocation, and responding to changing demands.

Curbside Priorities Framework Process

Once a block or corridor has been identified for study, the following steps guide the planning process.

Step 1: Identify the Decision Making Process:

- Development/Project Review (redevelopment)
- Capital and Public Planning
- Ongoing/Curb Operations

Based on the identified process, develop a plan for determining any changes to the curb allocation based on the Curbside Priorities Framework. Conduct outreach with the community and stakeholders to gain input. based on need.

Step 2: Identify Curb Type: Identify the curb type based on the adjacent land use:

- Destination Commercial
- Commercial
- Dense Residential
- Near Neighborhood
- Mixed

Note that alleys can take pressure off curb space by providing access for movement, goods loading and delivery, passenger pickup and drop-off, parking, and even people-centric activities such as outdoor dining and walking paths.

Step 3: Identify Curb Hierarchy: Determine the Curb Type and corresponding hierarchy and curb allocation guidelines according to the Curb Type. For example, the hierarchy for a curb identified as Destination Commercial prioritizes pedestrian and bike access.

Step 4: Current and Future Use Evaluation: Once the Curb Type/Hierarchy is identified, identify the priorities and recommended curb space allocation. For example, commercial support is a priority in the Destination Commercial Curb Type, with a recommended allocation of between 10% and 20% of curb space.

Determine the existing curb allocation and the difference between the existing and future curb priorities based on the guidelines.

Step 5: Implementation: Conflicts, Spillover, and Enforcement: Identify if there is a competing demand for curb space and conflicts through data collection, observations, community input, evaluation, and professional judgement. Evaluate any potential spillover effects of new curb allocation, such as parking and loading on adjacent streets and the need to provide safe and accessible loading zones for package, business supplies, and food pickup and delivery. Determine if there are opportunities for off-street space to accommodate curb demands. Identify enforcement needs and strategies, especially if paid parking is removed.

Curb Types

The following examples provide further background and detail on each Curb Type.

Curb Type: Destination Commercial

Description

Destination Commercial streets are the most intense and dynamic in downtown. They support a mix of office buildings and dense residential areas, with pedestrian-oriented, ground-floor retail, restaurants, bars, and music venues.

There is curb demand from commercial delivery, short-term pickup, and passenger pickup/drop-off. Streets must also serve as multi-modal corridors for bikes and transit.

Curb Priorities

Destination Commercial curb space must balance the needs to support pedestrians, active transportation, and businesses. Pedestrian and Bicycle Access are prioritized to support walking, biking, and activity. Commercial support requires commercial loading and delivery zones, passenger loading zones, and short-term parking, and spaces can be flexed throughout the day, as different delivery types have varied needs, such as a semi-truck delivering beer to a bar, a box truck delivering packages to a store or office, or an on-demand gig based driver delivering food to a residence.

Curb space can also be flexed throughout the seasons. During the summer, curb space is used for on-street dining, and some streets are closed to pedestrians to support recreation and business.

There should be no long-term parking on-street. Parking should be accommodated in the ample off-street garages and surface lots.

Example Streets

Main and State Streets, Fourth and Fifth Avenue, and Division Street

Curb Type: Commercial

Description

Commercial streets of a medium-density commercial area with retail, office, restaurants, and bars surrounded by small-scale housing.

The main commercial corridors are pedestrian oriented. Retail and restaurants create demand for biking, passenger pickup/drop-off space, commercial goods delivery, and short-term food delivery. These streets are also multi-modal corridors, supporting transit and biking.

There is demand for parking from employees and customers. Some parking demand can be accommodated in off-street public surface lots, but there is a need for short-term on-street parking. Most surrounding homes on the residential streets have access to driveway and garage parking.

Curb Priorities

Sidewalks, outdoor dining, curb extensions, and bike lanes support Pedestrian and Bicycle Access. Flexible delivery and passenger zones, as well as short-term parking support for nearby businesses. Longer-term parking should be supported in off-street lots and garages.

Example Streets

Kerrytown and surrounding streets, Liberty Street, South Ashley Street.

Curb Type: Near Neighborhood

Description

Near Neighborhood streets are predominately small-scale, single-family, duplexes, or multi-family units. These streets may also include schools and parks. Most do not have retail or restaurants.

Near Neighborhood, streets serve as key bike corridors and provide ample space for walking. Street trees provide greening in the amenity zone and provide a buffer with traffic.

There is significant off-street vehicle and bike parking in driveways and garages, and demand for longer-term on-street parking. Vehicles are typically parked on-street for more extended periods. The low-density nature of these streets reduces delivery demand. Sidewalks provide space for pedestrians.

Curb Priorities

These areas require minimal management, as they are low density and less intense. The priority is given to pedestrian and bicycle access, which is supported on the sidewalk, and some streets have bike lanes. Most of the curb will be allocated to longer-term parking for residents and visitors. While there is demand for delivery vehicles, drivers are unlikely to use designated loading spaces and instead will park right in front of their destination.

Example Streets

Catherine east of Division, Fourth at Packard

Curb Type: Dense Residential

Description

Ann Arbor has several dense residential buildings outside the main downtown core, surrounded by retail, restaurants, and bars. There is high intensity and competing demand for curb use on these streets.

The commercial land uses on these streets invite significant pedestrian and bike activity and the need for passenger pickup and drop-off. The residential density creates a considerable amount of commercial delivery activity. There is ample off-street public parking in garages and surface lots.

Curb Priorities

To support and encourage non-auto travel in these dense, residential areas, pedestrian and bicycle access, as well as transit, are the priorities. Flexed commercial and passenger loading zones provide delivery drivers with access to residences during the day and ride hailing passengers safe pickup locations in the evening. Longer-term parking should move to off-street facilities.

Example Streets

East Huron Street, East Washington Street, South Forest Avenue

Curb Type: Mixed

Dense Residential - Bike Lanes and Single Parking

Dense Residential - Bike Lanes and Dual Parking

Dense Residential - Parking Protected Bike Lanes

Description

Some streets are complex with a mix of curb needs. For example, a block may have a mix of small-scale housing, dense residential development, and some retail and restaurants. Planning efforts may also identify different priorities to meet use needs requiring curb space for users such as parking, loading, and cyclists. On these streets, greater flexibility is necessary to guide curb use decisions based on capital and public planning projects outcomes, local needs, adn professional judgement.

Mixed Curb Priorities

Some curb types may overlap, and two priorities and uses may occur on the same block based on plans for the street and local needs. For example, there may be streets where pedestrian and bicycle access Is the priority, but dense residential demands require spaces for commercial loading and delivery.

In these instances, there are various curb design and distribution scenarios. As the graphics show, bike lanes can be parking protected, or parking can remain on one side of the street. The flexibility within the curb prioritization guidelines permits planners to use their judgement to navigate these tradeoffs to ensure safety for pedestrians and cyclists and prevent double parking or spillover parking, whicl still supporting delivery needs.

5 | IMPLEMENTATION AND NEXT STEPS

The Curb Management Plan creates a blueprint for Ann Arbor to efficiently manage its curb to support growing needs. Implementing the Curb Management Plan priorities and recommendations will happen over time as policies and procedures are developed, technology advances, and resources are available. The plan should be reviewed and updated regularly as new trends and technology emerge and data is evaluated. Appendix A, the Curb Management Playbook, provides detailed strategies and a phased approach over the near, medium, and long term to implement the vision and goals of the Curb Management Plan. Each strategy includes a rationale, background information, timeline, and implementation steps.

Monitoring and Evaluation

To achieve curb management goals and objectives, the following performance metrics provide a target range to evaluate performance. Performance can be regularly evaluated and tracked and may be conducted in line with other evaluation processes, including evaluation of the Comprehensive Transportation Plan and People-Friendly Streets.

Curb Utilization

- Pricing, policy, and enforcement support on-street curb utilization, staying between 75% and 85% during the peak.

Commercial parking zones

- Utilization target of between 75% and 85% during the peak and average dwell times less than 30 minutes during the peak, vehicle types of between 80% and 90% commercial vehicles/trucks/cargo vans or users actively loading/delivery. Reductions in double parking by commercial vehicles.

Safety

- Reduction in the number of citations for vehicle double parking or loading, vehicle/vehicle crashes, and vehicle/bike/pedestrian crashes.

Compliance

- Reduction in citations issued for parking in a no-parking zone, misuse of a commercial parking zone, non-payment, or overstay in an hourly regulated space.

Complaints/Satisfaction

- Reduction in complaints regarding curb access and activity for residents, businesses, and users such as freight operators.

6 | APPENDICES

DDA ANN ARBOR

Appendix A

Downtown Ann Arbor

Curb Management Playbook

August 2024

NAVIGATING THIS DOCUMENT

This document is intended to be a resource and roadmap for staff responsible for planning, prioritizing, implementing, and operationalizing curb management and the organizational governance that support the delivery of curb management for downtown Ann Arbor. Strategies are presented in five categories: Curb Policy and Regulations, Curb Access and Equity, Curb Economics, Curb Operations and processes, Curb Data and Digital Governance.

- Curb Policy and Regulations
- Curb Access and Equity
- Curb Economics
- Curb Operations and Processes
- Curb Data and Digital Governance

Each category of analysis follows a standard format:

Each section is color-coded according to the key above and intended to be shared separately as desired. Please see the table of contents on the following page for more information.

Supportive Policies Key:
SDM: Street Design Manual
PFS: People-Friendly Streets
CTP: Comprehensive Transportation Plan
CAP: Climate Action Pland

Playbook Contents

Curb Management Strategies

1 INTRODUCTION AND CONTEXT

Downtown Ann Arbor's curbs are in demand. New ways to travel such as e-scooters, ridehailing, and private shuttles compete with package and food delivery, and parking. New curbside bike lanes and pedestrian spaces support citywide goals for access and sustainable travel. All of these competing demands for limited space must be managed and prioritized to support this new dynamic environment.

This curb management playbook provides a holistic set of strategies to prioritize and manage downtown Ann Arbor's curb space for the future. It recognizes a balanced and nuanced approach to meet many access needs while still working toward citywide goals for active transportation, transit ridership, safety, and climate. It provides guides, designs, and operational strategies focused on implementation to make it all work. It is considered a living document and should be updated to reflect changing policies, trends, and demands.

2 ANN ARBOR CURB MANAGEMENT PLAYBOOK

The recommendations and roadmap presented in this Playbook are meant to promote, and help Ann Arbor in five curb management categories:

- **A** **Curb Policy and Regulations**: Policy and regulatory strategies such as curb typologies, performance metrics, and development guidelines to prioritize curb space and measure success.
- **B** **Curb Access and Equity**: Strategies to ensure curbspace is allocated to support the needs of all users in a safe, accessible, and comfortable manner.
- **C** **Curb Economics**: Modernizing curb pricing to manage the many users competing for limited space.
- **D** **Curb Operations and Processes**: Strategies that must be in place to efficiently operationalize curb management implementation and test new ideas.
- **E** **Curb Data and Digital Governance**: Practices to setup the future of curb management through technology, digitization, and open communications.

Action Plan: Recommended Strategies

This Matrix presents a summary of strategic recommendations. The "Priority" column represents Walker's opinion regarding when each recommendation should be implemented. However, the DDA and City may choose to implement these recommendations in a different order based on their needs and conditions at the time of implementation.

ID	Strategy	Description	Priority	Relative Cost $-$$$
A. Curb Policy and Regulations				
A1	Adopt curb typology	Adopt curb typology, prioritization, and allocation as part of the process for guiding downtown street design and as needed during the permitting process for new developments to ensure that curbs both accommodate demand and advance broader goals.	Near Term	$
A2	Develop performance metrics for the curb	Develop performance metrics for the curb, i.e., reduced double parking, increased payment compliance, meeting occupancy goals, people street activity, equity and access.	Near Term	$ $ $
A3	Define curb management in the development permitting process	When new development or a change of use is proposed, there will be changes to curb demand, which should be considered as part of the permitting and planning process.	Near Term	$
A4	Public electric vehicle charging program	Monitor use and expand public electric vehicle (EV) charging infrastructure when needed, adding capacity in underutilized off-street parking facilities first.	Medium Term	$ $ $
B. Curb Access and Equity				
B1	Allocate curb space based on the day of week and time of day needs of different users, i.e., flex the space	Continue to regulate commercial and passenger loading zones during peak times of those uses (i.e., early mornings or evenings).	Near Term	$

ID	Strategy	Description	Priority	Relative Cost $-$$$
B2	Allocate curb space for greater multimodal access, including creating mobility hubs	Continue to support multi-modal travel through future improvements as planned through the Downtown Circulation study, People-Friendly Streets, and new mobility hubs.	Near Term	$ $ $
B3	Allocate curb space to create safe, comfortable places for people and business	Continue planning for pedestrian-oriented street implementation through the People-Friendly Streets projects and Curbside Occupancy Permit program for outdoor dining.	Near Term	$ $
B4	Develop a standard for ADA parking spaces	Review existing ADA signed spaces to understand if there are better placement options within the block perimeter. For new ADA spaces, installed on newly or substantially reconstructed streets, follow PROWAG (Proposed Public Rights-of-Way Accessibility Guidelines.	Near and Long Term	$ $ $
B5	Monitor and expand commercial and passenger loading zones	Monitor commercial and passenger loading zones use. Create new commercial and passenger loading zones when needed.	Near Term	$ $
B6	Prepare curb space for future autonomous vehicles and robots	Connect with other Michigan cities to develop a joint strategy for AV regulations including tracking federal and state legislation, monitoring technology development, establishing a permit structure, and data sharing requirements. Establish passenger loading zones for autonomous pickup.	Long Term	$ $ $
C. Curb Economics				
C1	Modernize curbside parking pricing	Implement a strategy to modernize parking rates to help manage the parking supply, including incrementally increasing rates, modifying hours, and creating new short-term spaces.	Near and Long Term	$ $
C2	Charge a fee to all users for curb access to increase equity	Explore implementation of curb access fees for commercial loading zones, beginning with metered commercial delivery zones and smart loading zones over the long term. Explore the potential to amend State law to establish a local TNC fee for curb access.	Medium and Long Term	$ $

ID	Strategy	Description	Priority	Relative Cost $-$$$
C3	Develop a smart loading zone program to create more efficient curb space for commercial loading and delivery	Monitor utilization of existing commercial loading zones and explore the need for additional loading zones with freight carriers and businesses. Conduct a planning study to explore smart loading zone implementation, including charging a per-use fee for commercial delivery zones. Explore payment and technology options.	Long Term	$ $ $
C4	Update parking permit programs	Set a minimum utilization threshold when creating new residential parking districts. Continue to market off-street monthly permits to existing and new developments.	Near Term	$
C5	Package locker hubs	Expand package locker hubs and explore creating a shared delivery locker program for small and medium-sized packages near commercial loading zones or in parking garages and commercial and residential buildings.	Medium Term	$ $
D. Curb Operations and Processes				
D1	Target enforcement and add additional resources to ensure compliance	Develop enforcement strategy to increase compliance and reduce violations, including program goals, performance targets, and evaluation measures. Increase resources and funding, develop an education and awareness campaign, identify new technology, and develop performance metrics.	Near Term	$ $ $
D2	Continually update wayfinding and signage to ensure clear communications for curb users	Share digital curb inventory and regulations information with the public through websites, communications portals, apps, and open APIs. Explore the potential for automated parking guidance systems to on and off-street parking spaces that provide information to drivers as they enter downtown with information directing them to available curb spaces.	Near and Long Term	$ $
D3	Conduct curb management pilots to test strategies and inform decision-making	Develop pilots in an iterative way based on past lessons learned.	Medium Term	varies

ID	Strategy	Description	Priority	Relative Cost $-$$$
E. Curb Data and Digital Governance				
E1	Maintain curb inventory database	Establish a point person responsible for digital curb inventory maintenance. Allocate annual funding for cub inventory database maintenance and establish a process for updates. Determine how the digital curb inventory will be hosted and the appropriate platform, and open source information. Long-term look for opportunities to use APIs to support planning, management, enforcement, and payment.	Near and Medium Term	$ $ $
E2	Monitor curb use	Develop a process to collect and monitor curb use for decision-making	Medium Term	$ $ $
E3	Develop a process to share curb inventory and communicate with curb users	Develop a process to share curb inventory and communicate with curb users (freight operators, parkers, and the public) about regulations and space availability through the Curb Data Specification. Allocate annual funding for curb use sharing and communications. Over the long term, develop the strategy, plan, and tools for sharing digital curb inventory. Use the information to collect curb use data, guide users to open spaces, accept payments, and target enforcement.	Long Term	$ $ $

A CURB POLICY AND REGULATIONS

INTRODUCTION

Curb policy and regulation strategies such as curb typologies, performance metrics, and development guidelines are focused on defining and implementing the optimal strategy to prioritize curb space and measure success.

These improvements will allow Ann Arbor to focus on strategic, data-driven, long-term planning efforts that will improve the vibrancy and sustainability of curb space assets as downtown grows.

Playbook Strategy/Action Items

A1. Adopt Curb Typology Framework

A2. Develop Performance Metrics for the Curb

A3. Define Curb Management in the Development Permitting Process

A4. Public EV Charging Program

CURB POLICY AND REGULATIONS

A1 Adopt Curb Typology Framework

The curb typology framework provides guidelines for allocating curb space during the planning and permtting process. It ranks curb use priorities across downtown's different land uses based on community input from the People-Friendly Streets projects, the Comprehensive Transportation Plan, the Climate Action Plan, and other DDA and Citywide plans. The curb typology framework is aligned with the Street Design Manual and identifies how to allocate space based on the adjacent land uses and demand. It should be used as part of the process for guiding downtown street design and as needed during the permitting process for new developments to ensure that curbs both accommodate demand and advance broader goals. It provides a helpful guideline but also grants flexibility during planning.

Existing Conditions

- Curb space allocation advances mobility, equity, and climate goals such as Vision Zero, climate neutrality, and more people walking, biking, and riding transit.
- Curb inventory data shows that goals are being met to create a more walkable and bike-friendly downtown and maintain balanced access for people who need to drive and park. Ann Arbor is meeting goals to support cycling and bicycle lanes and create a more walkable downtown. There is on and off-street parking to support demand.
- The Street Design Manual currently guides how streets and curbs are planned, designed, and regulated but needs some updates to support today's curb demands, such as short-term uses, delivery, and passenger pickup and drop-off.
- Given the evolving nature of curb demand, the curb typology framework is a useful tool to provide additional guidance during planning and permitting processes.

Implementation Detail

- Adopt curb typology framework as the supportive document to the Street Design Manual to inform curb space planning, allocation, design, and policy.
- City departments, the DDA, and stakeholders should institutionalize the curb typology framework in all decision-making processes when permitting new developments and change of use for existing sites and during planning processes for streets, corridors, and curbs.
- The curb typology framework should be updated as needed depending on changing priorities, needs, and technologies.
- Curb management leadership: Curb management responsibilities exist across the DDA and City departments. Implementing the Curb Management Plan and typology will require coordination between agencies, departments, stakeholders, community groups, boards, committees, commissions, and others. A curb manager/leader should be defined with planning, coordination, and communications responsibilities using the curb typology framework.

CURB POLICY AND REGULATIONS

Case Study: Curb Prioritization in San Francisco

The City of San Francisco's curb management strategy prioritizes curb allocation across the city. Typologies are set within six different land uses, including low-density residential, mid-to-high-density residential, and major attractors. There are five curb functions such as access for people and goods. The goal is to prioritize curb functions that provide the greatest access within the finite space. Throughout the city's most active and dense areas, access for people and goods is the highest priority, while access for private car parking is the lowest. While a curb function may have a lower priority, it will still have space in an area.

Source: https://www.sfmta.com/sites/default/files/reports-and-documents/2020/02/curb_management_strategy_report.pdf

Case Study: Curb Prioritization in Seattle, WA

The City of Seattle was the first City in the country to develop the idea that curbs should have different priorities based on adjacent land use. The Seattle Department of Transportation developed various "functions" for how the curb is used so that streets safely and efficiently connect and move people and goods but remain inviting spaces. The mobility function provides bike lanes, travel lanes, transit lanes, and sidewalks. The access for people function supports passenger loading zones, bus stops, and bike parking. Activation offers vibrant social space for food trucks, parklets, public art, and street fests. The following graphic illustrates how the zones are prioritized based on land use.

City of Seattle Curb Space Prioritization

	Residential	Commercial & Mixed Use	Industrial
1	Support for Modal Plan Priorities	Support for Modal Plan Priorities	Support for Modal Plan Priorities
2	Access for People	Access for Commerce	Access for Commerce
3	Access for Commerce	Access for People	Access for People
4	Greening	Activation	Storage
5	Storage	Greening	Activation
6	Activation	Storage	Greening

Source: https://www.seattle.gov/transportation/projects-and-programs/programs/parking-program/parking-regulations/flex-zone/curb-use-priorities-in-seattle

Supportive Policies - This strategy will support all goals and priorities of PFS, CAP, CTP, SDM

Impact - High

Relevant Curb Typologies - All

Responsible Entity – DDA in coordination with City departments

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB POLICY AND REGULATIONS

A2 Develop Performance Metrics for the Curb

Develop performance metrics for the curb, i.e., reduced double parking, increased payment compliance, meeting occupancy goals, people street activity. Performance measures are essential to optimizing curb utilization and achieving broader goals. Establishing performance measures for curb management will communicate how curb assets support overall goals and provide a way to evaluate progress and determine when to change curbside regulations or the curb typology framework.

Existing Conditions

- The City and DDA have outlined goals for safety, mobility, and sustainability through plans such as the People-Friendly Streets projects, DDA Development Plan, Comprehensive Transportation Plan, Climate Action Plan, and others. Curb prioritization and allocation will advance these goals.

Implementation Detail

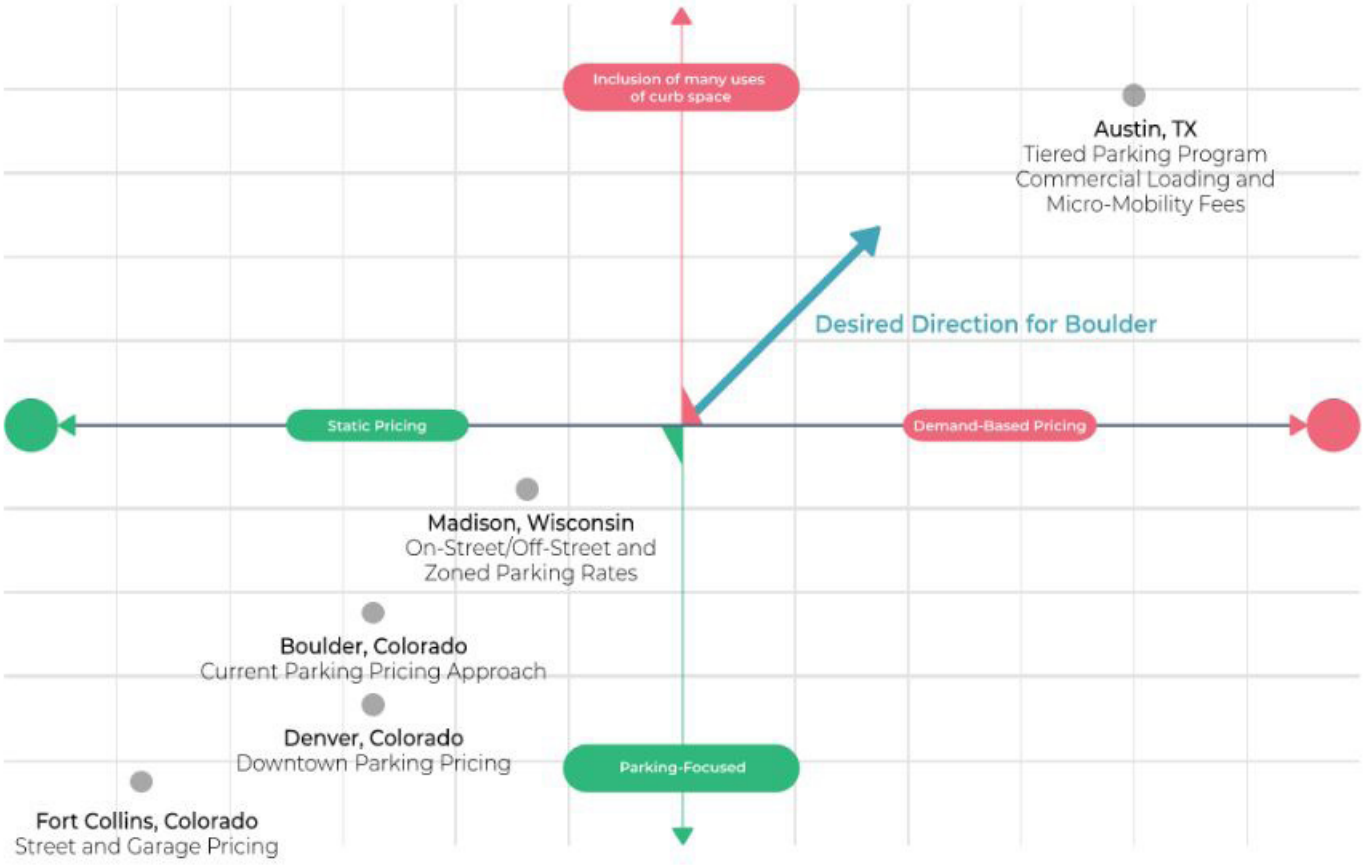
- Using the Curb Management Data Collection and Pilot Toolkit, the Curb Management Lead should establish curb management performance measures and a schedule for continually measuring and communicating performance.
- The Curb Management Lead should work with stakeholders to develop metrics for how curbs will support overall DDA and citywide goals, including the following:
  - **Utilization:** Pricing, enforcement, and regulations support on-street curb utilization, staying between 75% and 85% during the peak.
  - **Dwell times and turnover of short-term spaces:**
    - » Dwell times in passenger loading and short-term zones are between 5 and 15 minutes or less.
    - » Dwell times in commercial loading zones are regularly 30 minutes or less.
  - **Curbside Compliance:**
    - » Compliance with curbside regulations increases year over year.
    - » Decrease in the number of vehicles double parking.
    - » Reduction in citations issued for parking in a no-parking zone, misuse of a commercial parking zone, non payment, or overstay in an hourly regulated space.
  - **Safety:** The number of conflicts, crashes, or citations related to biking, walking, and transit is reduced to zero in support of Vision Zero goals.
  - **Mobility and Access:** Increasing the number of trips made by walking, biking, and transit, especially from disadvantaged communities.
  - **Complaints/Satisfaction:** Reduction in complaints regarding curb access and activity from residents, businesses, and users such as freight operators.
- Develop a regular cadence for collecting data and measuring performance.

Case Study: Annual parking assessment in Boulder, CO

In 2021, the City of Boulder conducted a curb access and parking study to reform how streets support citywide goals for sustainability, mobility, equity, and access. One outcome of the study was that the city developed key metrics for parking and now conducts an annual assessment of neighborhood and paid parking areas to understand parking occupancy, trip generation, and access to travel options other than driving. Data on parking behavior informs eligibility for new residential parking permit districts and adjustments to paid parking rates to manage demand in commercial areas.

Source: https://bouldercolorado.gov/guide/revitalizing-parking-transportation-access-boulder

Review of Parking Pricing Best Practices to Inform Demand Based Pricing Strategy in Boulder, CO



Source: Walker Consultants

Supportive Policies - This strategy will support all goals and priorities of PFS, CAP, CTP, SDM

Impact - High

Relevant Curb Typologies - All

Responsible Entity – DDA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB POLICY AND REGULATIONS

A3 Define Curb Management in the Development and Permitting Process

When new development or a change of use is proposed, there will be changes to curb demand, which should be considered as part of the permitting and planning process. For example, a coffee shop will likely have patrons who need space to quickly pick up their order, or a dense residential building will need space for commercial deliveries. Embedding curb management in the development process will ensure the curb is adequately planned and designed to accommodate the needs of all users and minimize conflicts with cyclists and pedestrians.

Existing Conditions

- The Street Design Manual guides the process of determining how downtown streets are designed, built, and maintained. For proposed developments, the Street Design Manual is a tool that provides design standards and best practices to mitigate any impacts on the right-of-way in support of multiple ways to travel, economic vitality, environmental health, and community character.
- The Street Design Manual calls for six street design elements across six categories: pedestrian, commercial support, bicycle, transit, vehicle, infrastructure, and landscape. Priorities related to the curb defined in the Manual include curbside loading zones, café dining on streets with high levels of pedestrian and commercial activity, short-term parking and drop-off locations, and bicycle infrastructure.
- All public and private infrastructure and development projects must follow the Downtown Street Design Manual approval process.
- While the Street Design Manual does plan for the Curbside Zone, there have been changing needs for curb space since it was adopted in 2015, which should be considered in the process.

Implementation Detail

- The Curb Management Lead should work with stakeholders, including the DDA, the Street Design Team, and the City Department of Planning and Development, to review anticipated impacts to the curb from new development as applicable. Preliminary determinations would occur during Step 1 of the site plan review process and Step 2 of the design phase (see figure on page 12 for Steps).
- The curb typology framework should be used as part of the permitting process to determine if adequate space exists for the new development and any modifications, such as short-term loading or pickup and necessary mitigation impacts.

Proposed revisions to the Street Design Manual are included in Appendix C.

Supportive Policies - SDM goals 1 through 5

Impact - High

Relevant Curb Typologies - All

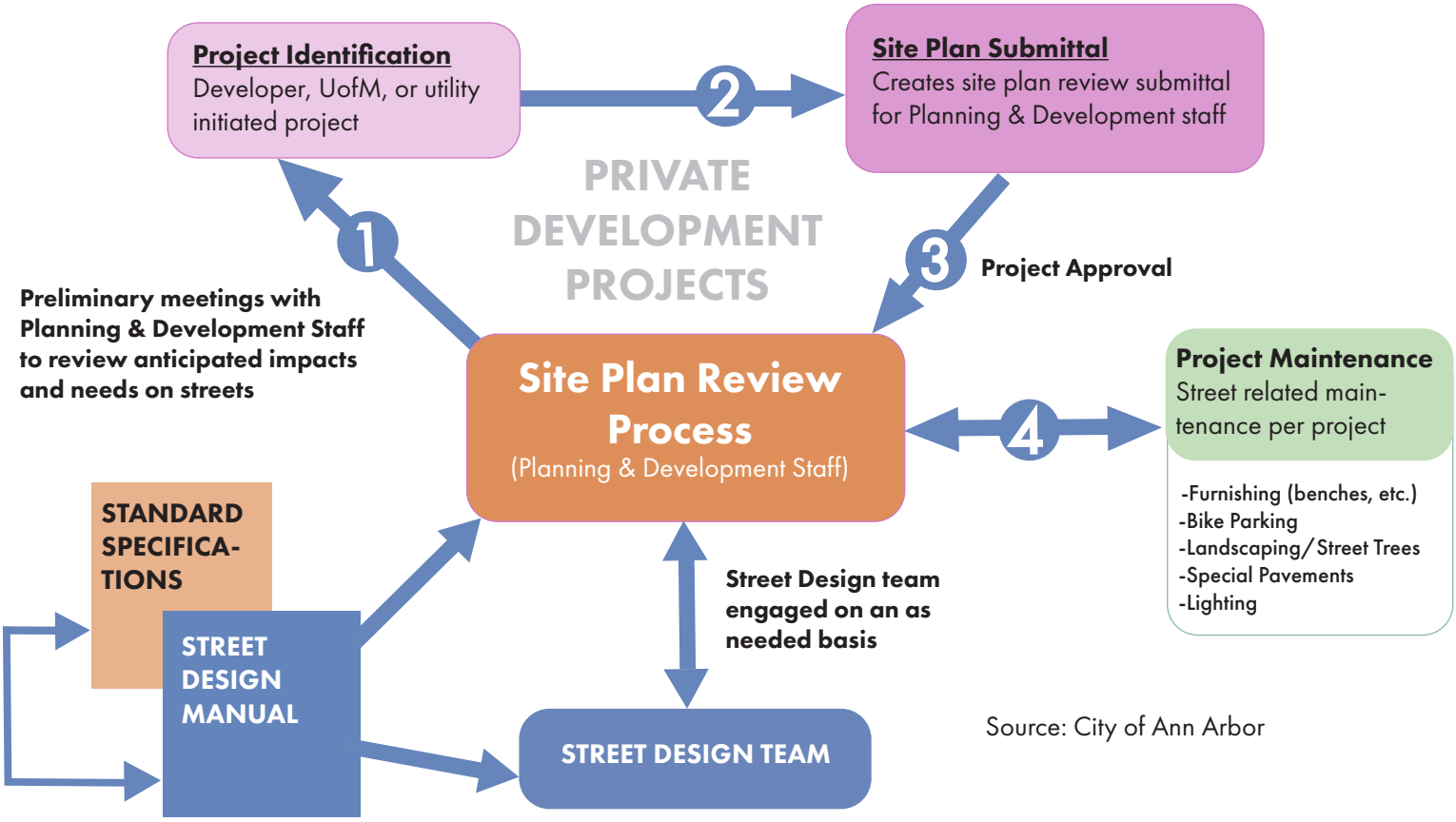
Responsible Entity – DDA, City Dept. of Planning and Development

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB POLICY AND REGULATIONS



Source: City of Ann Arbor

A4 Public EV Charging Program

Monitor use and expand public electric vehicle (EV) charging infrastructure when needed, adding capacity in underutilized off-street parking facilities first. Supporting the public transition to electric vehicles will advance the City's climate neutrality and transportation emissions goals. While most charging will occur at home, public charging can fill gaps to decrease range anxiety and support residents who do not have home chargers. The Bipartisan Infrastructure Law lays out a national network of public chargers and provides funding for charging infrastructure.

Existing Conditions

- Charging infrastructure is a key goal of the A2 Zero Climate Action Plan. The Plan calls for installing 20 new Level II EV chargers in each DDA parking structure and surface lot.
- The DDA has worked to fulfill this goal and has installed electric vehicle charging stations in off-street parking facilities across downtown. Drivers pay a per kilowatt hour fee while their cars charge at the EV spaces, which covers the cost of the electricity, administration, and vendor costs. Of the total fee, 20 percent is allocated to the City's general fund.
- Currently, the EV charging stations are not significantly utilized. Significant capacity exists.
- There are no on-street EV chargers or public chargers for e-bikes and scooters downtown, but the City is working to install on-street chargers in outlying neighborhoods.

CURB POLICY AND REGULATIONS

Implementation Detail

- Given that the existing supply of off-street EV charging stations meets demand and there is additional capacity, there is no immediate urgency to expand the program.
- Monitor the use of existing EV chargers and expand the public program once demand reaches 75% - 85% of supply during peak utilization periods.
- Before implementing any on-street EV charging infrastructure, enact curb regulations for parking at EV charging adjacent spaces, including payment and time limits.
- Any deployment of on-street EV chargers should focus on vendors with high charging uptimes (greater than >97%), the ability to incorporate solar energy generation, and strong maintenance support.
- For on-street curb charging, prioritize fast chargers in commercial districts and Level II chargers in residential areas.
- Evaluate needs and opportunities to expand EV charging for sustainable ways of travel, such as e-bikes and scooters.

Case Study: Curbside EV Charging in Sacramento, CA

The City of Sacramento partnered with an EV charging manufacturer to install curbside EV fast charging at five sites with 18 chargers. Chargers are owned and operated by the private vendor, and available as a paid service to the public. Charging costs about 35 cents per kWh, and users can pay for charging by credit card, phone, or an app. Parking at the charging stations is time-restricted to a 2-hour limit.

On-Street EV Charging in Sacramento
Image Courtesy of the Sacramento Bee

Supportive Policies - CAP Strategy 2.6 Expand EV Charging Infrastructure

Impact - High

Relevant Curb Typologies - All

Responsible Entity – DDA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

B CURB ACCESS AND EQUITY

INTRODUCTION

Downtown Ann Arbor already prioritizes curb space for pedestrians and bicyclists, and flexes curbs throughout the day based on demand for commercial goods and passenger loading to make the most efficient use of the limited space.

The strategies in this section will build on this success so that people can travel to and around downtown in a safe and comfortable way, no matter their travel mode. These improvements will also make the most efficient use of curb space for goods movement to support businesses and the downtown economy, and prepare for future technology.

Playbook Strategy/Action Items

B1. Continue to Allocate Curb Space based on the Day of Week and Time of Day

B2. Continue to Allocate Curb Space for Greater Multimodal Access

B3. Continue to Allocate Curb Space to Safe, Comfortable Places for People and Business

B4. Develop a Standard for ADA Spaces

B5. Monitor Commercial and Passenger Loading Zone Space

B6. Prepare Curb Space for Future Autonomous Vehicles and Robots

CURB ACCESS AND EQUITY

B1 Continue to Allocate Curb Space Based on the Day of the Week and Time of Day

Continue to allocate curb space based on the day of week and time of day needs for different users, i.e., flex the space. Demand for curb space from different users changes throughout the day. For example, many businesses receive commercial deliveries in the morning, and people use ride-hailing vehicles to travel to dinner or a concert. Therefore, curb space priorities and regulations can change throughout the day to be flexible and accommodate more users.

Existing Conditions

- The DDA has already regulated curb space by time of day and day of the week to accommodate more users. In downtown, many commercial loading zones are in effect at specific high-demand times of the day, for example, from 6 am to 6 pm. Those spaces can be used for automobile parking/passenger pickup and drop-off at other times.

Implementation Detail

- Continue to regulate commercial and passenger loading zones during peak times of those uses (i.e., early mornings or evenings).
- Monitor commercial and passenger loading zone use and peak periods. If utilization exceeds 75% - 85% on street segments, explore modifying regulations to accommodate loading uses.

Case Study: Ann Arbor Flexed Curbs

Currently, Downtown Ann Arbor is flexing curb space throughout the day to support changing demand. Many commercial loading zone spaces are in effect from 6 am to 6 pm, a period of high demand for commercial delivery. After 6 pm, when commercial delivery demand drops, the space is turned over to passenger loading when that use is highest.

Loading Zone Signage in Ann Arbor

Supportive Policies - PFS, CTP Strategy 6. Bike Routes, 9. Shared Mobility Options, 12. Transit Access, 19. Shared Streets, CAP Strategy 4.1 Implement non-motorized transportation Plan, SDM Goal 1: Mobility, Accessibility & Safety 3. Commerce & Economic Vitality

Impact -Medium

Relevant Curb Typologies - Destination Commercial, Commercial

Responsible Entity – DDA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB ACCESS AND EQUITY

B2 Continue to Allocate Curb Space for Greater Multimodal Access Including Creating Mobility Hubs

Dedicated curb space for walking, biking, and transit provides safer and more convenient travel options other than driving. Mobility hubs make traveling more convenient by providing a central location that offers connections to multiple travel options, such as bus stops, bike sharing, scooter sharing, car sharing, and amenities like package lockers. For example, a bus stop is located next to a bike share station so a rider can seamlessly make the last-mile trip home.

Existing Conditions

- The People-Friendly Streets prjects and the Comprehensive Transportation Plan support providing more bike, pedestrian, and transit access space, including a downtown bike network and building mobility hubs.
- Ann Arbor has actively set the pace toward creating spaces to increase multimodal access. More than 20% of downtown curb lanes are dedicated to bikes and scooters.
- The People-Friendly Streets projects supported four miles of new separated bike lanes with raised transit stops. This includes the William Street, Division Street, and the Miller/Catherine Bikeways. The program has plans to extend the Miller/Catherine Bikeway and create a Fourth Ave Transit Street. As a result of these projects, bike ridership increased by 165% on Division Street.
- The Comprehensive Transportation Plan proposes increasing the number of bike lanes on downtown streets that all ages and abilities could use, and there are plans to increase curb lanes for transit access, including a signature transit corridor on Huron Street.
- The Downtown Circulation Study is currently exploring increasing space for transit, biking, and walking.
- The Comprehensive Transportation Plan targets establishing one mobility hub by 2023 and three additional hubs by 2030. The priority locations for the first three mobility hubs are located outside of the DDA area. The Ann Arbor Area Transportation Authority (TheRide) is the lead in establishing mobility hubs in the City.

Catherine Street Crosswalk

Implementation Detail

The DDA can continue to lead and support multi-modal travel through future improvements as planned through the Downtown Circulation study and People-Friendly Streets.

The DDA can support mobility hub goals by locating on-street bike and scooter share stations and bike parking near bus stops so that riders have a quick connection to complete their first or last-mile trip to transit or secure their personal bike.

Case Study: Mobility Hubs in Pittsburgh, PA

In July 2021, The Pittsburgh Department of Mobility and Infrastructure partnered with a private scooter operator through an RFP process to launch the "Move PGH" pilot, which will build 50 mobility hubs across the City with access to buses, e-scooters, bike share, and car share. The goal is to support a seamless transportation experience by increasing easy and cost-effective travel options that do not rely on personal vehicles. A centralized app allows people to access and pay for each service in one place, making riding a seamless experience. Scooter riders are incentivized to park at mobility hub locations by receiving a $1 discount toward a future ride.

CURB ACCESS AND EQUITY

Supportive Policies - PFS, CTP Strategy 6. Bike Routes, 9, Shared Mobility Options, 12. Transit Access, 19. Shared Streets, CAP Strategy 4.1 Implement non-motorized transportation Plan, SDM Goal 1: Mobility, Accessibility & Safety 3. Commerce & Economic Vitality

Impact - High

Relevant Curb Typologies - All

Responsible Entity – DDA, Public Works, AAATA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

B3 Continue to Allocate Curb Space to Create Safe, Comfortable Places for People and Business

Ann Arbor has shown that welcoming, safe, and comfortable streets create places people want to be. Pedestrian-friendly streets encourage walking, shopping, interaction, and health, which improves residents' quality of life. Local businesses benefit from increased foot traffic and the overall vibrancy of downtown flourishes.

Existing Conditions

- On many downtown streets, there is more pedestrian activity than vehicle traffic. According to the Comprehensive Transportation Plan, 6,500 people walk on State Street daily compared to 4,600 vehicles. Main Street sees 5,000 people walking each day, compared to 2,500 vehicles.
- The DDA works under a 30-year plan with goals that include improvements to public open space and pedestrian linkages. This includes promoting and facilitating walking, biking, and transit, reducing vehicle conflicts, increasing the walkability of downtown, and scaling downtown for pedestrians.
- The DDA has led extensive efforts to make downtown a more pedestrian friendly place:
  - Increased space for outdoor dining and pedestrians by 23% with streetscaping projects.
  - Created four new pedestrian plazas, such as the First and Ashley Street plaza.
  - Built three blocks of curbless streets on State Street, which makes it easier for businesses to have outdoor dining, host special events, and for people to navigate the sidewalk and curbside space. State Street also has an extra wide shared-use sidewalk.

CURB ACCESS AND EQUITY

- The Curbside Occupancy permit for outdoor dining permits removing on-street parking to install curbside platforms for dining, retail, or as a public parklet. During the pandemic, as many as 62 parking spaces were converted to outdoor dining streatearies to support restaurants. Updated standards are in place for permanent streateries, and there has been a decrease in permit requests.

- The Comprehensive **Transportation Plan calls for one shared street project by 2025 (State Street) and two additional locations by 2030.**

Implementation Detail

- Continue planning for pedestrian-oriented street implementation through the People-Friendly Streets projects and Curbside Occupancy Permit program for outdoor dining.
- Track the number of curb spaces allocated for people and restaurants.

Case Study: Curbless State Street

Curbless streets use design elements and infrastructure to create a safer and more comfortable pedestrian environment. They make streets that become beautiful community gathering spaces instead of car-dominated and non-inviting. State Street is the City's first curbless street in Downtown Ann Arbor. State Street is one of the more diverse and vibrant streets, bordering the University of Michigan's central campus, downtown offices, and housing. Given State Street's high volume of pedestrian activity, being curbless improves accessibility with wider sidewalks because people do not have to navigate the curb.

The curbless street advances the DDA's goals to create flexible curb spaces where the sidewalk can extend to support outdoor dining, events, commercial loading, or parking.

Curbless State Street

Supportive Policies - PFS, CTP Strategy 19. Shared Streets, SDM Goal 1: Mobility, Accessibility & Safety
Impact - High

Relevant Curb Typologies - All

Responsible Entity – DDA, City of Ann Arbor Transportation Engineer

Cost - $$, depending on the project

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$
$ $ $

CURB ACCESS AND EQUITY

B4 Develop a Standard for ADA Spaces

Spaces reserved for people with ADA placards are a way to ensure access for people with mobility challenges. New United States Department of Transportation guidelines propose one (1) accessible space for every 25 spaces on a block perimeter on newly constructed streets and existing wide sidewalks where curb and sidewalk are being substantially reconstructed.

Existing Conditions

- There are dozens of reserved spaces for people to park on-street that comply with a State of Michigan Disability parking placard to park in an ADA space as defined in the Vehicle Code.

Implementation Detail

- Review existing ADA signed spaces to understand if there are better placement options within the block perimeter.
- For new ADA spaces, installed on newly or substantially reconstructed streets the following standards are recommended based on USDOT and PROWAG (Proposed Public Rights-of-Way Accessibility Guidelines):
  - ADA spaces should be located at the end of the block or mid-block with adjacent crosswalks and curb ramps.
  - Parallel stalls should be 13' wide by 24' long at street level (not at sidewalk level), connecting to a curb ramp if a sidewalk is raised.
  - A minimum of 9' from the face of the curb to the ROW line should be allowed. This allows for street furniture, trees, pay devices, etc., while providing an accessible pedestrian path.
  - No obstructions at the sidewalk in the middle 50% of the length of the stall (such as trees, signs, meters, and street furniture). This allows a side van lift to discharge to the sidewalk.
  - Accessible on-street stalls should be provided where the lowest crown and running slope occurs.
- The following minimum number of spaces is recommended based on the updated federal guidelines. The minimum number of spaces should be exceeded where it is possible to do so.

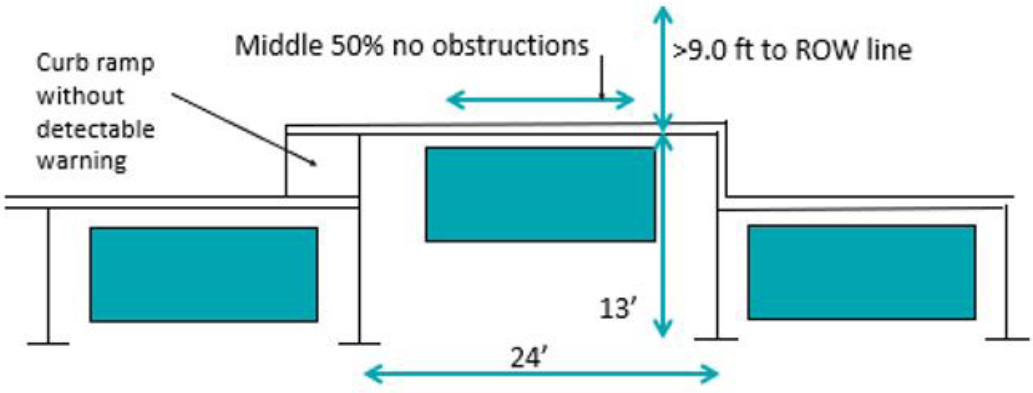
Recommended ADA Parking Spaces Per Block Perimeter on Newly Constructed Streets

Metered, Marked or Signed Spaces on Block Perimeter	Accessible Spaces Required
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
Over 200	4%

Source: U.S. Access Board Public Right-of-Way Accessibility Guidelines

CURB ACCESS AND EQUITY

ADA Parallel Stall Design Guidelines



Supportive Policies - PFS, CTP Strategy 19. Shared Streets, SDM Goal 1: Mobility, Accessibility & Safety
Impact - Medium

Relevant Curb Typologies - All

Responsible Entity – DDA, City of Ann Arbor Transportation Engineer

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$
$ $ $

B5 Monitor Commercial and Passenger Loading Zone Space and Expand Those Spaces Based on Utilization

Growth in online shopping, restaurant takeout and delivery, and ride-hailing services (such as Lyft and Uber) have increased curb access needs for commercial delivery vehicles, on-demand delivery drivers, food pick-up, and ride-hailing. As a result of these changes in consumer and travel behaviors, there's a need for more dedicated space for commercial and passenger loading zones, especially near denser downtown residential, retail, and restaurants, to manage curb access, make streets safer, and reduce congestion.

Existing Conditions

- Data shows commercial delivery vehicles (trucks) make up less than 7 percent of all vehicle sessions at the curb. However, this is expected to increase as downtown grows. This does not include mid-sized vehicles that may be conducting on-demand food pickup and delivery.

CURB ACCESS AND EQUITY

- Data shows many curb sessions have a duration of 2 to 5 minutes, likely due to passenger loading from ride-hailing apps and food pickup from restaurants.
- There are curbside loading spaces on most streets for commercial and passenger loading. Commercial loading zones are regulated for commercial activities between 6 am and 6 pm and 15-minute passenger loading.
- Currently, commercial delivery drivers and ride-hailing apps do not pay the meter for curb access.

Implementation Detail

- Monitor commercial and passenger loading zones using a technology based data collection process to understand use based on the Curb Management Data Collection and Pilot Toolkit.
- Based on performance metrics, create new commercial and passenger loading zones to accommodate a range of uses at hotspots.
- Following the Curb Management Data Collection and Pilot Toolkit for design guidance, monitoring, and enforcement.

Case Study: Boston Passenger Loading Zones

Boston implemented a passenger loading zone pilot program in the Fenway neighborhood to better manage congestion and more efficiently use curb space. Based on the lessons provided by the pilot, the city has implemented a second installation of pickup/drop-off zones in other neighborhoods, which are operational 24 hours a day. The city turned four parking spots into ride-app pickup and drop-off zones on evenings and overnight from 5 pm. to 8 am Drivers were permitted to stay in the spot for up to five minutes to wait for a passenger.

Both Lyft and Uber geofenced the pickup area, creating a virtual GPS boundary to direct drivers and passengers to the designated pickup area. Passenger drop-offs were not geofenced in the Uber and Lyft apps; drivers could skip the geofence as they usually follow a rider's requested drop-off location. For the first ten days of the pilot, two officers worked overtime to enforce the zones. For the remaining period, officers regularly patrolled the area.

Lessons learned from the pilot include:

- **Designate areas** for pickup to reduce traffic congestion. In some areas, there was a 30 percent drop in the number of pickups and drop-offs in the travel lane.
- **Shifting spaces** from private-vehicle parking to pickup and drop-off increased curb productivity, or use, by 350 percent. On one block, the number of vehicles accessing the spaces increased on average from three parked cars to 14 pick-ups/drop-offs per hour.
- **Relocate furniture** items like bike racks in the needed zones to prevent hazards and improve access for passengers with limited mobility.
- **Be specific with wayfinding**. For example, have apps list the specific business in front of the pickup/drop-off zone to help passengers know where to go.
- **Offset revenue from parking meters.** When used for parking, the affected spaces generated approximately $30 per day in parking meter revenues, which was lost with the conversion to pickup zones. Given the considerable staff time necessary to implement the pilot, the city recommended that future pilots consider equitably pricing the pickup/drop-off zones.

CURB ACCESS AND EQUITY

- **Design matters.** The city recommended that future zones allow more space for vehicles to maneuver. The pickup/drop-off zones were two parallel parking spaces in length, which sometimes did not allow the driver to pull into the space fully.
- **Manual data collection is unwieldy in a large area.** A video analytics system with cameras or another automatic method, rather than people with clipboards, would likely work better.

Supportive Policies - SDM Goal 3. Commerce & Economic Vitality

Impact - Medium

Relevant Curb Typologies - Destination Commercial, Commercial, Mixed, Civic/University

Responsible Entity – DDA, City of Ann Arbor Transportation Engineer

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

B6 Prepare Curb Space for Future Autonomous Vehicles and Robots

Many regulatory and technology hurdles must be overcome to prove if autonomy can provide more access, increase safety, and reduce congestion and emissions. Curb digitization in the Curb Data Standard will support future autonomy over the long term. Any policy for autonomous mobility should prioritize shared rides and complement transit to avoid an increase in vehicle miles traveled and driving/the need for parking. Sidewalk delivery robots can reduce vehicle trips but may interfere with pedestrian space.

Existing Conditions

- The Comprehensive Transportation Plan calls for fostering a climate that encourages innovation while ensuring new technologies deployed on the streets align with values to improve safety, reduce emissions, and expand access.
- Ann Arbor has encouraged shared autonomous mobility rather than private vehicles.
- The privately operated A2GO autonomous shuttle provides free on-demand shared rides in Downtown Ann Arbor through a grant from the State of Michigan. Five electric vehicles operate Monday through Friday from 8 am to 8 pm. Riders can reserve a ride via the May Mobility app. While the vehicles are autonomous, a person sits behind the wheel during this testing phase.

Autonomus shuttle, May Mobility that operates in Ann Arbor. Photo courtesy of the University of Michgan.

CURB ACCESS AND EQUITY

Implementation Detail

- Connect with other Michigan cities to develop a joint strategy for local control of certain aspects of AV regulations.
- Establish specific passenger loading zones for autonomous pickup at the curb and in off-street facilities and require autonomous vehicles to pick up and drop off passengers in these spaces.
- Track federal and state processes and legislation related to AVs and the curbside.
- Require technology and AV operators to share data with the City/DDA.
- Monitor AV development and encourage shared AVs over private AVs.
- Explore a permit structure for autonomous sidewalk delivery robots.

Case Study: Santa Monica Sidewalk Delivery Robots

In Santa Monica, CA, semi-autonomous robots on wheels deliver restaurant takeout orders to local customers to reduce the cost and traffic from last-mile deliveries. The robots are equipped with GPS tracking, two-way microphones, and a human remote driver from far away. Hundreds of stores and restaurants use the robots to deliver within a two-mile radius of the store. The City is considering regulations for sidewalk robots. Proposed guidelines would require operators to pay up to $20,000 for fleets of more than 50 robots, with a cap of 75 per council district. Also, robots would be required to yield to pedestrians and bikes and obey all traffic signals and signs.

Supportive Policies - PFS, CTP Strategy 19. Shared Streets, SDM Goal 1: Mobility, Accessibility & Safety
Impact - Medium

Relevant Curb Typologies - All

Responsible Entity – DDA and City

Near Term | Medium Term | Long Term

Relative Cost $-$$$
$ $ $

Example of a sidewalk robot.

CURB ECONOMICS

INTRODUCTION

Only some curb users currently pay for access, including parkers, micromobility operators, and businesses with streatearies. Modernizing curb pricing and fees so that it reflects the dynamic environment and growing demand will ensure that curbs are serving the local economy in support of a vibrant downtown.

Playbook Strategy/Action Items

C1. Modernize Curbside Parking Pricing

C2. Charge a Fee to All Users for Curb Access to Increase Equity

C3. Develop a Smart Loading Zone Program

C4. Update Parking Permit Programs

C5. Expand Common Carrier Package Locker Hubs

CURB ECONOMICS

C1 Modernize curbside parking pricing

Paid parking is an essential tool to manage curbside use. Pricing parking based on demand or length of stay ensures parking availability and increased space turnover in highly utilized areas, making parking more convenient. This increased turnover provides more access to each curb space throughout the day. Parking pricing can also incentivize walking, biking, and transit and reduce traffic congestion and GHG emissions resulting from decreased vehicles cruising for parking. Paid parking also provides financial resources to support the broader Downtown mobility system.

Existing Conditions

- Parking pricing is the same rate regardless of location or length of stay. Meters are enforced from 8 am to 6 pm.
- Data shows parking utilization is high when meters are not enforced. Parking demand is high and peaks in some areas after 6 pm, when the paid parking time ends.
- Most curbside sessions are short-term. In Kerrytown and on Liberty Street, 71% of curb sessions were less than 30 minutes, and 37% were less than five minutes. In the South University study area, 75% of curb sessions were parked for less than 30 minutes and 41% for less than five minutes.
- The DDA is absorbing the $0.20 mobile pay transaction fee as a benefit to curb users; many cities pass on this fee to the user.
- Of the total revenues generated from parking, 20% are distributed to the City of Ann Arbor.
- It is expected that over the next ten years, some parking spaces will be moved to support transit lanes, bike lanes, and other non-parking uses.
- A three year schedule of rate increases has been adopted.

Implementation Detail

Implement a strategy to modernize parking rates to help manage the parking supply, including:

- Modify paid parking hours to 8 am to 8 pm to support management of peak parking demands.
- Incrementally increase parking rates to $3.50/hour over the next ten years. There will likely be a loss of parking spaces for bike and transit lanes and pedestrian uses. This increase will support active curb management, especially given the number of reduced parking spaces.
- Create new 15-minute short-term paid spaces to support demand for shorter curb sessions. Create these spaces in previously unregulated areas or convert existing 2-hour spaces to 15-minute spaces. Explore convenient and quick payment options to increase compliance. Provide education and communications to the public regarding payment requirements.
- Long-term, if parking occupancy regularly exceeds 85%, consider implementing demand or tiered-based pricing, where the parking rate increases based on utilization or time to support demand management.
- Expand paid time restricted parking to areas with high demand based on the Curb Management Data Collection and Pilot Toolkit.

CURB ECONOMICS

Case Study: Sacramento Tiered-Based Pricing

In the City of Sacramento, parking pricing has a tiered-based rate system. There are four zones, and rates begin at $1.75/hr. and then increase each subsequent hour depending on location.

Supportive Policies - CAP Strategy 4.7: Establish Tiered Parking Rates, CTP Strategy 15 Pricing Vehicle Trips

Impact - High

Relevant Curb Typologies - All

Responsible Entity – DDA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

C2 Charge a Fee to All Users for Curb Access to Increase Equity

The rapidly changing context of parking and mobility has increased competition for curb space, especially from ride-hailing and commercial delivery. However, the use of public resources and assets plays a crucial role in the success of these operators. These assets—curbs, streets, parking facilities, parking enforcement—are the responsibility of the DDA and City to maintain, operationally and fiscally, and are partially funded through revenues generated by parking assets. This presents two challenges:

- Growing demands for the curb have increased the need for planning, administration, and investment in curb management.
- Changing consumer transportation trends away from driving and parking could decrease parking revenues over the long term.

Curbspace is a valuable public asset and must be managed equitably through policies and pricing. Given the curb demand changes, it's equitable and fair that all curb users pay for access. For example, the newly implemented curbside dining streetearies pay a permit fee.

CURB ECONOMICS

While not all downtown areas currently experience high levels of congestion due to ride-hailing and delivery, it is important to plan proactively for the evolution of mobility and consumer habits. Even places not experiencing major changes due to these shifts need to anticipate the growing demand to come. Implementing plans and policies that accommodate current transportation trends and can adapt to foreseeable changes in the transportation industry by implementing curb access fees is of increasing importance.

Delivery Activity in Ann Arbor

Ride-hailing/Transportation Network Companies

The growth of ridehailing companies, called Transportation Network Companies (TNCs), across the country has led states, cities, and authorities to implement a wide range of policies, regulations, taxes, and fees. Most states have passed legislation to regulate TNCs including establishing insurance and safety requirements. Many states and local entities also have implemented permit fees for the right to operate as well as per trip fees and taxes. Funds are allocated to various entities, including general funds, parking, and mobility. As the DDA considers moving more revenue-producing on-street parking spaces to passenger loading zones to support TNCs, charging a curb access fee or per-ride fee to ensure curb equity and fairness makes sense. Many cities and states charge these fees, which have the added benefit of being a useful data source to monitor curb use and performance. Examples of cities that have charged these fees include Chicago, New Orleans, New York, Philadelphia, Portland, Seattle, and Washington, D.C. In addition to Michigan, examples of states that have implemented fees include Alabama, California, Connecticut, Hawaii, Maryland, Massachusetts, Nevada, New Jersey, New York, Rhode Island, South Carolina, South Dakota, and Wyoming.

In Michigan, TNCs fall under the regulatory authority of the Michigan Department of Licensing and Regulatory Affairs. They are State regulated under the Limousine, Taxicab, and Transportation Network Company Act – Act 345 of 2016 (effective March 21, 2017. The State requires that companies pay a fee ranging from $25 to $100 and an annual registration fee ranging from $100 to $30,000 based on number of vehicles. The Act prohibits a local government from imposing a fee under Sec 257.2115. Therefore, the law would need to be changed to enact a TNC fee.

Commercial Loading Zones

Commercial delivery activity will continue growing as consumers purchase more goods online. The city currently has commercial loading zones that are designated with a sign. These loading zones allow commercial vehicles to load/unload for up to 30 minutes. The enforcement hours are generally Monday through Saturday, 6 am to 6 pm. To accommodate growing delivery demand, ensure availability and access, and create a more equitable curb management system, commercial delivery drivers should pay a fee for curb access.

CURB ECONOMICS

Existing Conditions

- Metered parking spaces for private vehicles require per-use payment.
- Streetearies pay an annual Sidewalk Occupancy Permit of $1.00 per square foot of space occupied and a daily permit of $0.05 per day per square foot of sidewalk space occupied. Additionally, if the space has a parking meter, the business must pay to replace the meter revenue.
- E-scooter companies pay the City $1 per vehicle daily and a $5,000 fee. If a company operates both an e-scooter and e-bike program, the fee is $0.20 per day per scooter and e-bike.
- TNCs pay a fee to the State of Michigan to operate statewide but no local curb access fee.
- Commercial delivery drivers do not pay any fees to use curb space.

Implementation Detail

- Explore implementation of curb access fees for commercial loading zones, which can be incremental, beginning with metered commercial delivery zones and smart loading zones over the long term.
- Explore the potential to amend State law to establish a local TNC fee for curb access, which could be implemented through an annual payment, smart passenger loading zones, or on a per-ride basis.

Case Study: Chicago TNC Fees

The City of Chicago currently requires TNCs to be licensed within the City and pay a fee per trip. Revenue generated from this fee is allocated to the Chicago Transit Authority and the City's General Fund. TNC companies are required to file an electronic tax return monthly for fee payment as well as provide vehicle and driver trip data. The structure includes:

- General trips (excludes downtown trips managed through trip origin and destination data and a geofence):
  - The total per-trip fee for TNC-shared rides decreased from $0.72 to $0.65.
  - The total per-trip fee for single-occupant TNC trips increased from $0.72 to $1.25.
- Downtown trips:
  - The total per-trip fee on TNC-shared rides to/from downtown during peak hours (defined as weekdays from 6:00 am to 10:00 pm) increased from $0.72 to $1.25
  - The total per-trip fee on single-occupied TNC trips to/from downtown during peak hours increased from $0.72 to $3.00.

CURB ECONOMICS

The City of Chicago also requires TNCs to submit data to ensure operators comply with fee requirements. TNCs are required to upload origin and destination trip data to a web portal. The City may also request granular global positioning system (GPS) or geographic information systems (GIS) data on rides and trips for further auditing.

TNC data requirements include the following:

- Trip data, including start and end-time with origin and destination of any trips that either began or terminated within the City of Chicago.
- Vehicle information, including make/model of vehicle and registration details.
- Driver details and their period of eligibility.
- Trip request data for requests within the City of Chicago or requests that result in trips that terminate within the City of Chicago.
- Traffic accidents or incidents within the City of Chicago by TNC drivers when such accidents or incidents result in a police report or insurance claim being filed.
- The number of requests for wheelchair-accessible vehicles and the number of requests referred to other persons that dispatch wheelchair-accessible vehicles.

The City makes some of the data available to the public, including the following:

- Registered ride-hailing app vehicles: The make, model year, month of last inspection, and total trips completed.
- Registered drivers: City of residence, driver's start month, and total trips completed.
- Trips logged: A generalized pick-up and destination location, a rounded-up start and end time of the trip, and a rounded-up trip fare and tip.

The City of Chicago has taken steps to ensure that public data is anonymous to protect driver and rider privacy. Driver names are not included, trip times are rounded to the nearest 15 minutes, trip costs are rounded to the nearest $2.50, and locations are aggregated by census tract.

Supportive Policies: CTP Strategy 15. Pricing Vehicle Trips

Impact - High

Relevant Curb Typologies – Destination Commercial, Commercial, Mixed, University/Civic

Responsible Entity - DDA in partnership with the City

Relative Cost $-$$$

$ $ $

CURB ECONOMICS

C3 Develop a Smart Loading Zone Program

Smart loading zones leverage technology to provide delivery drivers with dedicated space and help ensure space is available, saving them time and money. Smart loading zones use technology to guide drivers to available open curb space, manage access, and accept payment. Smart loading zones create curb equity because all drivers pay for the space they use. These zones also reduce traffic congestion and emissions from delivery drivers, provide data to monitor curb use and performance, and help manage enforcement resources.

Existing Conditions

- Downtown has designated commercial loading zones, no payment or permit is required.

Implementation Detail

- Monitor utilization of existing commercial loading zones as guided by the Data Collection and Pilot Toolkit and explore the need for additional loading zones with freight carriers and businesses.
- Conduct a planning study to explore smart loading zone implementation, including charging a per-use fee for commercial delivery zones.
- Explore payment and technology options. Smart loading zones involve partnering with a technology vendor and could require considerable technology and infrastructure for implementation. Technology requirements typically include license plate readers, cameras, sensors, data platforms, automated fees and enforcement, and/or apps. Explore the potential for a phased approach as the technology and policy evolve, beginning with commercial loading zone permit pricing or metered spaces.
- Significant outreach and education with freight operators and businesses are essential to the success of smart loading zone programs.

Case Study: Pittsburgh Smart Loading Zone Pilot

The City of Pittsburgh and the Pittsburgh Parking Authority implemented a smart loading zone pilot to manage curb space, increase delivery efficiency, and reduce congestion and emissions. License plate technology and cameras analyze real-time curb activity and automate payment by the minutes. Registered users are invoiced monthly. Smart Loading Zones are enforced from 8 am to 10 pm Monday through Saturday and have a maximum loading time of one hour. Initial results show curb dwell times have decreased by 25 percent and double parking by 40 percent.

Supportive Policies: CTP Strategy 15. Pricing Vehicle Trips, SDM Goal 3. Commerce & Economic Vitality

Impact - High

Relevant Curb Typologies – Destination Commercial, Commercial

Responsible Entity - DDA, City Dept of Engineering, Traffic Engineer

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB ECONOMICS

C4 Update Parking Permit Programs

Residential parking permits are an important strategy to prevent parking spillover and help preserve the residential character of neighborhoods. The permit zones typically cover low and medium-density residential areas that border an area or land use that is a high generator of parking, such as near the University or downtown areas. Permit districts should be established only in high-demand areas to make the most of limited curb space. With the elimination of parking requirements for new developments, off-street parking permits in DDA facilities help maximize the utilization of Downtown parking facilities.

Existing Conditions

Residential parking permits:

- Within the DDA Area are four residential parking districts: Old Forth Ward, North Central, Old West Side, and South University.
- Residential parking permits are in place on streets near commercial areas, administered by the City. Permit holders may park their vehicle on the street without adhering to hourly restrictions or paying the meter. A new residential permit fee is $70, and a replacement fee is $40. No more than five permits are granted per household.

DDA Parking Facility Permits:

- Permits to park in DDA facilities are available on a monthly basis at $225 per month ($35 to park overnight) in garages and between $150 and $180 per month to park in surface lots.
- With the elimination of parking requirements for new developments, off-street permits in DDA facilities are important to prevent parking spillover and maximize existing parking that may sit underutilized.

Residential Parking Permit Area in Ann Arbor

Implementation Detail

- Set a minimum utilization threshold when creating new residential parking districts (i.e., 70% utilization).
- Continue to market off-street monthly permits to existing and new developments.

CURB ECONOMICS

Case Study: Portland Residential Parking Permit Mobility Surcharge

On top of the base cost of a residential parking permit, Portland includes a $120 surcharge which goes toward transportation demand management initiatives such as the Transportation Wallet, which provides passes and credits for use on transit, streetcar, bike-share, e-scooters, and car-share. In consideration of social equity, the surcharge is waived if an applicant makes up below 80 percent of the area's median household income. The number of parking permits purchased has steadily decreased as the cost of the area parking permits has increased since the launch of the Transportation Wallet program.

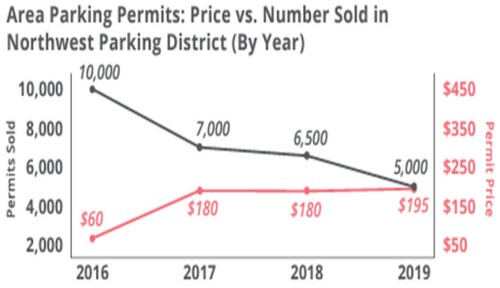
New residential parking permit districts are permitted only if at least 75 percent average occupancy is observed at least four days a week, nine months per year, and at least 25 percent of parked vehicles have no connection to area residents or businesses.

Yearly Parking Permit Prices and Sales in Portland Area Parking Permit Districts

In Growing Districts, Area Parking Permit Distribution Has Changed Since Launch of Transportation Wallet Program

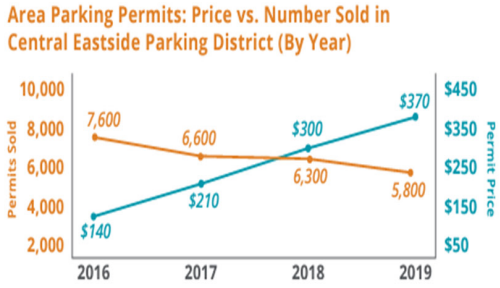
Northwest Parking District

The Northwest Parking District serves 15,000 employees and is home to 12,000 residents. The area has 4,200 on-street permit parking spaces.



Central Eastside Parking District

The Central Eastside Industrial Parking District serves 17,000 employees and is home to approximately 1,900 residents. The area has 3,800 on-street permit parking spaces.



* Reflects partial permit year at time of report publication.

Source: Transportation Wallet 2020 Program Report

Supportive Policies: CTP Strategy 15. Pricing Vehicle Trips

Impact - Medium

Relevant Curb Typologies – ALL

Responsible Entity - DDA, City Dept of Engineering, Traffic Engineer, City Customer Service

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB ECONOMICS

C5 Expand Common Carrier Package Locker Hubs

Example of an Amazon locker

Common carrier package locker hubs are small storage units at a final delivery point, which are easily accessed by customers. They can be located in residential and office buildings or public spaces. Locker hubs are a way to make delivery more efficient because drivers deliver many packages to one secure location. This reduces unloading time, circling for available parking, and failed deliveries. It Common carrier package locker hubs can also enable transfers to zero-emissions vehicles, like e-cargo bikes, for last-mile deliveries.

Existing Conditions

- There are currently package locker hubs that are privately owned (i.e., Amazon), but no common or shared-use lockers for deliveries from all carriers.

Implementation Detail

- Meet with existing private owners of package locker hubs to understand operations and use.
- Conduct research on common carrier package locker hubs to understand how the program would best work in Downtown Ann Arbor, including locations, management, public or private operations, delivery company, and business needs, capital needs for security, power, etc., cost, and education and marketing. It is likely a third-party operator would manage the system.
- Understand how common carrier package locker hubs could enable zero-emissions last-mile delivery, such as using e-cargo delivery bikes.
- Monitor and collect data as part of data collection efforts to understand the impacts to curbside delivery zones and double parking.

Case Study: Seattle Common Carrier Locker Pilot and Zero Emissions Freight

In 2018, the Urban Freight Lab at the University of Washington piloted a common carrier locker program at the Seattle Municipal Tower. Delivery times were reduced by 78 percent, and there were zero missed deliveries. The pilot was a public-private partnership between retailers, freight operators, the real-estate company that managed the building, a locker provider company, and the Seattle Department of Transportation (SDOT). The program's success led to a second pilot in the city's Belltown neighborhood, and SDOT developed a zero-emissions freight program that includes options for centralized delivery hubs to incentivize e-cargo bike delivery. Source: https://sdotblog.seattle.gov/2023/03/31/zero-emission-freight-e-cargo-bike-delivery/

Supportive Policies: SDM Goal 3. Commerce & Economic Vitality

Impact - High

Relevant Curb Typologies – Destination Commercial, Commercial, Mixed

Responsible Entity - DDA, City Dept. of Community Development or Community Services

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

D CURB OPERATIONS AND PROCESSES

INTRODUCTION

Enforcement, wayfinding, and signage is a key factor to the success of this curb management plan. Increasing compliance will in turn increase access, which is important for mobility and businesses.

Curb management pilots are another critical operations strategy to test and evaluate ideas, and make improvements to support the changing curb management dynamic.

Playbook Strategy/Action Items

D1. Develop an Enforcement Strategy to Increase Compliance and Access

D2. Continually Update Wayfinding and Signage to Ensure Clear Communications for Curb Users

D3. Conduct Curb Management Pilots to Test Strategies and Inform Decision-Making

CURB OPERATIONS AND PROCESSES

D1 Develop an Enforcement Strategy to Increase Compliance and Access

Regular enforcement of traffic violations can encourage drivers to drive more safely and help reduce hazardous behavior. Enforcement is one of the most important elements of the successful implementation of this Curb Management Plan. Given both the high number of observed curb violations during 2023 data collection and the growing demand for curb space, enforcement of regulations will support compliance by ensuring that limited curb space remains accessible, supports businesses and residents, and advances Ann Arbor's plans and goals. The goal for enforcement is not punitive; it should encourage curb users to follow regulations and manage demand. Enforcement goals should be tied to the curb performance metrics outlined in recommendation A2.

Existing Conditions

- The Ann Arbor Police Department is responsible for enforcing curbside regulations.
- Approximately 5,700 citations are issued monthly, most for expired parking meters.
- Data shows a significant number of violations for parking in no parking areas, especially in areas with short dwell times. For example, in the S. University study area, 17% of sessions (100 per day) are violations with a median duration of 4 minutes. This does not include citations issued by enforcement officers.
- Data shows a significant gap between curb use and parking meter payment, as well as citations and violations. Law enforcement officers are likely not capturing a large percentage of curb violations. This hampers curb optimization and affects resources.
- Technology supports enforcement, i.e., parking payment apps for expired meters; however, technical challenges have existed.
- Given the large number of short-term curb sessions, it is challenging to capture violations without a more defined strategy and resources.
- The City keeps all citation revenue.

Implementation Detail

- Develop an enforcement strategy to increase compliance and reduce violations, including program goals, performance targets, and evaluation measures. The Curb Data Collection and Pilot Toolkit establishes a process and targets to provide a baseline. The strategy should increase enforcement to cite improper curb use activity and compel compliance when necessary.
- Increase funding/resources for enforcement to support enforcement strategy and meet performance targets
- Run an education and awareness campaign to help inform users about curb regulations and the City's enforcement tactics. Methods could include signs, website information, news broadcasts, direct mail, email, and flyers.
- Identify the need for additional or new technology to support enforcement strategy and increase compliance.
- Use data and technology to target enforcement to meet goals and performance targets. Data can also provide information about the need to change curb regulations in an area.
- Regularly collect curb use data to evaluate performance targets and update enforcement strategy on data findings.
- Determine if fines should be increased and "graduated" for repeated violators.

- Keep citation/fine amounts in line with parking and curb use rates.
- Communicate with businesses and the community about the benefits of enforcement related to reducing violations, increasing curb access and safety, and supporting businesses.

Supportive Policies: This strategy will support all goals and priorities of PFS, CAP, CTP, SDM

Impact - High

Relevant Curb Typologies – All

Responsible Entity - DDA, City of Ann Arbor Office of Community Standards

Cost - $$$, Manual enforcement is resource intensive, so collecting and evaluating data is necessary to target resources. Technology is an ongoing expense but can be leveraged to target resources and increase compliance.

Relative Cost $-$$$

$ $ $

D2 Continually Update Wayfinding and Signage to Ensure Clear Communications for Curb Users

Having effective wayfinding and signage helps direct curb users to available space to reduce cruising for parking, reducing traffic congestion, emissions, and conflicts with pedestrians and cyclists. One of the many areas of significant advancement in parking and curb technology over the last five years is modern Automated Parking Guidance Systems (APGS). Many of these modern APGS are based on advanced sensor or camera technology that leverages the power of image processing and artificial intelligence (AI) to offer the dual advantages of very high accuracy plus value-added features like object type classification, license plate capture, and others.

Existing Conditions

- Curb regulations indicating parking, stopping, standing, and loading are communicated with curbside signage and website information.
- Off-street parking garages provide digital space availability information at entrances.

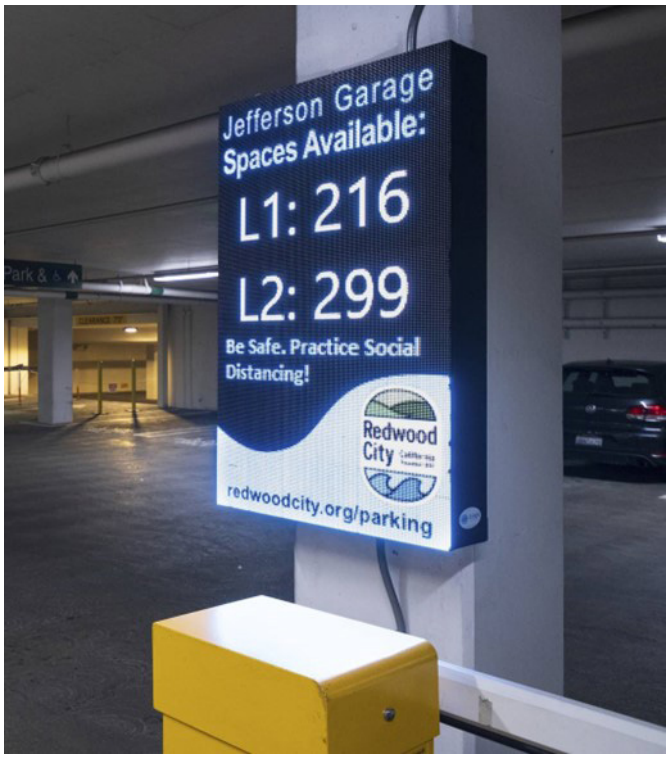
CURB OPERATIONS AND PROCESSES

Implementation Detail

- Publicize digital curb inventory and regulations to the public through websites, communications portals, apps, and open APIs.
- Continue to provide information on off-street parking and digital space availability.
- Continue to ensure curb signage is clear and readable for drivers.
- Explore the potential for automated parking guidance systems to on and off-street parking spaces that provide information to drivers as they enter downtown with information directing them to available curb spaces.

Case Study: Redwood City Automated Parking Guidance

Redwood City operates an automated parking guidance system for its Downtown shared parking district. Parking facilities include seven lots, two garages, about 1,500 on-street parking spaces, and several private facilities that provide public access via shared parking agreements. The system tracks parking availability via sensors and relays that information to the public via digital signs, mobile apps, and websites, including five gateway signs at entrances to the downtown area to provide advanced parking information to visitors. The project cost approximately $900,000 in capital expenses, with an ongoing monthly charge of $18,000.



Redwood City APGS Sign

Supportive Policies - This strategy will support all goals and priorities of PFS, CAP, CTP, SDM

Impact - High

Relevant Curb Typologies – All

Responsible Entity - DDA, City of Ann Arbor Office of Community Standards

Cost - $$, depending on the technology

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB OPERATIONS AND PROCESSES

D3 Conduct Curb Management Pilots to Test Strategies and Inform Decision-Making

Given the evolving demands on the curb, ongoing testing and analysis will help test new strategies and inform when to change curb space regulation, including when reducing longer-term curb space parking in exchange for other uses is practical.

Existing Conditions

- Short-term parking and loading pilots and bikeway pilots have been conducted in several areas.

Implementation Detail

- Develop pilots in coordination with learnings from the William Street Bikeway project.

Case Study: City of Sacramento Passenger Loading Zone Pilot

In Sacramento, California, the City changed the curb regulation from long-term parking to passenger loading after hearing from the community that there was a lot of pickup and drop-off activity on Capitol Avenue. In this area, cameras captured curb-use activity. Data found the opposite of what the City heard anecdotally: There was not a lot of pickup and drop-off activity; drivers were still just parking, ignoring the new regulation. It was a good test for how changing curb regulations affects or doesn't affect behaviors, and the City has the precise data to support keeping the location for longer-term parking as the highest and best use and a revenue generator.

Supportive Policies - CTP Strategy 3. Quick Build
Impact - High
Relevant Curb Typologies – All
Responsible Entity - DDA, Public Works
Timing - Ongoing
Cost - Varies, based on the type of pilot

Relative Cost $-$$$
varies

E CURB DATA AND DIGITAL GOVERNANCE

INTRODUCTION

Just like buses talk to riders about their location and schedule through smartphone apps, talking curbs are a not so distant reality. Communicating curb regulations and availability with drivers, delivery operators, micromobility riders, and others will create efficiency for the private sector, and make it easier for the public to access their destination.

Through this curb management plan, all of downtown Ann Arbor's curbs were "digitized," meaning each space and the associated regulation was itemized and categorized in a digital platform, setting up a future where the curb communicates directly with users.

Playbook Strategy/Action Items

E1. Maintain Curb Inventory Database

E2. Develop a Process to Collect and Monitor Curb Use for Decision-Making

E3. Develop a Process to Share Curb Inventory and Communicate with Curb Users (Freight Operators, Parkers, and the Public) About Regulations and Space Availability Through the Curb Data Specification

CURB DATA AND DIGITAL GOVERNANCE

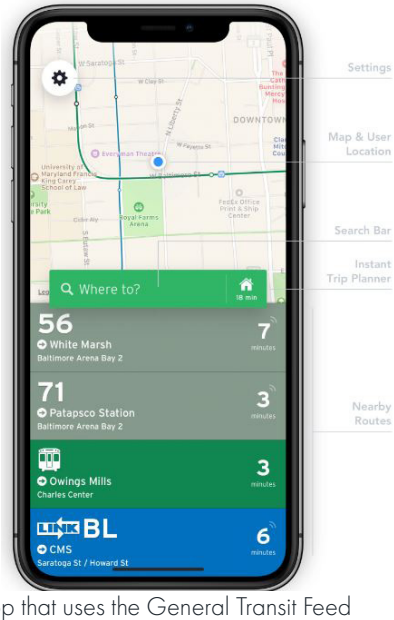
E1 Maintain Digital Curb Inventory Database

An inventory of curb assets is necessary to understand how much curb space is available and how the space is regulated and used. Historically cities have inventoried and mapped their curb assets and regulations in a static document, either in a spreadsheet or map. Cities also used their own terminalogy for curb regulations, which was likely different from a neighboring city. For example, spaces to deliver goods might be called loading zones in one city and commercial vehicle zones in another. Curb information such as parking areas might be posted on a website, but not regulairly updated. This can lead to inefficiences in how cities, businesses, private sector companies, and others optimize curb space.

Since new curb dynamics involve multiple agencies, private-sector partners, and changing demands, a digital curb inventory can help cities visualize, analyze, and update curb strategies and regulations, manage the space, and communicate with users about curb availability.

Similar to how buses talk to riders about their location and schedule through smartphone apps and travel navigation apps show traffic delays, talking curbs are a not so distant reality. Curb space information can be made publicly available on a web map and through an application programming interface (APIs), that sends information to smart phones and vehicle dashboards, to allow anyone to quickly understand where they can access the curb.

The Open Mobility Foundation, a non-profit member organization made up of cities worldwide, developed a standard data specification for curb regulations and uses called the Curb Data Specification (CDS). The CDS permits cities to use a common language similar to public transit's General Transit Feed Specification that communicates bus and bus stop locations and schedules to riders on their smartphone.



Bus tracker app that uses the General Transit Feed Specification to communicate information to riders.

Image Source: Maryland Department of Transportation

Through this plan:

- Downtown Ann Arbor's curb assets and the associated regulations were collected and digitally mapped in the Curb Data Specification.
- In the future when the policy and technology to collect curb occupancy data are in place, Ann Arbor can communicate with curb users about where its legal to park and quickly guide them to open spaces.
- This process can also create a digital data ecosystem of all street and curb related activities. For example, work order changes for meter bagging for construction, and shutting down streets to vehicles can then be integrated into a single database, providing clear information to planners.

The next step in developing digital curbs is commiting resources, including funding and staff, and determining the necessary policy and technology. This includes determining if and how to partner with technology vendors, and working to operationalize the digital curb inventory for eventual communications with users (for more information see page 29 of the Curb Management Plan).

Existing Conditions

- Ann Arbor has a digitized inventory of all curb regulations for the DDA Parking Area in the digital CDS format.

Implementation Detail

- Allocate annual funding for cub inventory database maintenance (near term).
- Establish a point person responsible for digital curb inventory maintenance (near term).

CURB DATA AND DIGITAL GOVERNANCE

- Establish a process to continuously monitor and update digital curb inventory with any curb regulatory or allocation changes (near term).
- Ensure digital curb inventory follows the Curb Data Specification and Open Mobility Foundation standards and guidelines (near term).
- Determine if and how to partner with technology vendors (medium term).
- Open source appropriate inventory and data to the public through open APIs, a web portal, or apps. Publicizing information through local business associations, signage, social media, meetings with private curb operators such as freight and ride-hailing companies, and other communication platforms (medium term).
- Long-term look for opportunities to use APIs to support planning, management, enforcement, and payment (medium term).

Case Study: Minneapolis Curb Digital Twin

The City of Minneapolis was awarded a United States Dept. of Transportation (USDOT) Smart Grant to support the development of its curb digital twin, data integration, and creation of application programming interfaces (APIs). The grant project study area includes Nicollet Ave in the Whittier neighborhood, a high-density corridor with restaurants, bars, and late-night venues, along with commercial, residential, and medical buildings. This corridor has a vibrant mix of uses and users, from ride-hailing to food delivery to freight. Through the grant, the City will create APIs in the CDS format to communicate with users and digitally integrate related but unconnected internal systems for better planning.

Supportive Policies - This strategy will support all goals and priorities of PFS, CAP, CTP, SDM

Impact - High

Relevant Curb Typologies – All

Responsible Entity - DDA, City Engineer for Signs

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB DATA AND DIGITAL GOVERNANCE

E2 Develop a Process to Collect and Monitor Curb Use for Decision-Making

Understanding curbside activity and demand is necessary to inform allocation decisions, develop regulations, and target enforcement and strategy. Data can be collected from existing sources such as parking meter transactions, private sector sources, and through technology such as cameras and sensors.

Existing Conditions

- In 2023, the DDA collected curb use data in three areas (Liberty Street, South University, and Kerrytown) to understand baseline conditions. Data was collected from 6 am to 1 am for one week in June and September using cameras.
- Current curb use is collected and available through parking meter transactions, permit counts, bike lane counts, traffic data, transit data, and curbside dining permits.

Implementation Detail

- The Curb Management Lead should establish a data collection process and communications strategy.
- Dedicate annual funding for curb use data collection and communication.

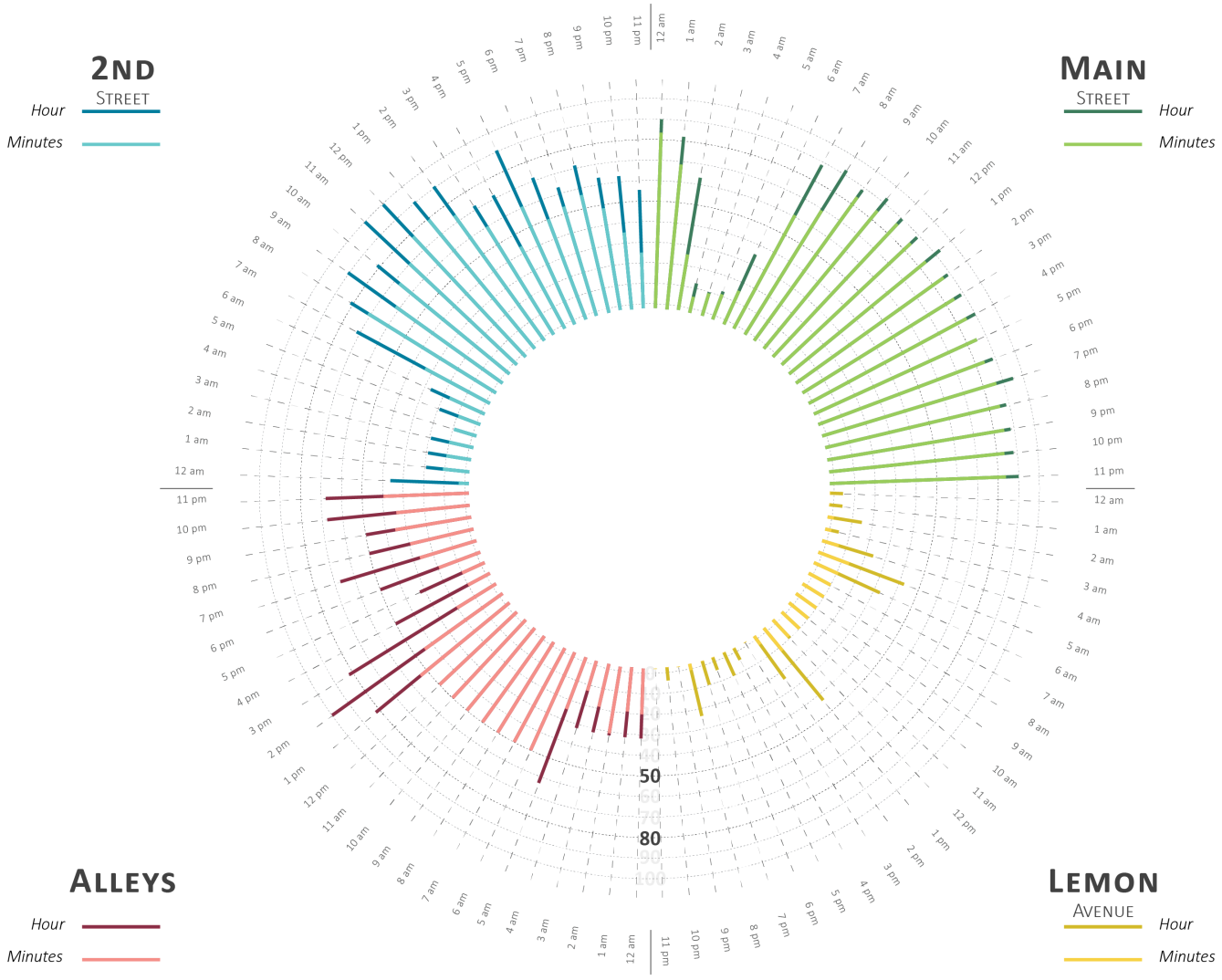
Case Study: Curb Management Research Project

Walker partnered with five pilot cities nationwide on a curb management research and development project to pilot curb treatments, collect curb use data, and test new technology for data collection. The results were unlike anything we have seen in past studies, where we collected point-in-time data on the hour or half-hour (i.e., observing curb occupancy at 9 a.m., 10 a.m., 11 a.m., etc.).

Using camera-based technology, we first worked with the City of Sarasota, Florida, and a technology company developing solutions to manage the curb. In February and March of 2021, we positioned 16 solar-powered cameras to cover downtown curb and alley locations regulated for parking, no standing, and loading zones. We collected data every 10 seconds to ensure we would capture all activity, including quick drop-offs and deliveries — an activity we would have missed if we only collected point-in-time use on the hour. Over 24 days, we amassed 13.2 million data points on occupancy, turnover, dwell times, and violations (all manually reviewed for accuracy). We also developed a useful dashboard to analyze the data. Our findings show why precise data on curb activity matters for planning to maximize curb space and more efficiently serve businesses. When we compared alley occupancy on the hour (or point-in-time, i.e., 9 a.m., 10 a.m., etc.) with occupancy data by minute across the hour (60 points in time, i.e., 9:01 a.m., 9:02 a.m., etc.), we found there was more capacity in the alleys during specific periods, especially during peak times.

For example, at 2 p.m. on the dot, alleys were over 80 percent occupied; 15 minutes later, some of those vehicles had delivered their goods and left. We also compared Sarasota's parking meter transaction data. We found it was inconsistent with our camera-based data, meaning if the city only looked at parking transaction data to determine curb use, they would have missed some activity, especially short-term parking stays. See figure on page 43 showing the data collection output.

CURB DATA AND DIGITAL GOVERNANCE



Sarasota Curb Utilization
Source: Walker Consultants

Supportive Policies - This strategy will support all goals and priorities of PFS, CAP, CTP, SDM

Impact - High

Relevant Curb Typologies – All

Responsible Entity - DDA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

CURB DATA AND DIGITAL GOVERNANCE

E3 Develop a Process to Digitally Share Curb Inventory

The future of curb management is digital communications to optimize curb space, as transportation and delivery companies operate using digital platforms (apps, APIs, etc.), and auto manufacturers are updating dashboard wayfinding technology for drivers. The goal of digital curbs formatted in the Curb Data Specification is to permit curbs "talking" to users about where they should park, load, deliver, and pay to create efficiency and reduce circling, double parking, and the related traffic congestion, emissions, and safety issues.

Digital curb regulations indicating where to park or load can be communicated with signage, website information, and open APIs to delivery and ride-hailing drivers, parkers, autonomous vehicles, navigation platforms (such as Google and Apple Maps), and other users. Digital curbs can support payment and enforcement and provide ongoing curb use data to monitor performance. The technology is in development, and the DDA is positioned to take advantage of these solutions, given that it has already digitized its curbs.

Existing Conditions

- By digitizing its curb regulations, the DDA has taken the first step to digitally communicate with curb users about curb access, payment, and use.

Implementation Detail

- Develop a plan and process to share curb inventory and communicate with curb users (freight operators, parkers, and the public) about regulations and space availability through the Curb Data Specification. The Curb Management Lead should establish this process.
- Allocate annual funding for curb use sharing and communications.
- Monitor actions by the Open Mobility Foundation and best practices to understand the solutions available and how they would be applicable in Ann Arbor.
- Over the long term, develop the strategy, plan, and tools for sharing curb inventory. Use the information to collect curb use data, guide users to open spaces, accept payments, and target enforcement. Determine if and how to partner with technology vendors.

Case Study: City of Omaha Curb Management Ecosystem

The City of Omaha and Park Omaha is planning to utilize CDS to reduce congestion, increase efficiency, and improve safety related to commercial goods delivery in their Central Business District. The City is working internally to create a digital curb API in the CDS format hosted on the Park Omaha website to actively track curbside usage. The API can integrate with other software platforms and support the City's Smart Commercial Loading Zone pilot.

Supportive Policies - CTP Strategy 22. Vehicle Technology

Impact - High

Relevant Curb Typologies – All

Responsible Entity - DDA

Near Term **Medium Term** **Long Term**

Relative Cost $-$$$

$ $ $

Ann Arbor
Downtown Development Authority
Curb Management Plan

Appendix B:
Existing Conditions Review

January 2024

DDA ANN ARBOR

WALKER CONSULTANTS

Table of Contents

SECTION 1: WHY ANN ARBOR NEEDS TO MANAGE CURBSPACE

The way people and goods move in and around Downtown Ann Arbor is evolving, and the curb is seeing a convergence of competing uses. While the need for short-term parking remains, the curb is becoming more than just a place for vehicle storage. Passenger loading, bikes, buses, and smaller delivery vehicles vie for space. In many ways, the curb is crucial to the success of a variety of industries. It's also a vital, finite community space — and one of the City's most extensive and valuable pieces of real estate.

In Ann Arbor, the Downtown Development Authority (DDA) manages curb space in partnership with the City of Ann Arbor. The Downtown Development Authority Act is a state law that provides municipalities with an economic development tool to construct infrastructure projects, including parking, streetscaping, and bike lanes, and run the City's public parking system.

The DDA has responded to ongoing travel and consumer trends by working with stakeholders and the community to implement several transformative projects that balance competing demands. The People Friendly Streets projects, bike share support, supplemental transit service, streetscaping, parklets for outdoor dining, parking facility expansion, and technology upgrades are some recent successes that have transformed how people get around and how curb space is prioritized.

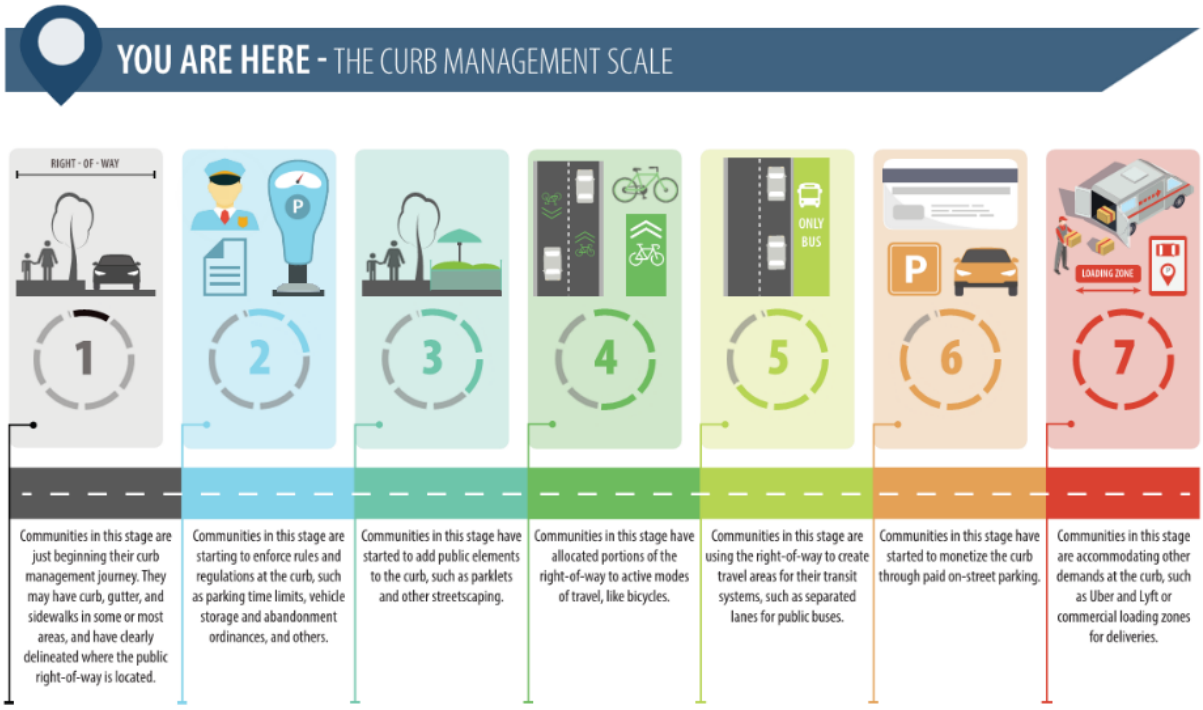
The success of these initiatives and projects has demonstrated how the curb is crucial to creating a more vibrant and active Downtown Ann Arbor in support of businesses and citywide mobility, sustainability, and economic policy goals.

Ann Arbor's Success is Tied to Curb Management

The term "curb management" is a catch-all that references the intentional act of defining the use, designation, and organization of the space within the right-of-way. The goal of curb management is to inventory, prioritize, and optimize curb space to maximize access for everyone, increase safety, promote equity and the economy, and balance growing demand, among other goals. While the phrase "curb management" has become more commonplace in recent years, cities have historically managed the curbs in the form of on-street personal vehicle parking. Now, there are more demands competing for this space, from ride-hailing hailing services to deliveries, electric scooters, and sidewalk cafes for outdoor dining.

Curb management is a journey, and cities are at different stages of that journey based on the level and composition of development, the infrastructure present, stakeholder needs, and demand for curb access.

The City of Ann Arbor and the DDA are progressing in their curb management journey by pricing curb space for parking, allocating space for delivery vehicles, creating bike lanes to expand travel options, exploring pilots and infrastructure, and now, ensuring the policy and regulations catch up as downtown evolves.



Source: Walker Consultants.

Curb Management Roles

In the study area, many people have a stake in curb management. This includes the various curb users and other entities responsible for curb activity and optimization, as shown in Table 1.

Table 1: Curb Management Roles

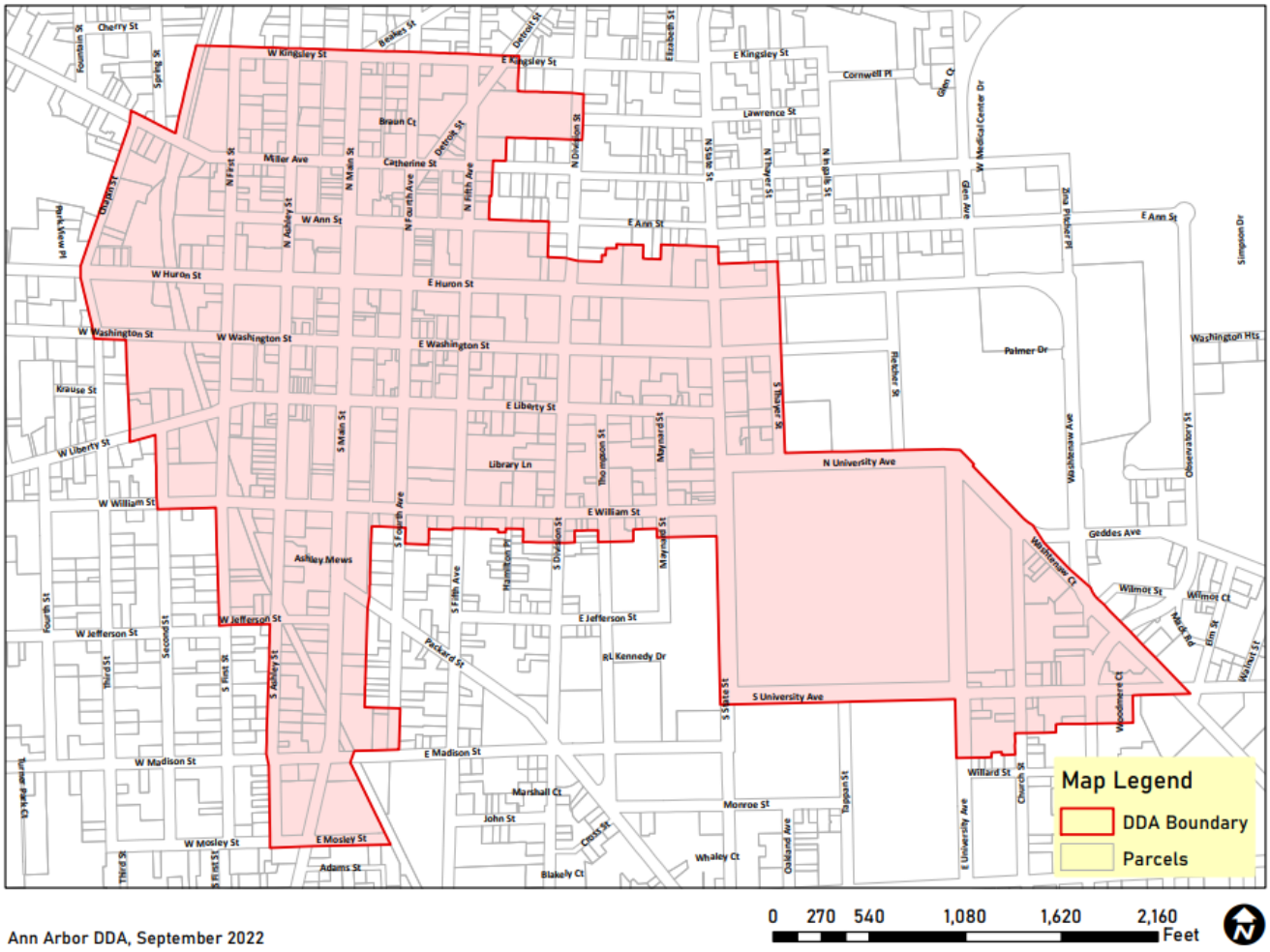
Entity	Example
Curb Users going to destinations such as work, shops, restaurants, services, and other activities	• Pedestrians use sidewalk space • Cyclists use the growing number of striped and protected bike lanes • Transit riders wait at bus stops • Buses and airport shuttles use travel lanes and the curb to pick up passengers • Businesses use sidewalk cafes and parklets • Delivery drivers and businesses use commercial loading zones • Drivers use travel lanes and on-street parking, including unregulated, hourly restricted, paid, and permitted • Ride hailing and taxis use passenger loading zones • Residences have curb cuts to their driveways • The Fire Department uses fire lanes and hydrant space
Decision Makers who guide and approve curb management plans, investments, regulations, and partnerships with vendors and other operators.	• DDA Board • City Council • Transportation Commission • Commission on Disability Issues
Managers, planners, and implementers who implement the policies by developing and implementing curb plans and operations	• DDA staff • City staff • Downtown Street Design Team • Fire and Police service • Enforcement officials • Parking operator
Organizations who care about curb policies and outcomes	• Community organizations • Business organizations • Active transportation organizations • Disability advocates • Businesses and employers
Operators who are public and private entities providing mobility options	• Ann Arbor Transportation Authority (TheRide) • Micromobility operators • Airport shuttle operators • TNC and taxis • Autonomous shuttles and future vehicle and sidewalk robot operators
Entities and Vendors supporting curbside activity	• Technology companies • Parking operators

Source: Walker Consultants.

SECTION 2: EXISTING CURB CONDITIONS

The Ann Arbor Curb Management Plan study area includes the Downtown Development Authority's boundaries, detailed in Figure 1. This area encompasses 67 city blocks including all of downtown Ann Arbor, some areas of the University of Michigan Campus, Kerrytown, and some residential areas adjacent to downtown.

Figure 1: Ann Arbor Downtown Development Authority Study Area



Source: Ann Arbor Downtown Development Authority, 2022

Existing Roles and Responsibilities for Curb Management

The DDA and the City of Ann Arbor partner to manage downtown curbs with the following roles, responsibilities, and functions.

- **Planning**: The DDA and City work together to plan curb space, including design review and permitting for new developments and businesses.
- **Policy and Regulations**: The DDA is charged with developing curb zone policy, with approval by the City Council. City Planning Services develop policies such as sidewalk occupancy permits.
- **Parking Permits**: The City administers the on-street parking permit program, and the DDA administers the off-street parking permit program.
- **Pricing**: The DDA sets parking rates, which the City Council approves.

- Operations: Under contract with the DDA, a national private operator manages off-street parking garages and surface lots and maintains and collects on-street revenue for paid parking and parking meter reservations. The DDA oversees where on-street reservations are permitted to ensure short-term parking is available in prime locations.
- Enforcement: Ann Arbor Police Department Community Standards Division conducts enforcement, but there are limited resources.
- Capital infrastructure: Both the City and DDA develop and implement capital infrastructure plans. Technology: A range of technology is employed, including smart parking meters, parking payment apps, automated parking guidance systems, and data integration with enforcement efforts.

Downtown Ann Arbor's Existing Curb Conditions

Downtown Ann Arbor has a mix of curb uses and conditions depending on the area and adjacent land use.

Parking

Paid parking is enforced from 8 am to 6 pm Monday through Saturday by the City Police Department Community Standards Division at $2.40 per hour. Parking can be paid by cash or with a credit card at a meter or on the DDA's parking app (with the $0.20 app payment transaction fee covered by the DDA).

Residential parking permits are in place on streets near commercial areas administered by the City. A new residential permit fee is $68, and a replacement fee is $38.

Commercial Loading Zones

Downtown has designated commercial loading zones. Vehicles must be actively loading and unloading freight in these zones, but no payment or permit is required.

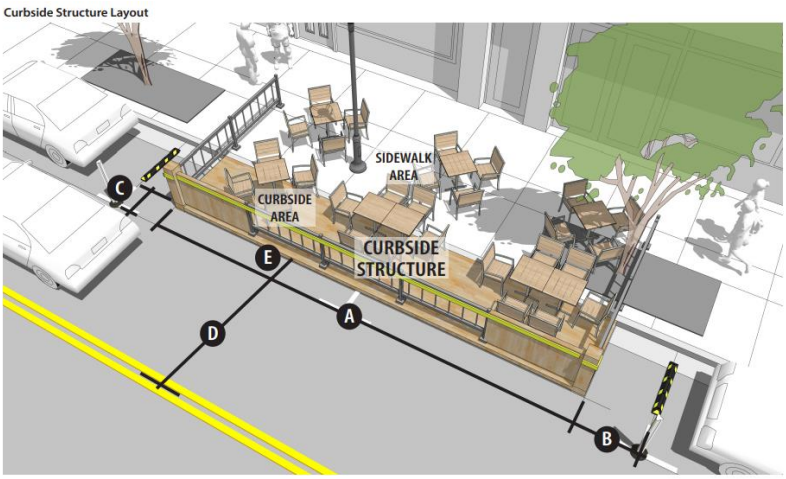
Passenger Loading Zones

Passenger pickup and drop-off from ride-hailing-hailing apps, taxis, and private vehicles are permitted in any curb space designated for passenger loading and any restricted space as long as a passenger is actively entering or exiting the vehicle and there is no interference with traffic. There are currently no local curb access fees for ride hailing apps (or Transportation Network Companies such as Uber and Lyft) that the ride hailing company pays to access the curb space.

Outdoor Dining: Sidewalk Cafes and Parklets

In March 2023 standards and regulations for curbside occupancy were established for structures to support dining and retail, such as parklets or streatearies. The program is managed through the sidewalk occupancy permit process. A building permit, sidewalk occupancy permit, and a meter bag contract are required for approval annually. The maximum length is four parking spaces.

Sidewalk Occupancy Permits are granted for outdoor seating and public vending on the sidewalk. Permits can be granted for daily or annual use. Annual permit costs are $1.00 per square foot of space, and daily permit costs are $0.05 per square foot of space.



Source: Ann Arbor Downtown Development Authority.

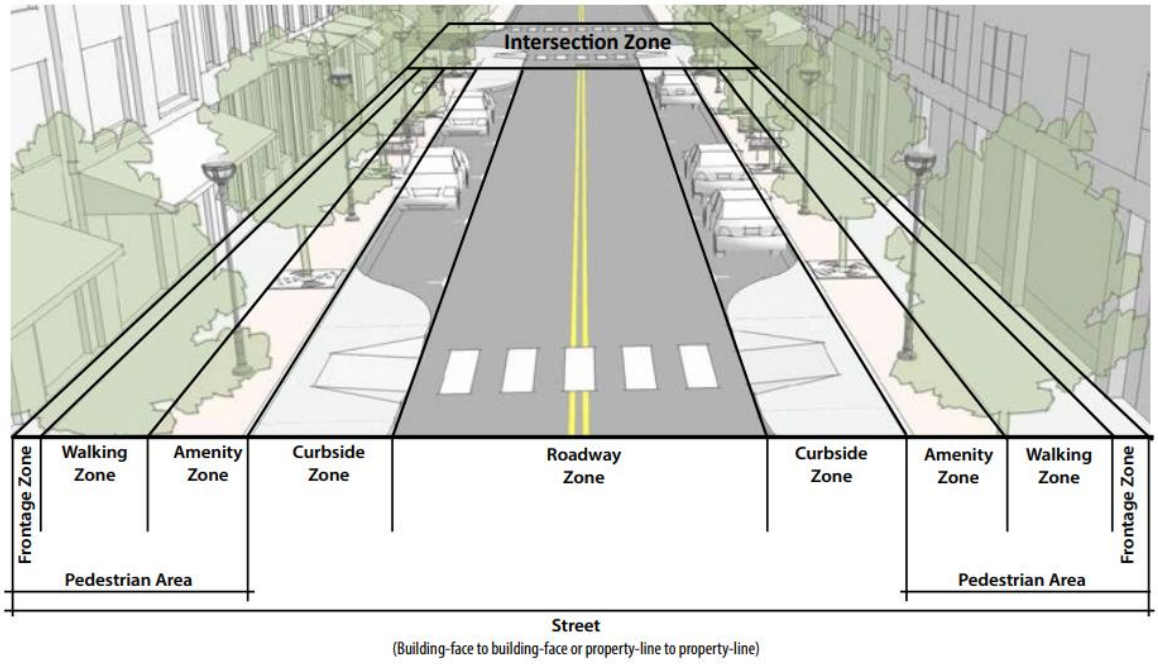
Street Closures

During the warmer months, several streets are closed to cars to encourage foot traffic and provide extra space for restaurants. Street closures are directed annually by the City Council. This includes:

- Main Street from William to Washington Street Thursday at 4 pm until early Monday morning
- Washington Street between Main Street and Ashley Street seven days a week.

People interact with the curb in Ann Arbor in many ways, depending on the area, street, and adjacent land use. Generally, there are three main ways that people interact with the curb space.

1. Curbside Zone, which includes the curb and the adjacent uses such as parking, loading zones, bike lanes, or travel lanes.
2. Walking Zone to permit pedestrian movement. Standard design guidelines recommend a minimum sidewalk width of five (5) feet, enough for two people to walk side by side comfortably. Sidewalk zones often serve other needs, such as trash containers, signage, bike parking, transit stops, and planting areas.
3. Amenity Zone between the curb zone and the sidewalk zone includes streetlights, bike parking, signage, benches, litter containers, sidewalk cafes, and street trees.



Source: Ann Arbor Downtown Street Design Manual, 2015.

Most of the Downtown Ann Arbor area has building frontages that abut the sidewalk, few curb cuts, sidewalks, curbside parking and loading zones, and parklets. There are residential neighborhoods adjacent to downtown that have many curb cuts. Several key existing street and curb conditions are helpful in defining different curb types across the study area.

- Dense commercial areas such as Downtown Ann Arbor and University Street/Forest Avenue near the University of Michigan Campus are the most active areas, with lots of pedestrian activity, many two-story buildings with ground-floor retail, and some high-rise residential. There is a high amount of short-term pickup from restaurants and coffee shops, both from on-demand delivery drivers and private vehicles for takeout. These areas have ample off-street parking. Downtown has very narrow rights-of-way and many alleys serving commercial loading areas.
- Dense residential areas are growing and have a high demand for commercial delivery. Some new residences have off-street loading areas, but many commercial delivery drivers park on-street.
- Several areas have small-scale retail and restaurants surrounded by streets with single-family residential. These areas have paid on-street and off-street parking immediately surrounding the retail/restaurant areas. One block off the retail/restaurant areas, the residential streets have on-street parking with a 2-hour time limit and residential parking permits.

- Many areas have single-family residences with many curb cuts, off-street parking, demand for long-term on-street parking, and bike lanes.
- Most University of Michigan student residential areas (dorms) have off-street loading areas. These areas also have on-street parking, bike lanes, sidewalks, green areas, and bus stops.
- Many areas have a very narrow right-of-way. Due to limited space within the right-of-way, the Walkway Zone must accommodate many uses that can limit pedestrian access, such as outdoor dining cafes, bike and scooter parking, sandwich boards, and green space.

Figures 2 through 11 on pages 11-15 provide examples of current curb conditions across the study area.

Figure 2: Downtown Ann Arbor

The Curbside Zone is mainly used for paid parking and commercial delivery, the Amenity Zone is for trees and signage, and the Walking Zone must accommodate many uses, including sidewalks, sandwich boards, and outdoor dining.

Figure 3: Narrow Downtown Right-of-Way

Many downtown streets have a very narrow right-of-way with limited space to allocate for all of the competing demands.

Figure 4: Downtown Ann Arbor Alley

Downtown has several alleys that provide space for commercial delivery loading and unloading.

Figure 5: Downtown Ann Arbor just outside of the main commercial area

Within a few blocks of the main downtown commercial area are multi- and single-family residential streets. Typically, the immediate adjacent residential blocks have paid parking, and further out, on-street parking is regulated for two hours and with residential permits. There are also many curb cuts in these areas to provide driveway and parking garage access. The Amenity Zone in these areas typically has a grass strip and tree planting, and the Walkway Zone is fully available to pedestrians.

Figure 6: Observatory Street on the University of Michigan Campus

In some locations, the curb is reserved for travel only, and the Amenity Zone provides space for bus stops.

Figure 7 State Street Zero Curb Area

State Street is curbless with “zero curbs,” allowing a flexible space for business and events and creating more access for people in wheelchairs. A valley gutter before the travel lane provides detection for those with visual impairments.

Figure 8: Division Street

Several streets, including Division Street, have protected bike lanes as the primary use of curb space.

Figure 9: Forest Avenue Near the University of Michigan Campus

Near campus are several areas with residential towers and a high concentration of retail and restaurants. Curbs in these areas are mainly used for paid parking and commercial loading zones/passenger loading zones. The Walking Zone is wide in some locations, with plenty of space for pedestrians, parking infrastructure, signposts, and lighting.

Figure 10: Huron Street High-Rise Residential Area

Streets like Huron Street have many residential towers with a travel lane at the Curbside Zone. There is no on-street parking or space for commercial loading. The Amenity Zone is used for signage and plantings.

Figure 11: Neighborhood Residential with Mostly Single Family Homes and Duplexes

Several locations in the study area are single-family or duplex residential. These locations have ample off-street parking. The curb zone provides on-street parking, with many curb cuts to driveways. The Amenity Zone has plantings, and the Walking Zone has available space for pedestrians with no sidewalk clutter.

Downtown Ann Arbor's Curb Inventory

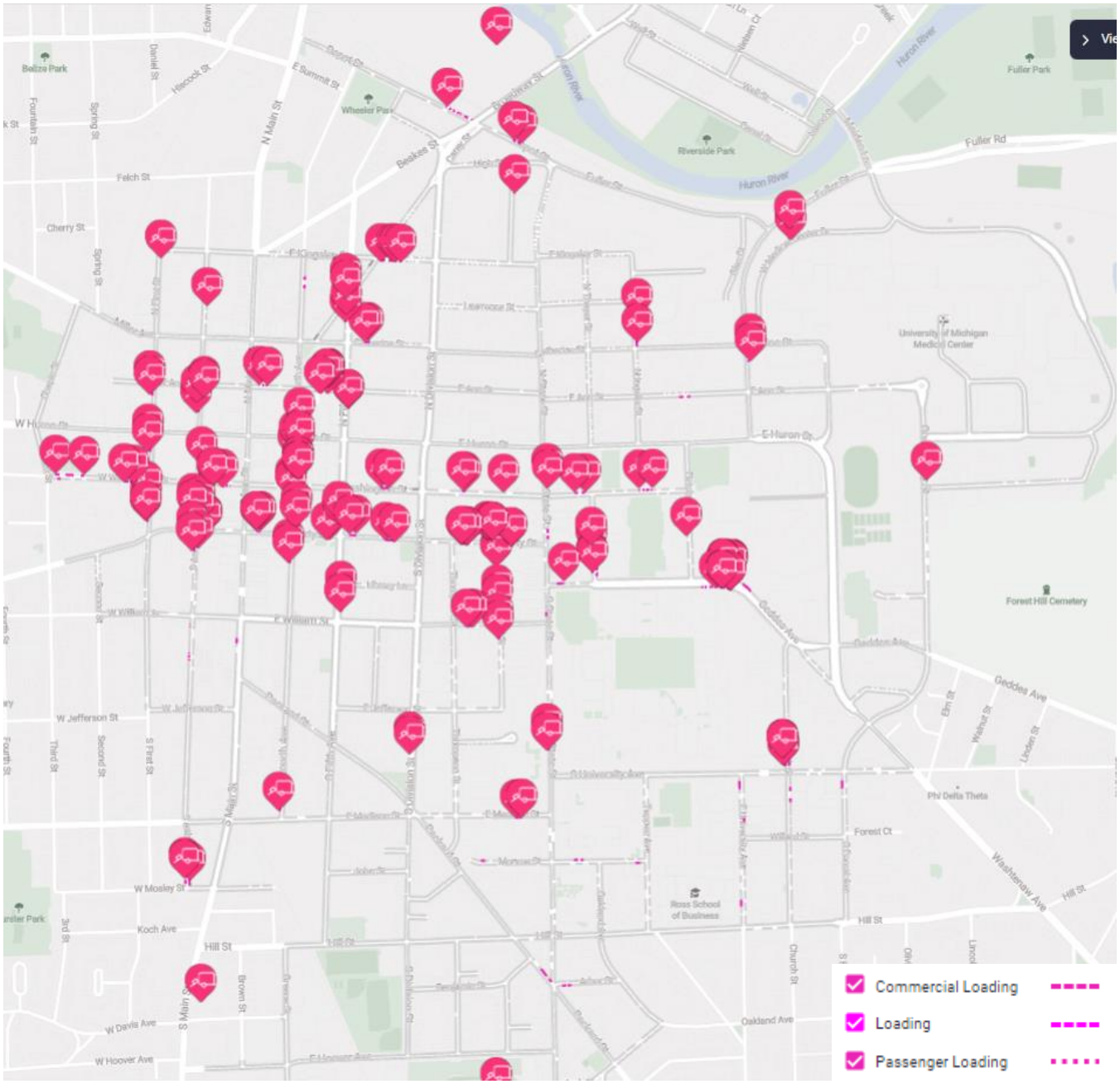
To determine if a location is a good candidate for curb-management planning, we first need to know how much curb space is available and how the space is regulated and used. To support changing curb dynamics involving multiple agencies, private-sector partners, and demands, we created a digital curb inventory for this Curb Management Plan to visualize and map curb regulations. Ann Arbor's digital curb inventory uses the Curb Data Specification or CDS, a common standard API (Application Programming Interface) that allows Ann Arbor to digitally represent curb space and communicate with curb users by sharing information.

In the future, this digital curb inventory will allow Ann Arbor to communicate with the private sector to conduct operations. For example, using the digital curb CDS information, loading zone locations can be shared with freight companies to direct delivery vehicles.

The CDS provides a uniform way for cities to identify curb uses and, in the future, pull in real-time data from third parties like parking meters or enforcement systems and determine statistics on curb uses such as parking occupancy and scooter parking. For more information on digital curbs, see page 29 of the this Curb Management Plan.

Figure 12 on page 17 shows passenger and commercial loading zones in the study area.

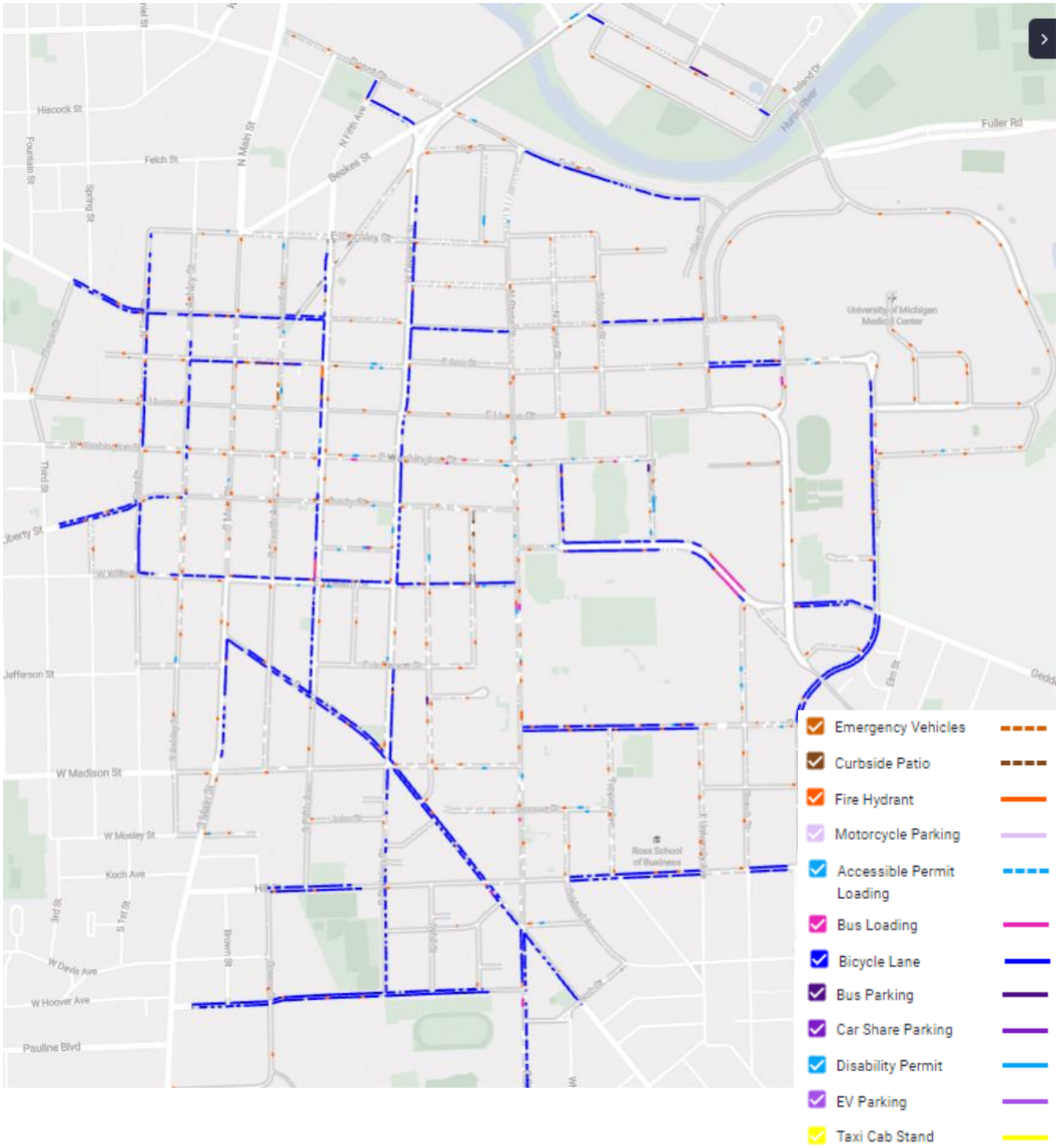
Figure 12: Passenger and Commercial Loading Zones in the Ann Arbor Downtown Development Authority Area:



Source: CurbIQ, 2023.

Figure 13 shows selected curb uses such as bike lanes, bus stops, and curbside patios.

Figure 13: Curb Uses in the Ann Arbor Downtown Development Authority Area:



Source: CurbIQ, 2023.

SECTION 3: CURB DATA COLLECTION

To understand how the curb is used in the study area, three data collection locations assumed to have high curb activity were selected. The data collection effort was designed to answer the following key questions:

- What areas have the greatest use?
- Who is using these areas, and how long are they staying?
- How do use patterns compare to existing regulations?

Data Collection Methodology and Key Findings

Figure 14 on page 21 shows the data collection study area. It was challenging to select data collection locations that represented a typical "normal" time because of the many street construction projects and street closures in the study area; for example, both Main and State Street were closed during data collection. Because so many downtown streets are closed to vehicle traffic during the warmer months of the year (and for the many construction projects), these closures may represent a "new normal."

Cameras were used to collect data in the three study areas during the following days and times:

- Green – Kerrytown: June 18th to 24th from 6:00am to 1:00am
- Pink – Liberty Street: June 18th to 24th from 6:00am to 1:00am
- Blue – South University Avenue: September 12th to 18th from 6:00am to 1:00am

The video footage was analyzed using computer vision tools to produce detailed session activity (dwell time, vehicle type) on each block face. The analysis included an evaluation of vehicle types. For the purposes of this analysis, the vehicle types are defined below:

- Personal vehicle: minivan, pick-up truck, sedan, SUV
- Commercial vehicle: box truck, freight, service van
- Other: bus, motorbike

It is important to note that Liberty Street from Main Street to 4th Avenue and Liberty Street from Main Street to Ashley Street was closed from Thursday afternoon until Monday morning for outdoor dining, lowering the number of sessions on those blocks.

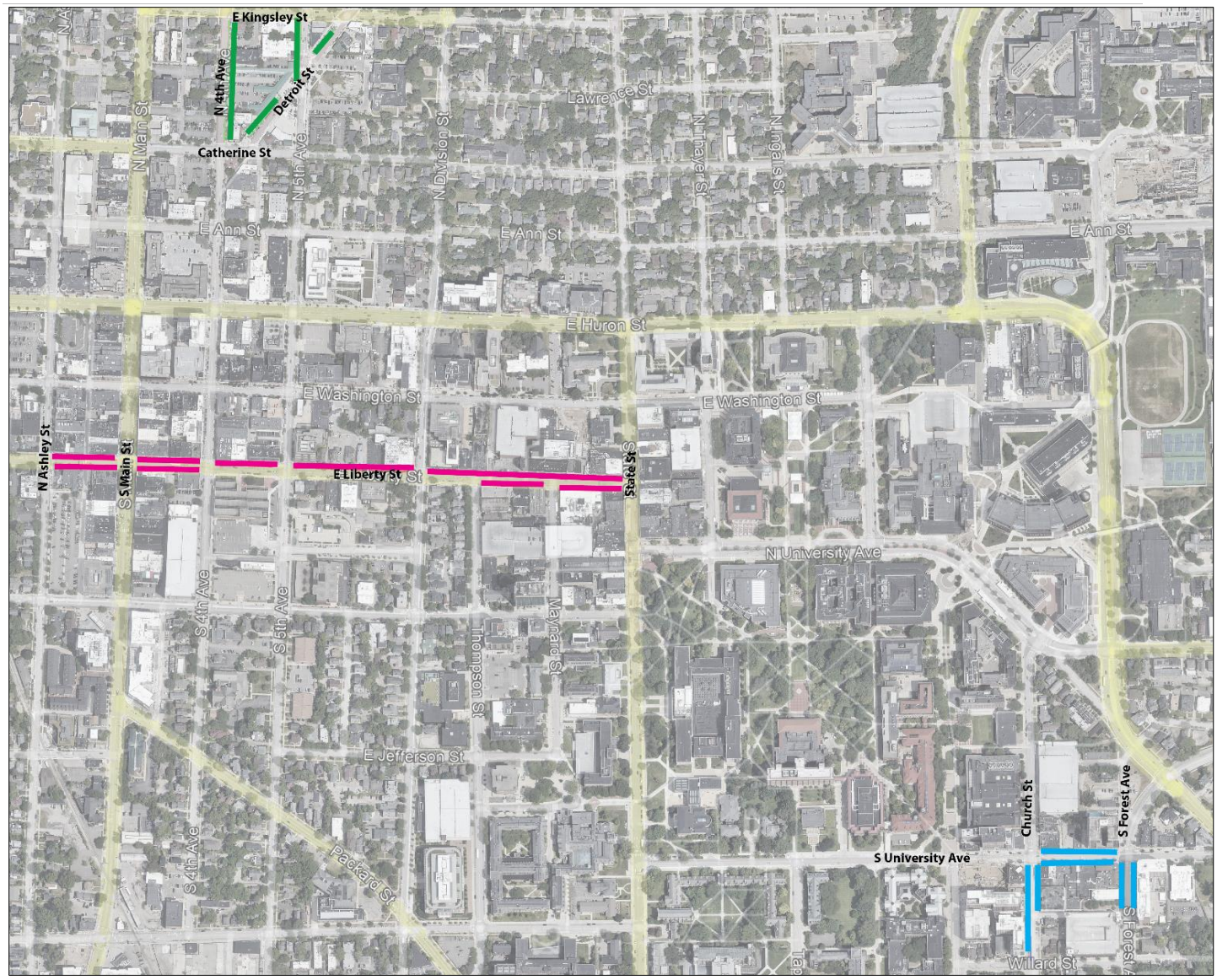
Given the difference in demographics, the Kerrytown and Liberty Street study areas were analyzed separately from the South University study area, which is heavily influenced by campus activity.

Key Data Collection Findings:

- Curbs are meeting access needs, with significant utilization and turnover.
- Very short-term curb stays:
    - A majority of curb sessions are under 30 minutes (75% in S. University and 71% in Kerrytown and Liberty Street).
    - Almost 20% of all curb sessions are less than 2 minutes.
- A significant amount of illegal parking:
    - There is a significant amount of violations in no parking areas; short-term parkers are parking in any open space.
    - A significant percentage of parkers do not pay the meter.

- Vehicles without a commercial license plate are parking in some areas regulated for commercial loading.
- Areas regulated for passenger loading show a higher use of commercial vehicle delivery.
  - Low or no commercial vehicle use on weekends
- Utilization is high after 6 pm when meters are not enforced.

Figure 14: Ann Arbor Data Collection Study Area



Source: Base Map- Google Earth Professional, Graphics – Walker Consultants.

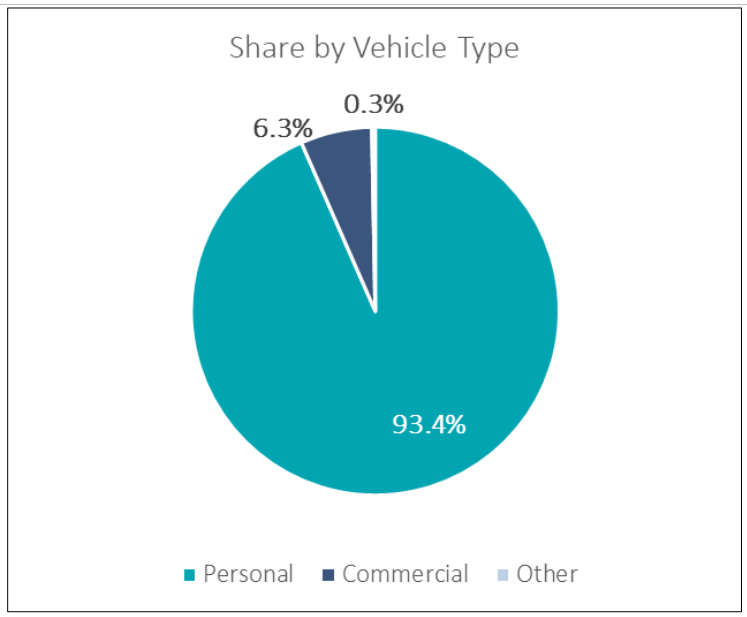
Data Collection Findings: Kerrytown (green) and Liberty Street (pink)

Key Findings:

- Overall, 71% of all sessions were less than 30 minutes, and 60% percent were less than 15 minutes
    - Many parking in commercial and passenger loading spaces, no parking areas, not paying meter
- Many passenger loading zone sessions are short (majority under 15 minutes) and achieving their intended goal
- Areas regulated for passenger loading show a higher use of commercial vehicle delivery
    - Low or no commercial vehicle use on weekends
- Vehicles without a commercial license plate are parking in some areas regulated for commercial loading
- A majority of the vehicles arriving at Liberty Street are personal, with the peak time beginning at approximately noon and decreasing after 5 pm

Figure 15 shows the proportion of parking sessions made by personal vehicles, commercial vehicles, and other vehicle types (e.g., bus and motorbike) in Kerrytown and on Liberty Street.) The majority of sessions were made by personal vehicles.

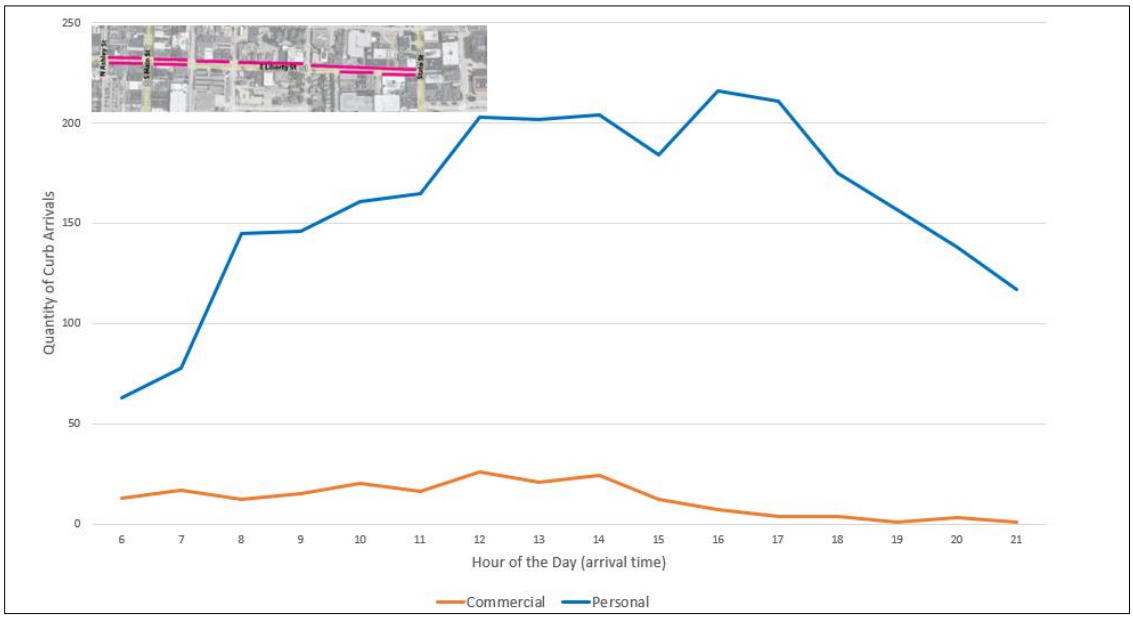
Figure 15: Share of Parking Sessions by Vehicle Type – Kerrytown and Liberty Street



Source: VADE, Walker Consultants.

A majority of the vehicles arriving at Liberty Street are personal, with the peak time beginning at approximately noon and decreasing after 5 pm, as shown in Figure 16.

Figure 16: Liberty Street Vehicle Arrivals by Type



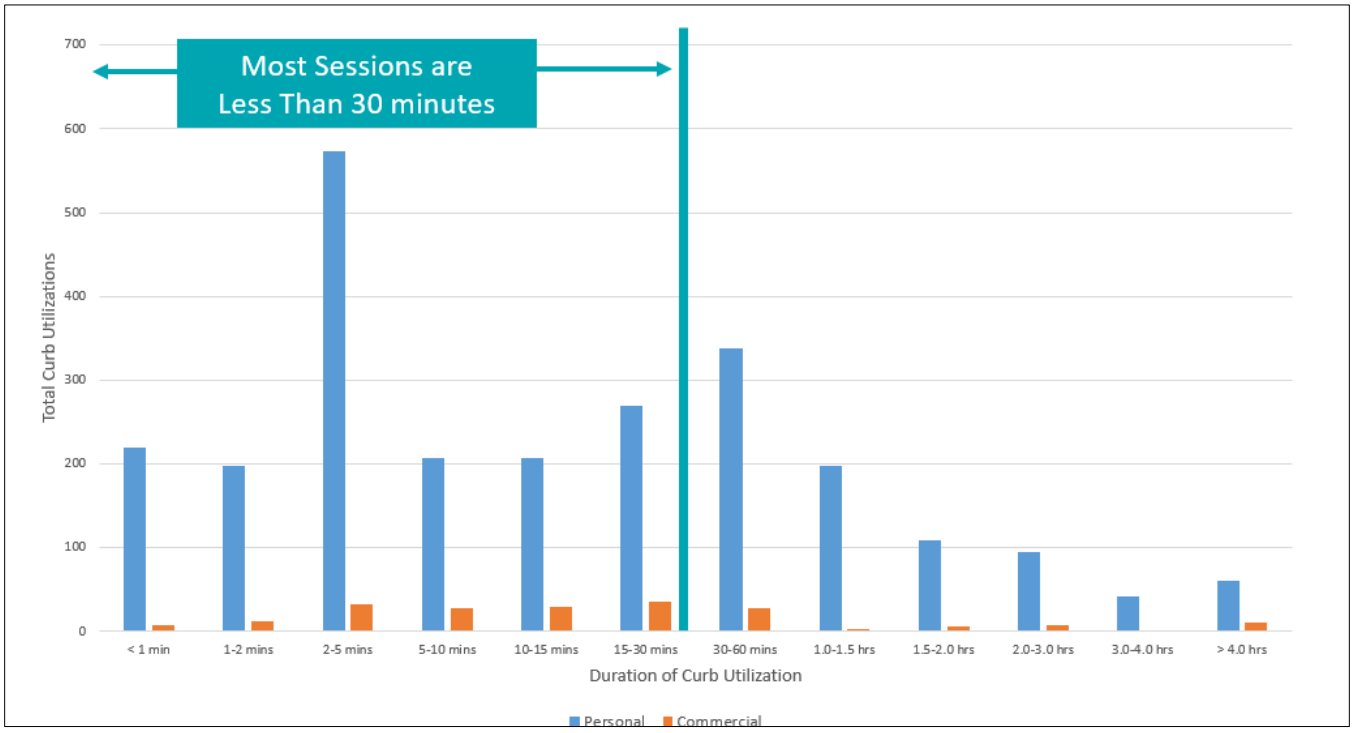
Source: Walker Consultants.

Figure 17 shows the length of stay summary for the Kerrytown and Liberty Street study areas. Findings include:

- Both personal and commercial vehicles have short stays; overall, 71 percent of all sessions were less than 30 minutes, and 60 percent were less than 16 minutes.
- The majority (75 percent) of commercial vehicle sessions were under 30 minutes.
- Overall, almost all (93 percent) of personal and commercial vehicle parking sessions were under two hours.

Figure 17: Length of Stay Summary – Kerrytown and Liberty Street

	Under 2 mins	Under 5 mins	Under 15 mins	Under 30 mins	Under 1 hour	Under 2 hours
Personal	18%	37%	61%	71%	82%	93%
Commercial	12%	29%	57%	75%	87%	92%
Overall	17%	37%	60%	71%	83%	93%



Source: VADE, Walker Consultants.

The following block faces had the greatest use in the data collection area based on dwell time (shown in Figure 18 on page 25):

- West side of Detroit Street between Catherine Street and N. 5th Avenue
- West side of N. 5th Avenue between Detroit Street and Kingsley Street
- North side of Liberty Street between S. 4th Avenue and S. 5th Avenue
- North side of Liberty Street between Maynard Street and State Street
- South side of Liberty Street between Thompson Street and Maynard Street

Figure 18: Blocks with Greatest Use based on Dwell Time

Source: Walker Consultants.

Detailed analysis was conducted on the following blocks:

- West side of Detroit Street between Catherine Street and N 5th Avenue
- West side of N 5th Avenue between Detroit Street and Kingsley Street
- North side of Liberty Street between Main Street and S. 4th Avenue
- North side of Liberty Street between Thompson Street and Maynard Street
- North side of Liberty Street between Main Street and South 4th Avenue
- North side of Liberty Street between Thompson Street and Maynard Street

WEST SIDE OF DETROIT ST BETWEEN CATHERINE ST AND N. 5TH AVE

Current Curb Use and Parking Rates

- 12 angled parking spaces
  - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
- No parking 3:00am to 6:00am

Commercial Vehicle Usage

- The share of commercial vehicle parking sessions was lower than for the two study areas overall (6.3%):
  - 3% on weekdays
  - 2% on weekends
- Commercial vehicle sessions were concentrated in the early morning period (5:00 a.m. to 9:00 a.m.)

Length of Stay

- The majority of parking sessions were under 1 hour:
  - 82% on weekday
  - 85% on weekend

- Approximately half of the commercial vehicle parking sessions were under 10 minutes:
    - 52% on weekdays (51% on Wednesdays)
    - 48% on weekend (44% on Saturday)

Key Take-Away

- Due to the number of short-term sessions, this block is a good location for short-term 10-minute parking at the most convenient spaces.

WEST SIDE OF N. 5TH AVE BETWEEN DETROIT ST AND KINGSLEY ST

Current Curb Use and Parking Rates

- ~98-foot length with 4 parallel spaces of paid parking
    - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
    - No parking 3:00am to 6:00am
- ~46-foot length (1 to 2 parallel spaces), which is a passenger loading zone with a 15-minute time limit at all times

Commercial Vehicle Usage

- In the paid parking spaces, the share of commercial vehicle usage was lower than for the study area overall (6.3%):
    - 1% of sessions on weekdays
    - 3% of sessions on weekends
- However, in the passenger loading zone, commercial vehicle usage was higher than for the study area overall:
    - 26% of sessions on weekdays
    - 6% of sessions on weekends

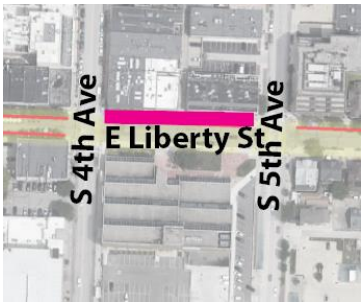
Length of Stay

- While the majority of parking sessions were under one hour in the paid parking spaces, the length of stay was longer than the overall study area. Sessions under one hour:
    - 75% on weekday
    - 68% on weekend
- In the passenger loading zone, most parking sessions were under 15 minutes:
    - 87% on weekday
    - 80% on weekend

Key Takeaways

- Passenger loading zone sessions are short (majority under 15 minutes) and achieving their intended goal
- Restrict parking to 15 minutes for one paid parking space
- Because commercial vehicles are using the passenger loading zone for delivery, and there are no dedicated commercial vehicle loading zones on the block, allow commercial vehicle use of the current passenger loading zone on weekdays from 6:00 am to 6:00 pm, when passenger loading is limited

NORTH SIDE OF LIBERTY ST BETWEEN S. 4TH AVE AND S. 5TH AVE



Current Curb Use and Parking Rates

- ~131-foot length with 6 parallel spaces of paid parking
  - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
  - No parking 3:00am to 6:00am
- Other curb areas do not allow parking

Commercial Vehicle Usage

- During the weekday, commercial vehicle use was on par with the study area share of 6%
- No commercial vehicle usage on the weekend

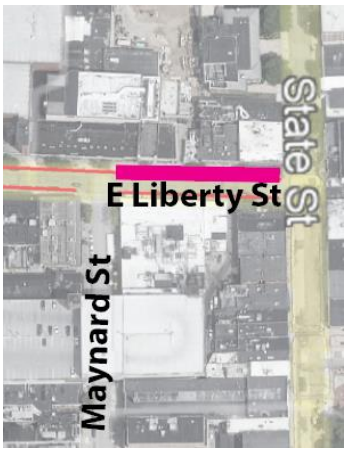
Length of Stay

- The majority of parking sessions were under one hour:
  - 77% on weekday
  - 74% on weekend

Key Takeaway

- Given that the majority of parking sessions are under one hour, restrict parking to one hour to encourage turnover
- Nearby Library Lane Parking Structure can accommodate longer stays

NORTH SIDE OF LIBERTY ST BETWEEN MAYNARD ST AND STATE ST



Current Curb Use and Parking Rates

- ~131-foot length with 6 parallel spaces of paid parking
  - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
  - No parking 3:00am to 6:00am
- No parking area of ~72 feet (~3 spaces) in length

Commercial Vehicle Usage

- In the paid parking area, the share of commercial vehicle usage was higher than for the study area overall (6.3%):
  - 10% of sessions on weekdays
  - 9% of sessions on weekends
- Commercial vehicles in the no parking area:
  - 8% of sessions on weekdays
  - 10% of sessions on weekend

Length of Stay

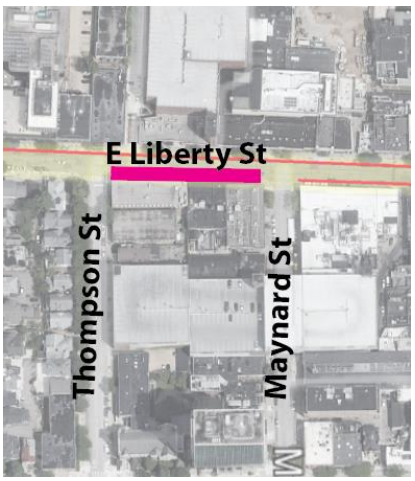
- The majority of parking sessions on this block were under one hour:
  - 79% on weekday
  - 71% on weekend
- No parking violations: There were 342 violations of the no parking restriction observed over the 7-day period. The vast majority of violations were parked under 15 minutes:
  - 63% were parked under 5 minutes
  - 83% were parked under 10 minutes

- 90% were parked under 15 minutes

Key Takeaways

- Restrict parking to one hour to encourage turnover, especially on weekends. Liberty Square and Maynard Structures are nearby and can be used for longer stays
- High number of vehicles parked during no parking hours, with most violations spending less than 15 minutes parked (90% of all sessions)
    - This suggests the need for more short-term regulations of less than 15 minutes

SOUTH SIDE OF LIBERTY STREET BETWEEN THOMPSON AND MAYNARD ST



Current Curb Use and Parking Rates

- ~157-foot length with 8 parallel spaces of paid parking
    - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
    - No parking 3:00am to 6:00am
- ~36-foot length (~1 parallel space) with a 15-minute time limit:
    - Commercial vehicle loading zone with commercial license plates from 6:00 am to 6:00 pm Monday to Saturday
    - Passenger loading zone at other times

Commercial Vehicle Usage

- Weekday on par with study area share of 6% of all sessions
- Almost no commercial vehicle usage on weekend

Length of Stay

- The majority of parking sessions were under one hour:
    - 82% on weekday
    - 74% on weekend
- High share of under 15-minute sessions, especially on weekdays

Key Takeaways

- Restrict parking to one hour to encourage turnover, especially on weekend
    - Liberty Square and Maynard Structures are nearby and can be used for longer stays
- Restrict at least one space to 15-minute parking to accommodate short-term parking needs

NORTH SIDE OF LIBERTY ST BETWEEN MAIN STREET AND S. 4TH AVE

Current Curb Use and Parking Rates

- ~177-foot length with 7 parallel spaces of paid parking
    - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
    - No parking 3:00am to 6:00am
- ~30-foot length (1 parallel space) with a 15-minute time limit
    - Commercial vehicle loading zone with commercial license plates from 6:00 am to 6:00 pm Monday to Saturday
    - Passenger loading zone at other times

Commercial Vehicle Usage

- The share of commercial vehicle usage was lower than for the study area overall (6.3%):
    - 2% of sessions on weekdays
    - No commercial vehicles observed on weekends

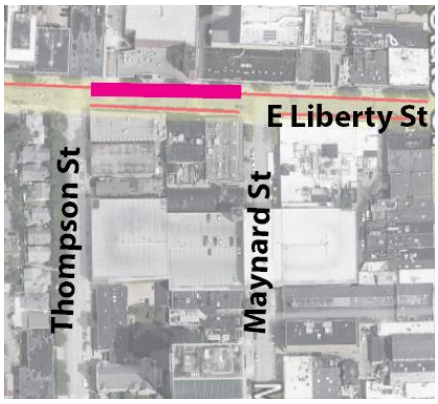
Length of Stay

- The majority of sessions are short stays:
    - 85% of sessions were under 1 hour
    - 64% of sessions were under 15 minutes
    - 38% of sessions were under 5 minutes, similar to Kerrytown/Liberty St study area, as a whole

Key Takeaways

- Restrict paid parking to one hour to encourage turnover
    - Nearby Library Lane Structure can accommodate longer stays
- Given the number of less than 5-minute sessions, replace at least one paid parking space with a 5-minute space, which would be free of charge

North Side of Liberty St between Thompson St and Maynard St



Current Curb Use and Parking Rates

- Commercial loading zone with a 15-minute time limit from 6:00 am to 6:00 pm Monday to Saturday; requires a commercial license plate
- Passenger loading zone with a 15-minute time limit during other times

Commercial Vehicle Usage

- 20% of vehicle sessions during this time were freight, box truck, or service van
- 80% of vehicle sessions were vehicle types that likely do not have a commercial license plate

Length of Stay

- Overall, 70% of vehicles complied with the 15-minute time limit

Key Takeaways

- This area is limited to 15 minutes for most of the day/week, and overall, drivers are complying with the regulation.

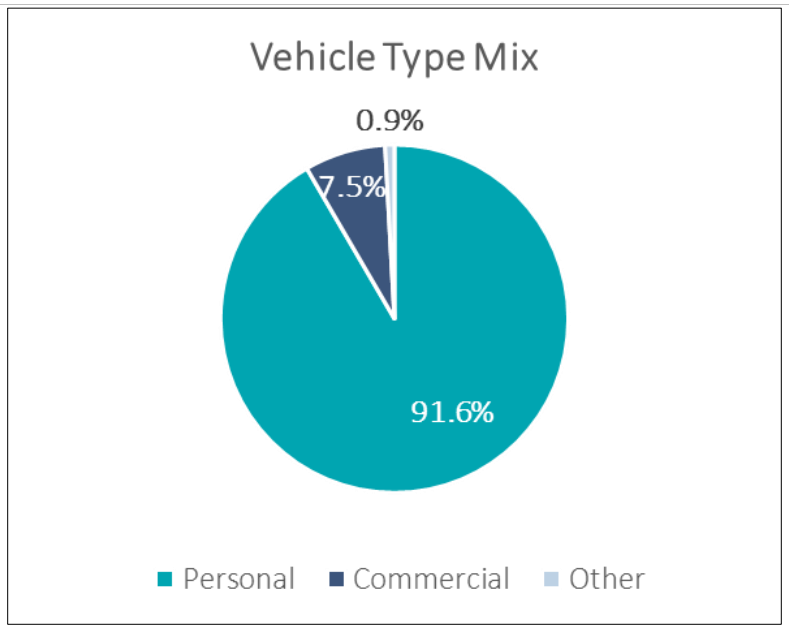
Data Collection Findings: South University (blue)

Key Findings:

- Overall, there was a high number of short-term parking sessions
    - 66% of vehicles parked less than 15 minutes, and 75% less than 30 minutes
    - More than half of the parking sessions in metered parking spaces on South University and South Forest were parked 15 minutes or less
- The majority of curb sessions were passenger vehicles. Only 7.5 percent of sessions were commercial vehicles
- Commercial vehicles had longer lengths of stay than passenger vehicles
- Curb demand peaks at 5 pm, with another peak around 9 pm
- While Church Street is a designated 15-minute loading zone, the block had a longer length of stays, with approximately 25% of sessions longer than 15 minutes
- The South Forest loading zone had shorter lengths of stays, with less than 20% of sessions greater than 15 minutes

Data findings from the South University Area are summarized in Figure 19, which shows that the majority of parking sessions were passenger vehicles. Only 7.5 percent of sessions were commercial vehicles.

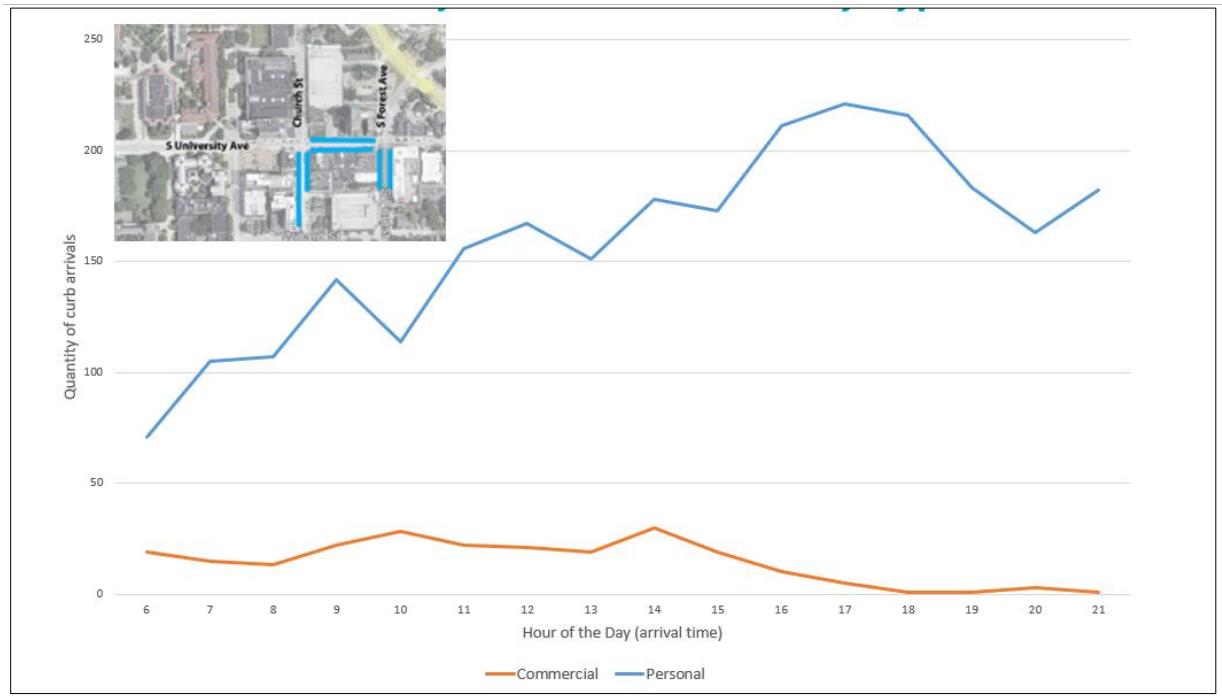
Figure 19: Commercial Versus Passenger Parking Sessions – South University



Source: VADE, Walker Consultants.

A majority of the vehicles arriving at South University are personal, with the peak time from approximately 4:00 p.m. to 6:00 p.m., as shown in Figure 20.

Figure 20: South University Vehicle Arrivals by Type

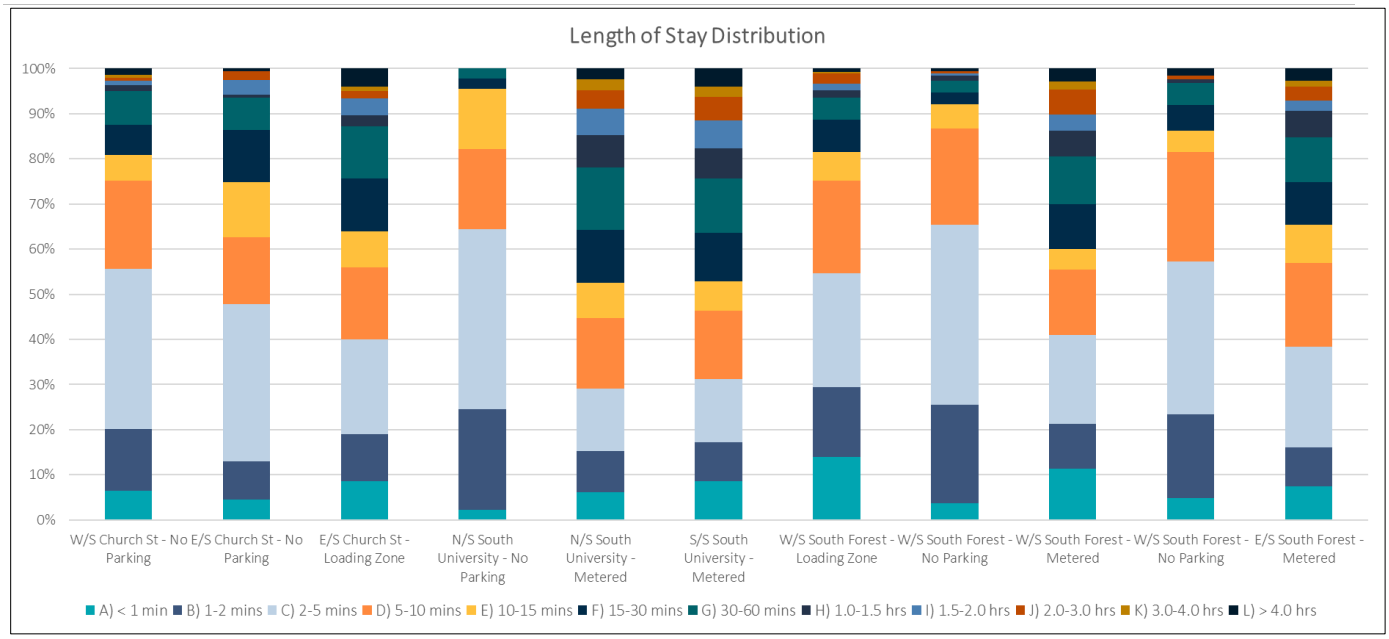


Source: Walker Consultants.

Figure 21 and Figure 22 on pages 32 and 33 summarize the length of stay in the South University study area; key findings include:

- Overall, there was a high number of short-term parking sessions
  - 66% of vehicles parked less than 15 minutes, and 75% less than 30 minutes
  - More than half of the parking sessions in metered parking spaces on South University and South Forest were parked 15 minutes or less
- While Church Street is a designated 15-minute loading zone, the block had a longer length of stays, with approximately 25% of sessions longer than 15 minutes
- The South Forest loading zone had shorter lengths of stay, with less than 20% of sessions greater than 15 minutes

Figure 21: South University Study Area Length of Stay Data

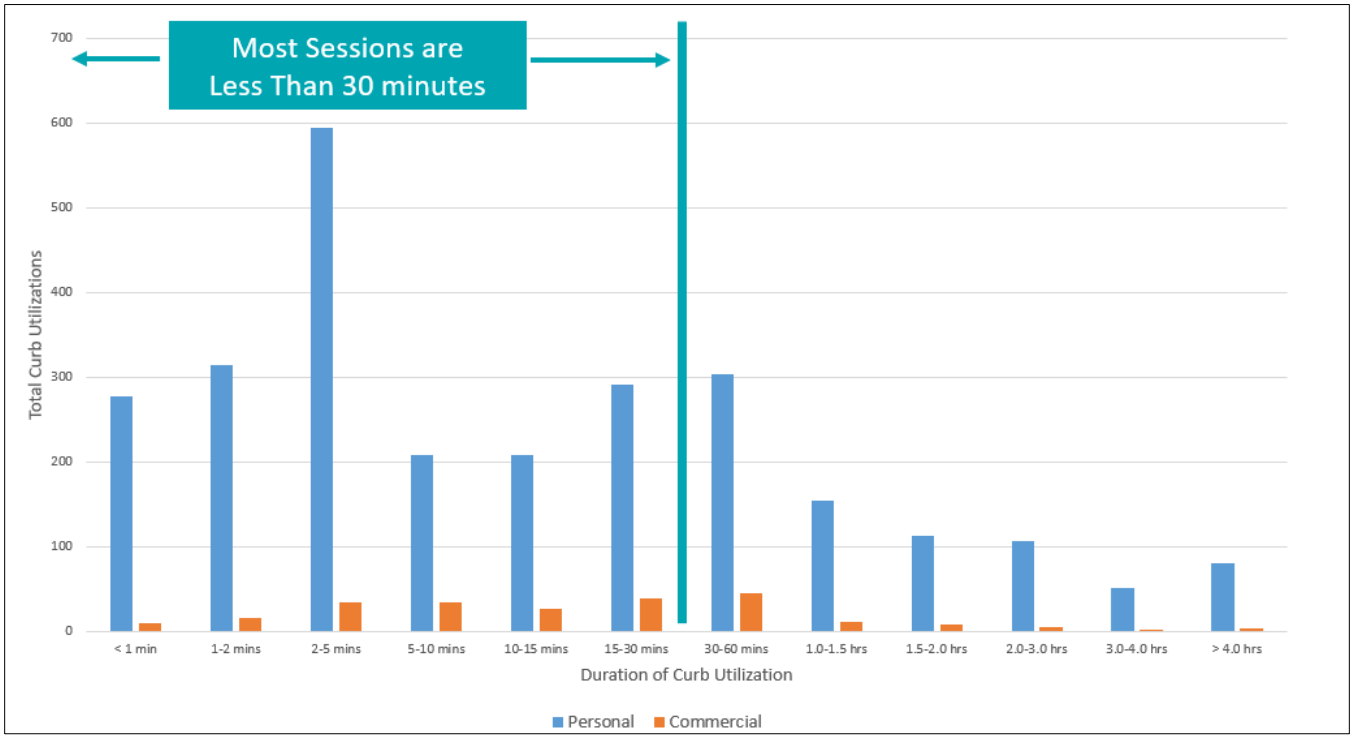


Source: Walker Consultants.

Figure 22 shows the length of stay in the South University study area by vehicle type and overall. Overall, commercial vehicles had longer lengths of stays than personal vehicles. In total, 32 percent of commercial vehicles were parked for 30 minutes or more. Most passenger and commercial vehicles were parked for less than two hours (93 percent).

Figure 22: South University Length of Stay Summary Data

	Under 2 mins	Under 5 mins	Under 15 mins	Under 30 mins	Under 1 hour	Under 2 hours
Personal	20%	43%	67%	76%	85%	93%
Commercial	10%	26%	53%	68%	89%	95%
Overall	19%	41%	66%	75%	85%	93%



Source: VADE, Walker Consultants.

The two busiest block faces in terms of sessions were the west side and east side of S. Forest Avenue.

West Side of S Forest Ave between S University Ave and Alley

Current Curb Use and Parking Rates

- ~50-foot length commercial loading zone with a 15-minute time limit from 6:00 am to 6:00 pm Monday to Saturday; requires a commercial license plate
    - Passenger loading zone with a 15-minute time limit during other times
- ~50-foot length with 2 parallel spaces of paid parking
    - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
    - No parking 3:00am to 6:00am

- ~100-foot length where no parking is allowed

Commercial Vehicle Usage

- 7% of vehicle sessions were freight, box truck, or service van

Length of Stay

- Majority of vehicles (53%) stayed less than 5 minutes
- Majority of vehicles (78%) stayed less than 15 minutes

East Side of S Forest Ave between S University Ave and Alley/Curb Cut

Current Curb Use and Parking Rates

- ~250-foot length with 11 parallel spaces of paid parking
    - Rate is $2.20/hour from 8:00 am to 6:00 pm Monday to Saturday with 2-hour time limits
    - No parking 3:00am to 6:00am

Commercial Vehicle Usage

- At least 4% of vehicles were likely commercial in nature (box truck, freight truck, or service van)

Length of Stay

- 38% of vehicles stayed less than 5 minutes
- Majority of vehicles (65%) stayed less than 15 minutes

Comparison Of Video Data Collection And Parking Meter Transaction Data

To understand compliance with existing regulations and enforcement practices, especially given the number of short-term sessions, the curb use video data was compared to parking meter transaction data (multi-space meter and parking app data).

There was a significant gap between curb sessions and paid parking transactions on both Liberty Street and the University Area study areas, all of which have paid parking. For example, Figure 23 on page 33 shows Liberty Street data collection compared to paid parking transactions. The red arrow points to the gap of non-compliance. Further, there is still high demand after 6 pm, when parking is no longer paid.

Figure 23: Liberty Street Curb Use Data Collection Data Compared to Paid Parking Meter Transaction Data

Source: Walker Consultants.

Figure 24 shows the University Area data collection compared to paid parking transactions. The red arrow points to the gap of non-compliance. In the University Area, further, demand for curb space peaks after 6 pm, when parking is no longer paid.

Figure 24: University Area Curb Use Data Collection Data Compared to Paid Parking Meter Transaction Data

Source: Walker Consultants.

CURB UTILIZATION MAPPING

The curb video data was mapped to understand compliance with existing regulations and enforcement practices from a visual perspective. These visualizations help show how and where violations are occurring and what is driving those violations. Generally, most sessions are short-term, and those people are parking in any open space, whether it is regulated for no standing, no parking, or in front of a driveway or alley. Figures 25 through 27 only show violations from the camera data collected, for example, parking in a no-parking area; this does not include non-payment violations. To illustrate how much these violations matter, on the streets we studied near the University, there are over 100 violations per day. This is concerning because violations cause congestion and safety conflicts and prevent access to local businesses. With the high number of short-term sessions, issuing citations to these users is nearly impossible.

Many of these violations result from the dense housing, retail, and commercial uses, including food pickup and delivery. Given how pedestrian—and bike-friendly downtown Ann Arbor is, some of these trips could likely be moved to walking or biking.

Figure 26 shows Liberty Street's legitimate stays and curb violations. The southwest side of the street is regulated for no parking, however the curb activity looks similar to the northwest side which is regulated for 2-hour parking. A coffee shop on the southwest corner of the street likely contributes to the curb activity.

Figure 25: Liberty Street Curb Use, Legitimate Stays and Curb Violations

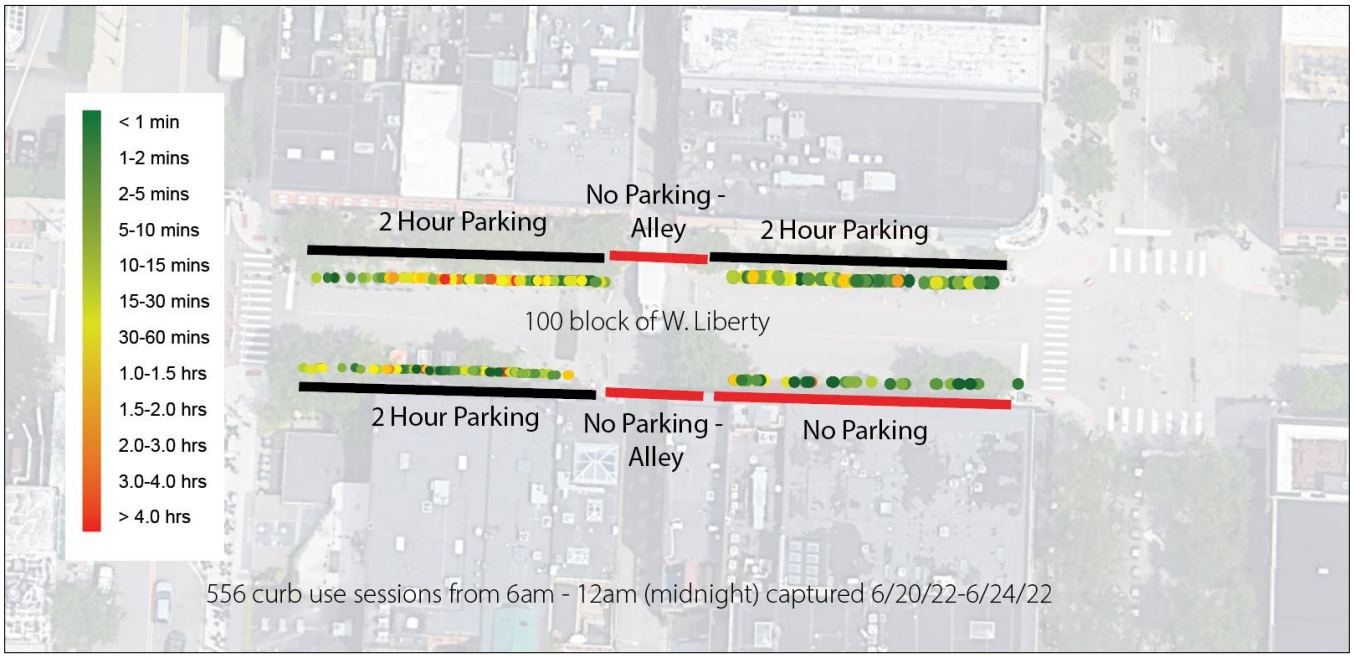


Figure 27 shows similar results in Kerrytown, with violations in no parking areas. The 15-minute curb area regulation works; there were almost no curb sessions in this space longer than 15 minutes.

Figure 26: Kerrytown Curb Use, Legitimate Stays and Curb Violations

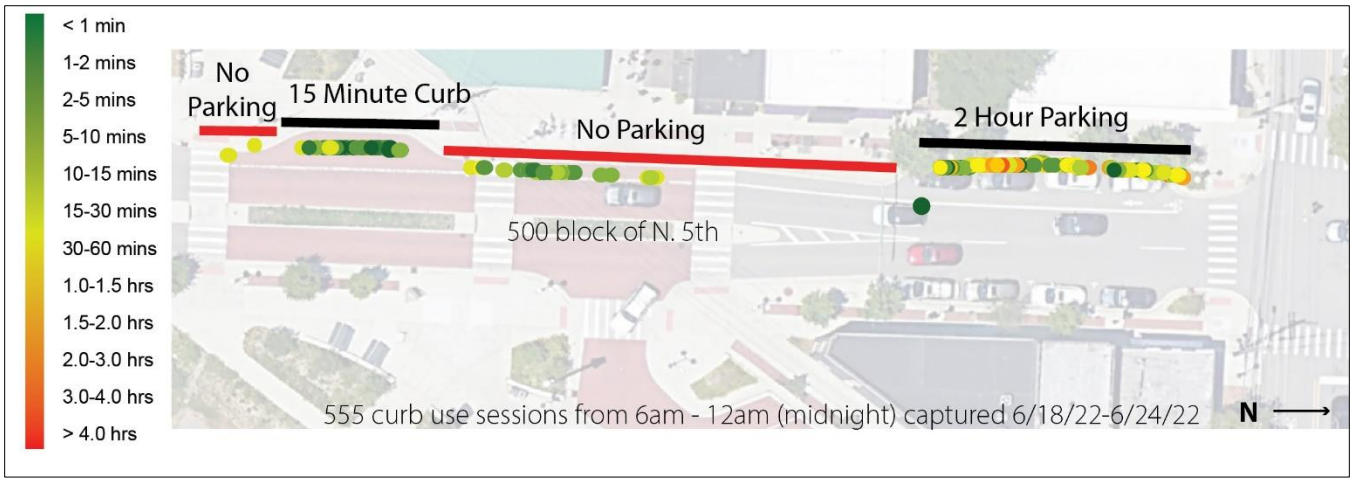
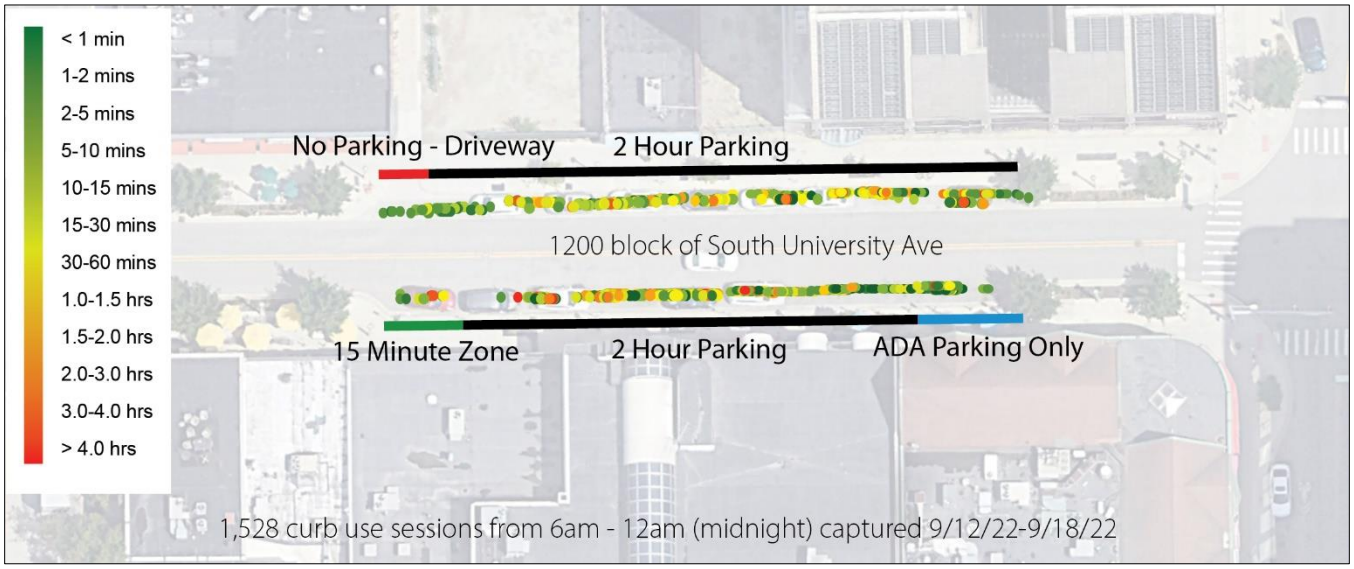


Figure 28 shows that, again, there are a significant number of violations and constant turnover at South University. Most sessions take less than five minutes to pick up a passenger or food from a local restaurant.

Figure 27: South University Curb Use, Legitimate Stays and Curb Violations



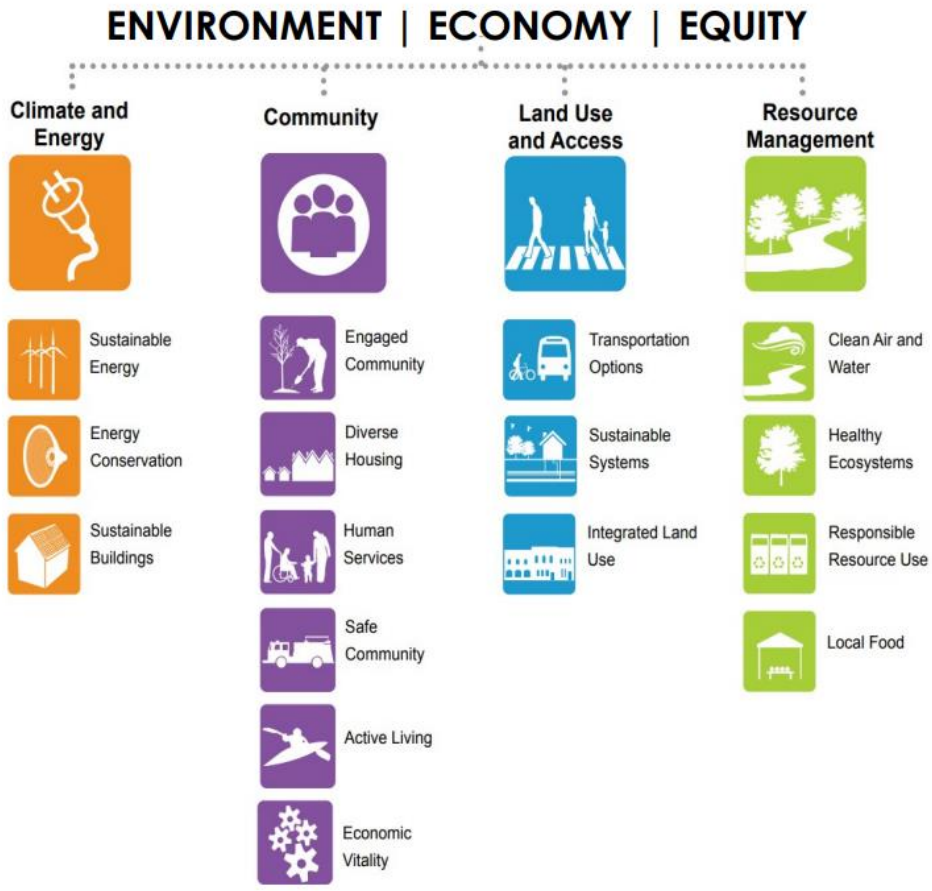
SECTION 4: CURB PRACTICES, POLICIES, AND INITIATIVES

The DDA and the City of Ann Arbor have taken significant steps to shape downtown parking and access policies through several planning efforts. This section includes a summary of key policy documents and planning efforts the City and/or DDA have undertaken that help set the foundation for the curb management study.

The Downtown Development Authority Act was passed by the State of Michigan in 1975 to give municipalities an economic development tool. The Ann Arbor DDA was created in 1982, encompassing 67 city blocks, to construct infrastructure projects, including parking, streetscaping, and bike lanes, and run the City's public parking system. The DDA also provides free bus passes for downtown employees, installs bike parking and provides grants to create new workforce housing.

The DDA's focus and projects are directly related to City goals and priorities for infrastructure, affordable housing, Vision Zero, sustainability, climate neutrality, and transportation through the priorities described in Figure 28 of environment, economy, and equity.

Figure 28: Ann Arbor Downtown Development Authority Priorities



Source: Ann Arbor Downtown Development Authority.

The DDA is very active in developing and implementing programs to influence travel decisions, such as the People Friendly Streets and Go!Pass program through GetDowntown. These initiatives greatly impact the Ann Arbor community's travel decisions and the percentage of people who use options other than a personal vehicle to access jobs, entertainment, services, and more downtown.

The following DDA and City plans and policies provide supportive structures for curb management, including:

- DDA People-Friendly Streets Program
- City of Ann Arbor Healthy Streets Pilot Projects
- The GetDowntown Program, a partnership of the DDA, the City of Ann Arbor, and the Ann Arbor Transportation Authority (The Ride)
- City of Ann Arbor Comprehensive Transportation Plan
- DDA Parking and Transportation Demand Management Study
- DDA and City of Ann Arbor Downtown Street Design Manual
- City of Ann Arbor Municipal Code
- City of Ann Arbor Unified Zoning Code

Curb, parking, and loading are regulated under the City of Ann Arbor Municipal Code, including the references in Figure 29.

Figure 29: Curb, Parking, and Loading References in the City of Ann Arbor Municipal Code

Subject	Municipal Code Reference	Notes
Parking Meter Locations	Title X: 10.1c. Definitions (8) Parking Meter Zone	An area adjacent to a parking meter is set aside for the exclusive use of vehicles upon payment
Curb Loading Zone	Title X: 10.1c. Definitions (4) Curb Loading Zone	A space adjacent to the curb for the exclusive use of vehicles licensed as commercial vehicles to load or unload freight
Standing Area	Title X: 10.1c. Definitions (11) Stop, Stopping, or Standing	Stopping or standing of a vehicle is prohibited other than temporarily for actively engaged in pickup or drop-off of passengers
Taxicab stand	Title X: Article I. 10.1c. Definitions (13) Taxicab Stand	An area adjacent to the curb set aside for taxicabs to wait for passengers
Permits curb regulations for standing, parking, and loading	Title X: Article I. 10:2. Traffic Control Orders	Authorizes the City to regulate and sign curbs for standing, parking, and loading to designate parking meter zones and spaces, curb loading zones, angled parking, and curb standing
Establishes curb zones for standing, parking, and loading	Title X: Article 1. 10:3. Current Regulations	Establishes standing, parking, and loading zones
Curb parking	Title X: Article VI. 10.50 Curb Parking and 10.52 Angle Parking	Vehicle must park with wheels parallel to the curb or at an angle
Locations where parking is prohibited without requiring a sign	Title X: Article VI. 10.56 Parking Prohibitions (no signs required)	Locations where parking is not permitted without signage, such as

		on a sidewalk, within 15 feet of a fire hydrant, or in front of a theater
Passenger pickup and drop-off	Title X: Article VI. 10.57 Discharging and Loading Passengers	Passenger vehicles, taxis, and buses may stop in designated places to pickup and drop-off passengers
Locations where parking is prohibited and metered time limits Passenger pickup and drop-off	Title X: Article VI. 10.59 Parking Prohibitions (signs required)	Grants the authority to sign and regulate parking locations and 8 am to 6 pm meter time limits (except Sunday) Allows stopping to pick up or drop-off passengers in a restricted area if it does not interfere with traffic
Commercial loading zones	Title X: Article VI. 10.62 Curb Loading Zone	Only commercial licensed vehicles may park in locations signed for curb loading zones. People who have a sticker certifying they are confined to a wheelchair or have an ambulatory disability may park in these locations for 30 mins maximum
Bus and taxi parking	Title X: Article VI. 10.64 Buses, taxicabs, stopping or standing	Buses and taxis cannot park in any place other than a marked bus stop or taxi stand
Bus and taxi parking	Title X: Article VI. 10.65 Restricted Use of Buses and taxicab stands	Only buses and taxis are permitted to park in a bus stop or taxi stand
Residential parking districts	Title X: Article VI. 10.66 Residential Parking Districts	The City Administrator may establish a residential parking district with paid permits and time limits
Handicapper Parking	Title X: Article VI. 10.67 Handicapper Parking	Only “handicappers” with a sticker or plate issued may park in a “handicapper” space
Establishing and regulating paid parking	Title X: Article VII. Parking Meters	Grants the Downtown Development Authority the power to establish and regulate paid parking meters
Biking and rolling	Title X: Article XII. 10.146 Bicycle Lane	Means a portion of the roadway for the use of biking or rolling
Scooter use and parking	Title X: Article XII. 10.147 Safety, Sidewalks, Pedestrians	Scooters can be ridden on sidewalks but must yield to pedestrians and park at the curb or where scooter parking is available without obstructing a legally parked vehicle

	Title IV: Chapter 47 Streets. 4:14 Street and Sidewalk Occupancy Permits	Permits annual and daily sidewalk occupancy such as cafes and curbside occupancies such as parklets or streatearies A fee of $1.00 per square foot of the sidewalk area for an annual permit, $0.05 per square foot for a daily permit
	Title V: Zoning and Planning. Chapter 55: Unified Zoning Code 5.19 Required Parking	Establishes that there are no minimum parking requirements for new developments
Downtown Development Authority	Title 1: Administration. Chapter 7 Downtown Development Authority	Establishes the DDA and downtown district and governing board to promote economic growth downtown The DDA is to prepare a development and financial plan for downtown, which the City Council must approve. The DDA is permitted to use tax increment financing.

Source: City of Ann Arbor Municipal Code.

DDA Development Plan and Tax Increment Financing Plan (2003 – 2033)

The DDA works under a 30-year plan last adopted in 2003, which identifies objectives for the DDA, including:

- Improvements to public open space, pedestrian and bicycle linkages, and the transit system. This includes promoting and facilitating walking, biking, and transit, reducing conflict, increasing the walkability of downtown, and scaling downtown for pedestrians. This also includes promoting transit through the Go!Pass bus pass program
- Parking to support existing and new development. In 1992, the DDA took over the management of all off-street parking facilities, upgraded or replaced all seven city-owned structures, and improved operations. In 2002, the DDA took over the operation of all on-street parking.
- Stimulate new or renovated housing. Promote a full range of housing with a Housing Fund to support affordable housing.
- Encourage mixed-use developments in conjunction with public improvements by providing parking, pedestrian improvements, land assembly, and grants to support affordable housing.
- Encourage retail business expansion through partnerships with the four downtown area associations.

Although at the time of the 2003 plan, curb management was not identified as an official term, all of the DDA's objectives relate to curb management in some form. This includes ensuring the walkability of downtown, encouraging biking and transit, and efficiently operating parking. Further, supporting housing, retail, and mixed-use development, which has been ongoing in Ann Arbor since the Plan's adoption, has dramatically increased downtown's population, activity, and curb demands.

DDA And City of Ann Arbor's Downtown Street Design Manual (2015)

Curb Management and the Development Review Process

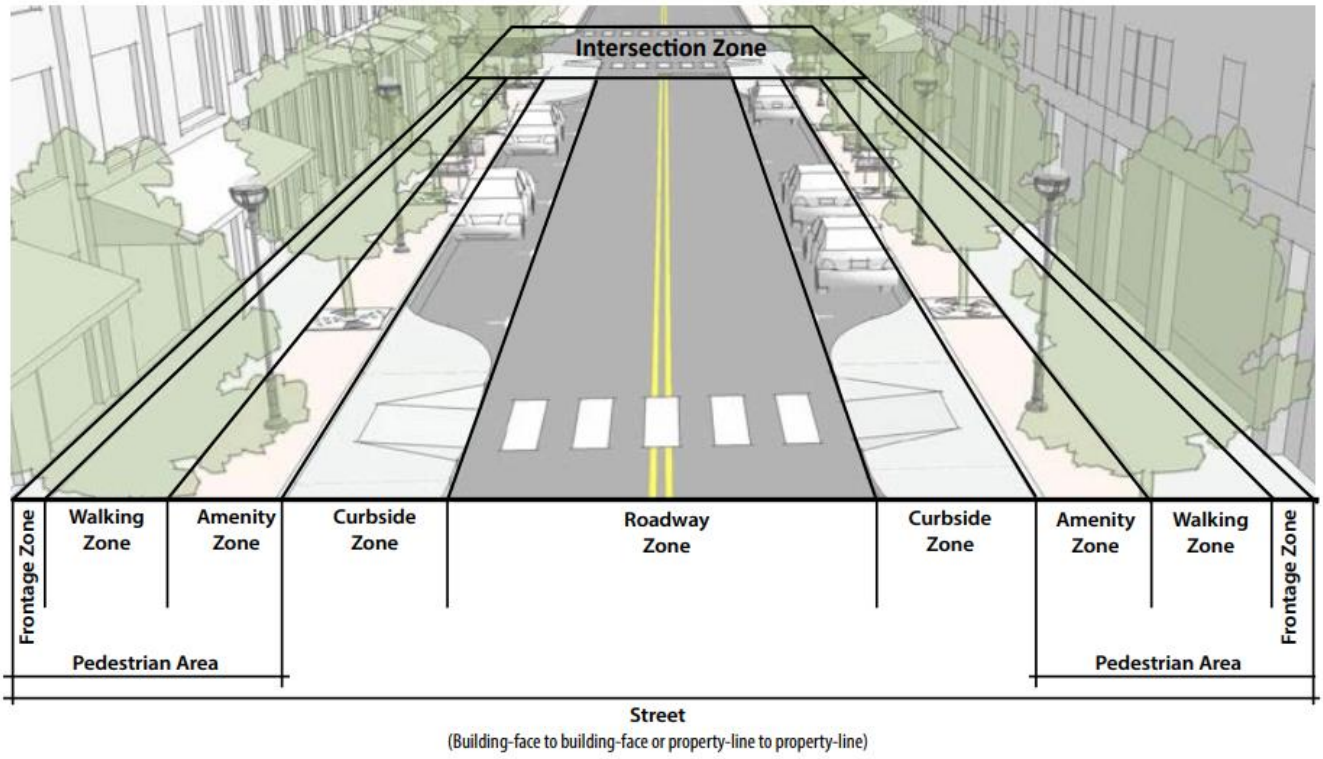
Ann Arbor has a bold vision for a future with equitable access to diverse mobility options through sustainable design, which centers on walkable, active streets and compact, socially vibrant spaces. The Downtown Street Design Manual guides the DDA's curb design and right-of-way process by providing precise and consistent goals to achieve this vision through innovative approaches to curb and mobility management.

Related to this curb management study, the Street Design Manual calls for six street design elements across six categories: pedestrian, commercial support, bicycle, transit, vehicle, infrastructure, and landscape. Priorities related to the curb include curbside loading zones, café dining on streets with high levels of pedestrian and commercial activity, short-term parking and drop-off locations, and bicycle infrastructure.

Figure 30 shows the Street Zones identified in the Downtown Street Design Manual.

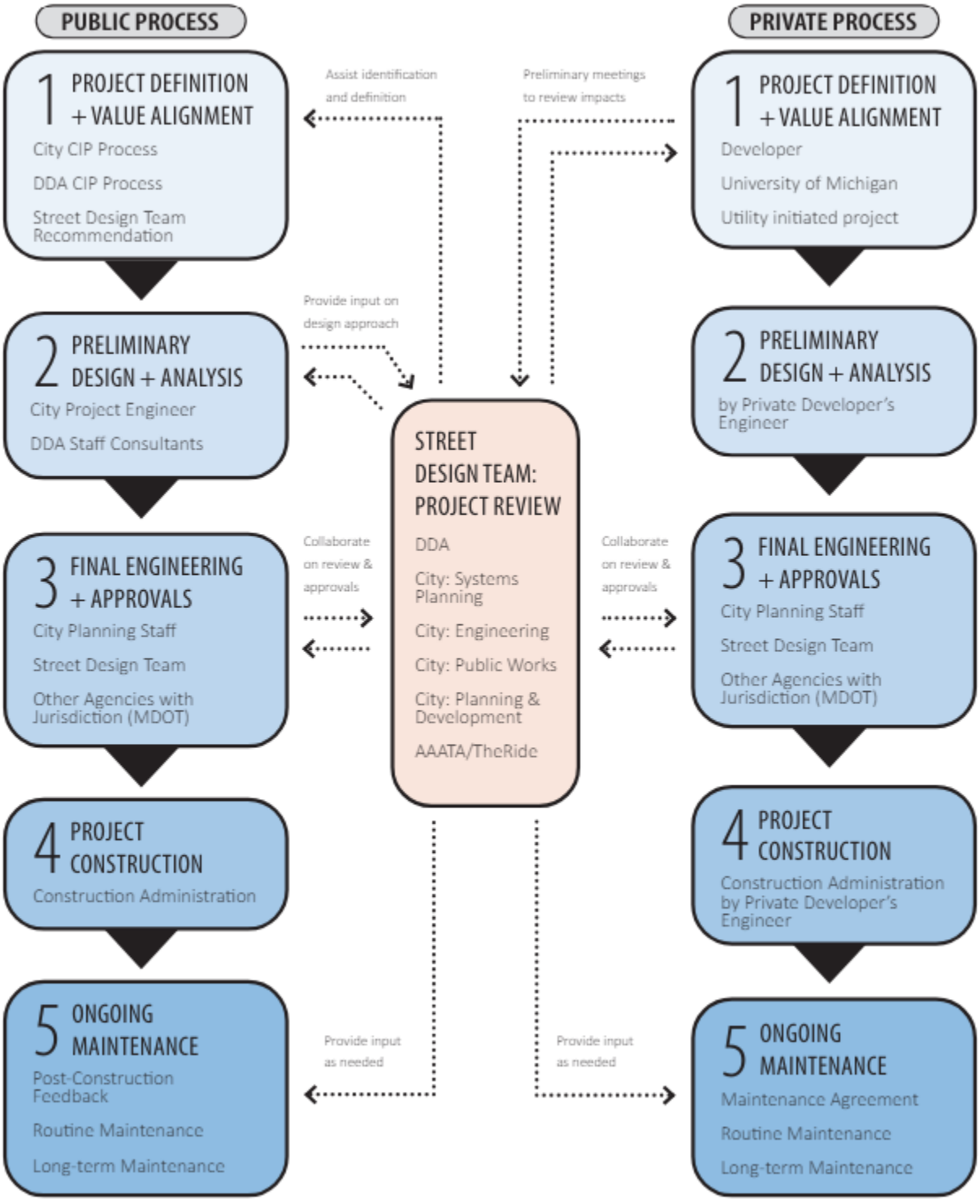
All public and private infrastructure and development projects must follow the Downtown Street Design Manual. Figure 31 on page 43 shows the public and private approval process.

Figure 30: Downtown Street Design Manual, Street Zones



Source: Ann Arbor Downtown Street Design Manual, 2015.

Figure 31: Development Review: Street Design Process



Source: Ann Arbor Downtown Street Design Manual, 2024.

Downtown Plan (2009)

The Downtown Plan guides public and private development in the 67-block DDA district. Values related to curb management that guide the Downtown Plan include those that foster a compact, walkable area that balances a diversity of uses and users to ensure downtown is accessible to everyone.

- Neighborhood, Community, and Regional Focus to foster business, government, shopping, cultural, and entertainment functions in a compact, walkable area
- Diversity of Use to balance a mix of land use to draw people in
- Diversity of Users so that downtown is accessible to everyone
- Balance to encourage new downtown development and conserve existing characteristics
- Image and Identity to preserve and rehab historic buildings and natural assets such as streetscape and Farmer's Market
- Pedestrian Orientation to create quality by maintaining the pedestrian scale
- Quality in design and maintenance of buildings, streetscapes, and public spaces
- Infrastructure Capacity to maintain and invest in infrastructure
- Sustainability to provide future generations with a viable economy, an energy-efficient built environment and transportation network, and social and cultural opportunities

DDA People-Friendly Streets Projects

The DDA's innovative approach to mobility and access through the People-Friendly Streets project has revolutionized how customers, residents, visitors, and employees can navigate downtown Ann Arbor, has activated the right-of-way, and reprioritized curb spaces for active transportation.

The People Friendly Streets program's overarching goal is to make streets more welcoming to pedestrians and cyclists. Specific actions taken include:

- Repurposing parking lanes to one side of the street to create more space for bikeways and pedestrian passings
- Using parking lanes to separate bike lanes from the roadway, protecting cyclists
- Creating bike turn boxes at traffic lane heads to improve safety at signalized intersections
- Introducing advisory bike lanes on residential streets
- Completing a bikeway link to the University of Michigan
- Reconfiguring traffic lanes to accommodate temporary pedestrian and bicycle facilities
- A Curbless State Street to maximize the flexibility of the curbside and make the sidewalk more accessible for people

People-Friendly Streets Values and Goals

Safe, comfortable downtown streets

Equitable, just access for all people

Affordable and inclusive community

Resilient, energy responsible downtown

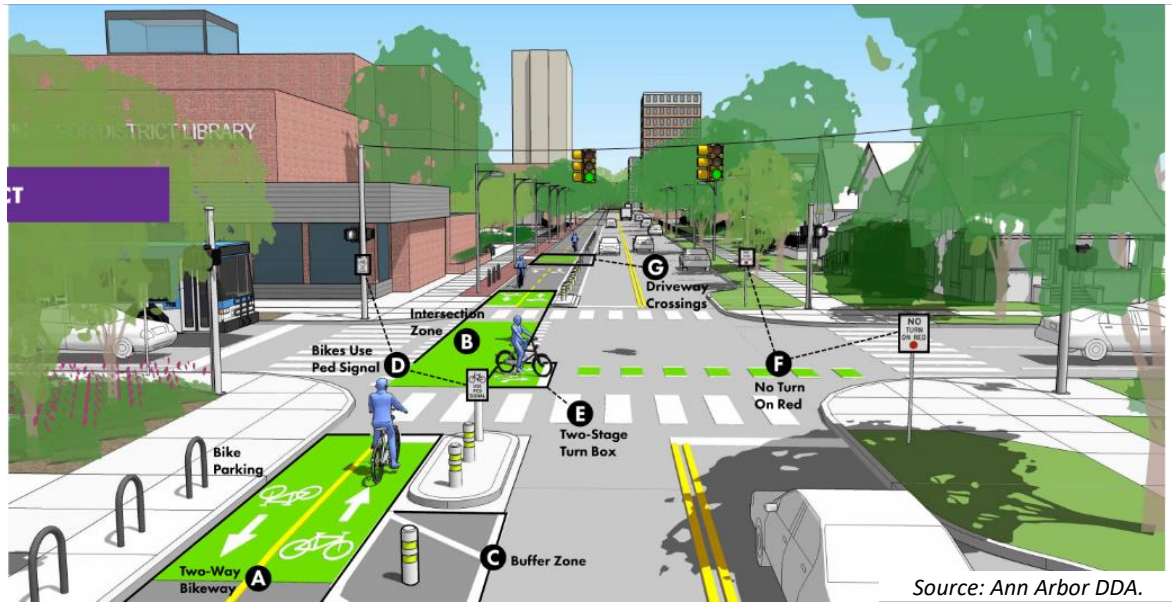
Vibrant and thriving local economy

Responsible design and implementation

Connected community with streets as civic space

Source: Ann Arbor Downtown Development Authority

Figure 32: William Street Bikeway Project



Source: Ann Arbor DDA.

City Of Ann Arbor Healthy Streets Pilot Projects

The Healthy Streets Program responds to the ongoing COVID-19 pandemic by providing additional spaces for social distancing for those who walk or bike. The pilot programs reconfigured traffic lanes to accommodate temporary pedestrian and bicycle facilities, such as two-way and separated bikeways. It resulted in reduced vehicle speeds, a lower frequency of crashes, increased capacity for physical distancing, and a dramatic increase in bicycle usage.

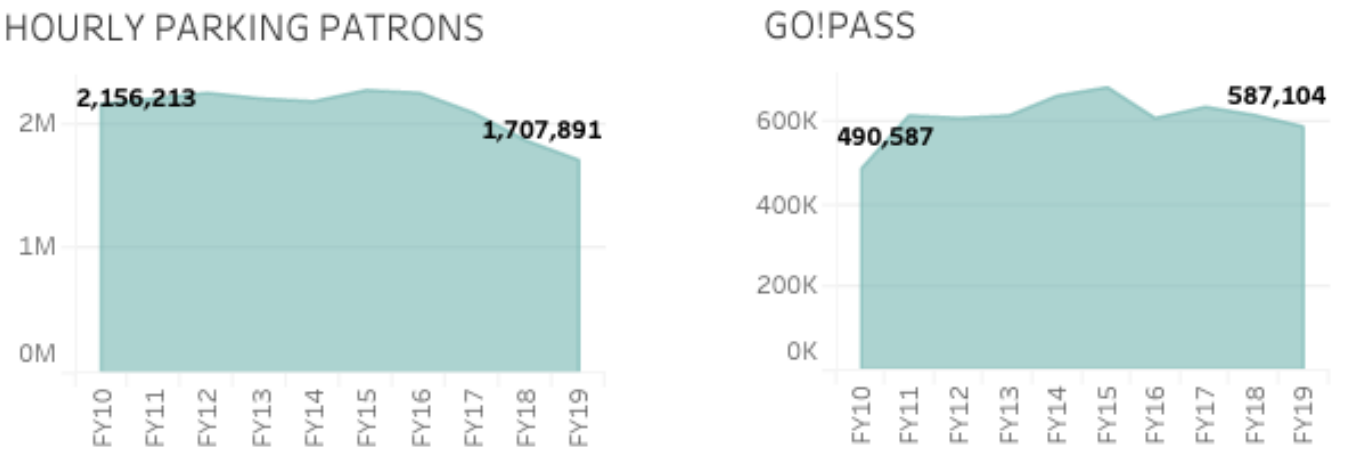
Key Lessons Learned:

- Education & Outreach: critical to establish well in advance of implementation with a lot of stakeholder input
- Design: should be as simple and intuitive as possible using clean, permanent-looking materials
- Implementation: must be done quickly with clear signage and short response time for signage maintenance and repairs

GetDowntown Program

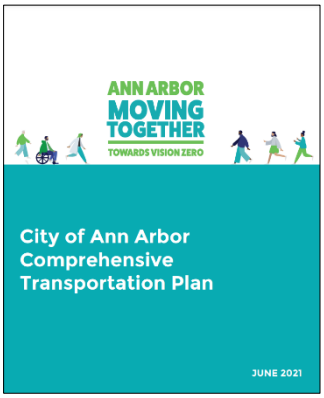
The GetDowntown Program is a partnership of the Ann Arbor Area Transportation Authority (TheRide), the Ann Arbor Downtown Development Authority (DDA), and the City of Ann Arbor. The program offers free transportation planning services to help commuters travel options outside of driving alone and parking. GetDowntown also administers a VanRide program to promote carpooling. One key initiative for reducing employee parking demand downtown is the go!pass, which provides downtown employees with free ride hailing on all fixed-route buses. TheRide also connects downtown with multiple park-and-ride-hailing lots in the area. Employers must pay a participation fee based on their total number of employees but then have the option to purchase unlimited passes. In Fiscal Year 2021, the getDowntownn and go!Pass diverted 1,100 commuters from the parking system daily. Figure 33 on page 47 shows how parking demand has decreased as go!pass users have increased.

Figure 33: Hourly Parking Patrons and Go!Pass Holders in Ann Arbor, MI:



Source: State of the Downtown Report—Ann Arbor, Michigan, 2019

City Of Ann Arbor Comprehensive Transportation Plan (2021)



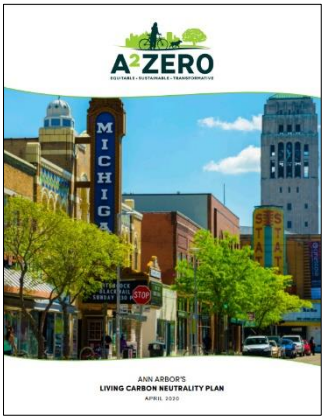
The updated Comprehensive Transportation Master Plan, Moving Together Towards Vision Zero, was adopted in 2021. It is a policy framework for providing safe, convenient access and transportation guided by Vision Zero so that no one dies or is seriously injured in crashes on streets by 2025 and a carbon-neutral transportation system by 2030.

The Plan envisions a technologically based approach to improving mobility and traffic through a series of curbside management policies to minimize the impacts of vehicles on the community. The Plan identifies five mobility values to guide the City's transportation investments, including safety, mobility, accessibility, healthy people and sustainable places, and regional connectivity to advance vision zero and carbon neutrality goals.

The following are key initiatives of the Transportation Plan:

- Adopt a policy to install curb extensions by default on streets with on-street parking within 1 year
- Adopt a policy to use the smallest feasible curb radii within the next 3 years
- Install 10 curb extensions (either temporary or permanent) per year
- Remove curbs on shared streets
- Assess the impact of connected and autonomous vehicles (CAVs) on key revenue sources such as parking and gas tax and consider replacements like curbside use fees and road user pricing
- Establish curbside management policies downtown, including methods for allocating space and determining pricing
- Digitize regulations and uses of curb space (e.g., parking, loading) and plan for digital communication between the curb and vehicles. Install adaptable signage that can change to allow different uses at different times of the day
- Install sensors and use the data collected to provide real-time curb availability information

A2Zero Living Carbon Neutrality Plan (2020)



The City of Ann Arbor's Climate Plan outlines seven strategies to achieve climate neutrality by 2030. Related to curb management, the plan calls for tiered parking rates to increase the cost of parking and subsidizes low-income residents who must drive, residents with disabilities, and electric vehicle drivers. The plan also calls for transforming streets into Complete Streets by removing excess on-street parking to be replaced with more beneficial street uses such as infrastructure for pedestrians, bicyclists, transit, and street activities such as outdoor restaurant seating.

Parking & TDM Study – Parking Management Plan (2016)

The DDA initiated the Parking & Transportation Demand Management (TDM) Study – Parking Management Plan in keeping with its position as a leader in access, parking, and transportation, as well as its commitment to providing innovative, future-forward options to those accessing downtown and the broader Ann Arbor community. The study is a guiding document to evaluate and measure existing and future access and management policies and practices.

The Parking & TDM Study sets forth a series of guiding principles for access management and parking initiatives for the DDA, which will be incorporated into Walker's approach. It outlines strategies to manage peak parking demand through pricing, regulations, enforcement, technology, and transportation demand management.

SECTION 5: EQUITY ACCESS TO CURB HOTSPOTS: MAPPING ANALYSIS

Major downtown destinations are curb hot spots because many people want to access these locations. Therefore, it is essential to consider equity at and to the curb, specifically:

- How space is allocated directly at the curb
    - Directly at the curb, the space should be prioritized based on adjacent land uses, travel and community needs, and citywide and DDA goals.
- How accessible curb hot spot locations are for everyone
    - Equity to the curb should consider how accessible these locations are for low-income or disadvantaged people who may work downtown in service industry jobs.
    - Transportation is a significant monthly expense, and driving and parking to major downtown curb destinations can be costly for low-income people who may rely on biking or transit to access downtown.
    - The goal is to understand how accessible it is to travel to these curb hotspots from across the City, especially for low-income people, and then develop strategies to promote more accessibility to the curb, such as low-cost travel options, including high-quality transit service and bike lanes.

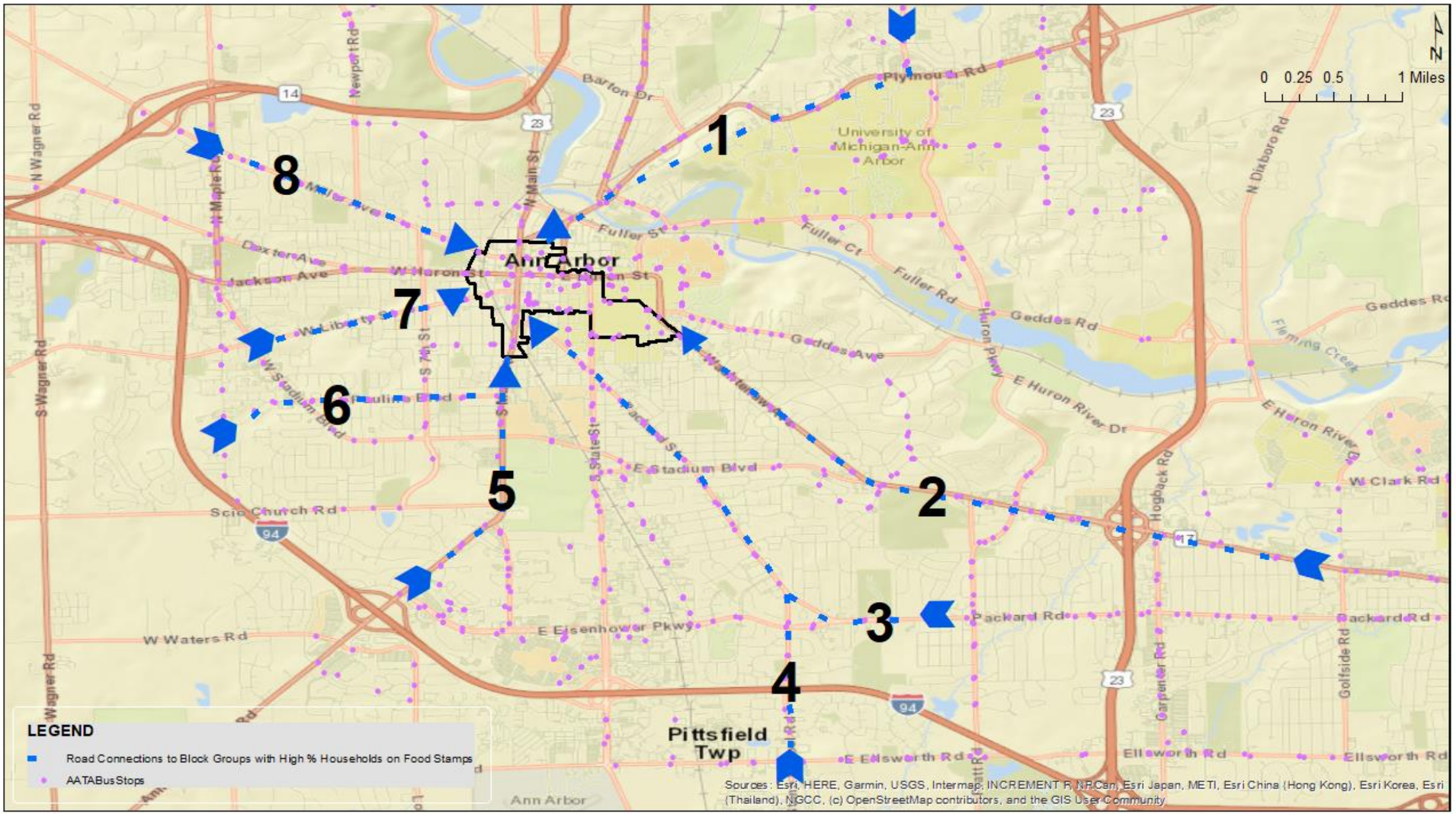
The equity mapping analysis on the following pages shows how accessible downtown curb “hot spots” are to low-income people and the barriers to accessing downtown by means other than driving and parking.

To conduct this evaluation, Walker used data from the City’s Transportation Master Plan, which identified and mapped census block groups with a higher percentage of households per acre enrolled in the food stamps program to major road corridors that connect these locations to downtown. Food stamp enrollment was used as a proxy for low income. There are eight areas and mapped corridors across the city where people have a higher percentage of households per acre with food stamps.

Walker conducted an equity mapping analysis to understand current barriers to low-income residents' access to Downtown Ann Arbor’s major destinations. Figure 34 on page 50 shows the major road corridors (as identified in the City’s Transportation Master Plan) that connect the block groups with a high percentage of households on food stamps to downtown. The lines are numbered from 1 to 8 for identification purposes. It compares these low-income corridors to transit services (bus stops identified in pink). Similarly, Figure 35 on page 51 shows the bike infrastructure and traffic stress level (1 is the least traffic stress and 4 is the most traffic stress) from census block groups with a high percentage of households with food stamps.

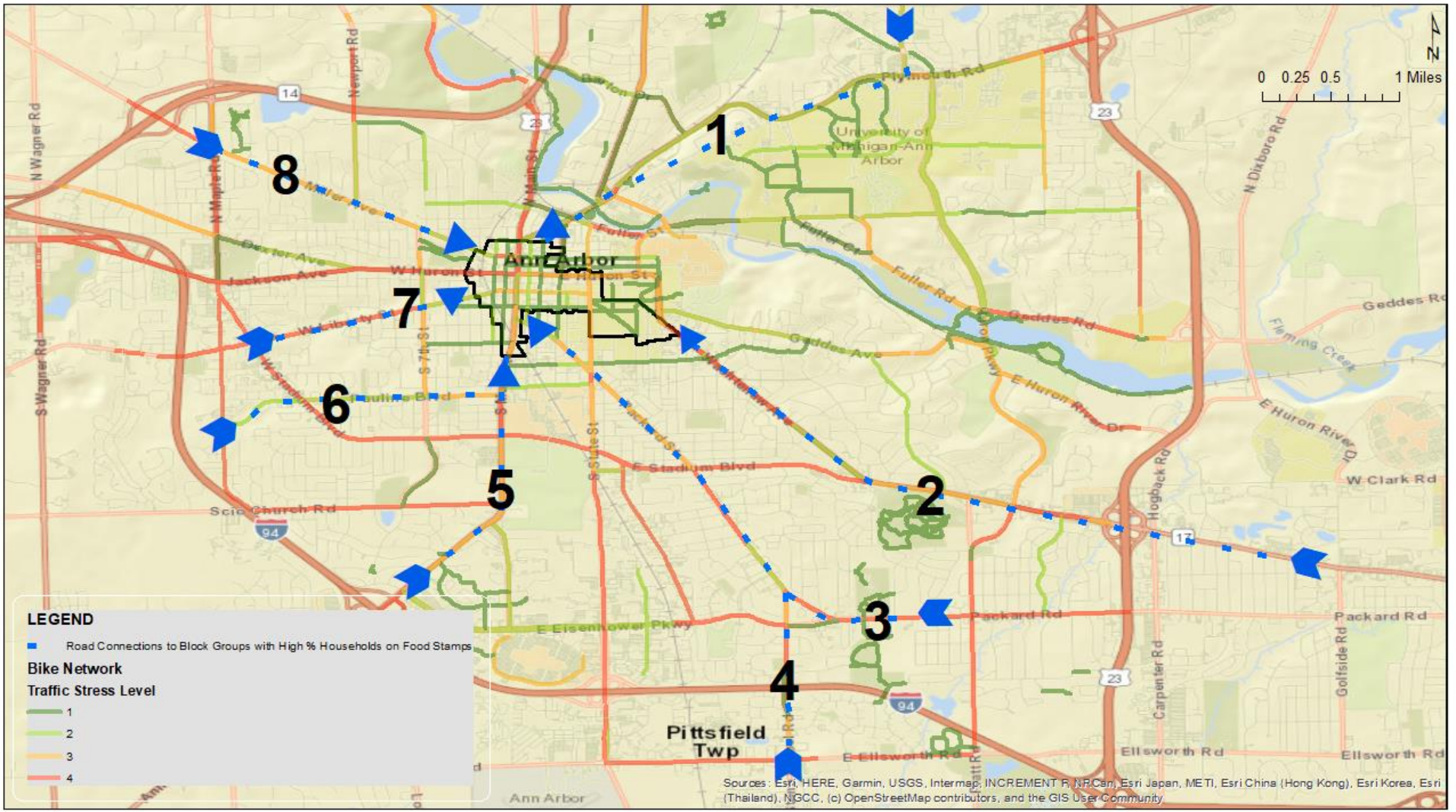
Figure 37 on pages 52 and 53 shows the results of the equity analysis. All eight low-income corridors have transit access to downtown Monday through Sunday. Only three corridors have higher quality transit access, with service every 15 minutes or less on weekdays from early morning through late evening. Bus these transit routes have reduced service on weekends. All corridors have less transit access on Saturday or Sunday service, with longer wait times, often one hour, and service ends in the early evening. This makes it challenging for downtown workers in the service industry who need to travel during non-peak hours. All the locations have bike access downtown, but the level of traffic stress varies. None of the locations have only 1 or 2 stress levels throughout the whole bike trip downtown, which may serve as a barrier, especially for new or inexperienced cyclists.

Figure 34: Ann Arbor Equity Analysis Mapping – Bus Stops



Source: Walker Consultants, Road Corridors from Smith Group

Figure 35: Ann Arbor Equity Analysis Mapping – Bike Network and Traffic Stress Level



Source: Walker Consultants, Road Corridors and Bike Network from Smith Group.

Figure 36: Equity Analysis: Transit Access and Bike Access to Downtown

Road Corridor	Transit Access Downtown	Bike Access Downtown (Yes/No)/Traffic Stress Level (1 least stressful-4 most stressful)
1. Plymouth Road	• **Higher quality access on weekdays** with service every 15 minutes from early morning to late evening • **Lower quality on weekends**, longer wait times, and less service throughout the day Route 23 Plymouth (Monday-Sunday service) • Headways:~15-min weekday, ~20-30 min Saturday, ~1-hr Sunday • Weekday service ~6:45 am-11:15 pm • Saturday service ~8:30 am-9:45 pm • Sunday service ~9:30 am-6:45 pm	**Moderate access,** mostly traffic stress level 2 (small section stress level 3 or 4)
2. Washtenaw Avenue	• **High-quality access on weekdays** with service every 8 minutes from early morning to late evening • **Lower quality on weekends,** longer wait times, and less service throughout the day Route 4 Washtenaw (Monday-Sunday service) • Headways: ~8-min weekday, ~30 min weekend • Weekday service ~6:15 a.m.-11:45 pm • Saturday service ~7:40 am-10:15 pm • Sunday service ~8:10 am-6:45 pm	**Moderate access,** mostly traffic stress levels 2,3,4
3. Packard Street	• **Lower quality access on weekdays** with service every 30 minutes from early morning to late evening • **Low quality on weekends,** longer wait times (1 hour), and less service throughout the day Route 5 Packard (Monday-Sunday service) • Headways: ~30-min weekday, ~1-hr weekend • Weekday service ~6:15 am-11:15 pm • Saturday service ~8:45 am-10:15 pm • Sunday service ~9:10 am-6:15 pm	**Moderate access,** mostly traffic stress levels 3,4 (small section stress level 2)
4. Stone School Road/Packard Street	• **Lower quality access on weekdays** with service every 30 minutes from early morning to late evening • **Low quality on weekends,** longer wait times (1 hour), and less service throughout the day Route 5 Packard (Monday-Sunday service) • Headways: ~30 min weekday, ~1-hr weekend • Weekday service ~6:20 am-11:20 pm • Saturday service ~8:50 am-10:15 pm • Sunday service ~9:20 am-6:15 pm	**Moderate access,** mostly traffic stress levels 3,4 (small section stress level 1,2)
5. Ann Arbor-Saline Road/Main Street	• **Lower quality access on weekdays** with service every 20 to 30 minutes from early morning to late evening • **Low quality on weekends,** longer wait times (1 hour), and less service throughout the day	**Moderate access,** mostly traffic stress levels 3,4

	Route 25 Ann Arbor-Saline Rd (Monday-Sunday service) • Headways: ~20-30 min weekday, ~1-hr weekend • Weekday service ~6:20 am-10:50 pm • Saturday service ~8:50 am-10:30 pm • Sunday service ~8:50 am-6:30 pm	
6. Pauline Boulevard	• **Higher quality access on weekdays** with service every 15 minutes from early morning to late evening • **Lower quality on weekends,** longer wait times, and less service throughout the day Route 28 Pauline (Monday-Sunday service) • Headways: ~15 min weekday, ~1-hr weekend • Weekday service ~6:15 am-11:15 pm • Saturday service ~8:30 am-10:15 pm • Sunday service ~8:30 am-7:15 pm	**Moderate access,** mostly traffic stress levels 2,3
7. Liberty Street	• **Lower quality access on weekdays** with service every 30 minutes from early morning to late evening • **Low quality on weekends,** longer wait times (1 hour), and less service throughout the day Route 36 Scio Church (Monday-Sunday service) • Headways: ~30 min weekday, ~1-hr weekend • Weekday service ~6:35 am-10:45 pm • Saturday service ~8:00 am-9:45 pm • Sunday service ~9:00 am-6:45 pm	**Moderate access,** mostly traffic stress levels 2,4
8. Miller Avenue	• **Lower quality access on weekdays** with service every 30 minutes, ending at 6:50 pm • **No access on weekends** Route 61 U-M-Miller (Monday-Friday service) • ~30 min headways • Service ~6:15 am-6:50 pm	**Moderate access,** mostly traffic stress levels 2,3

Source: Walker Consultants.