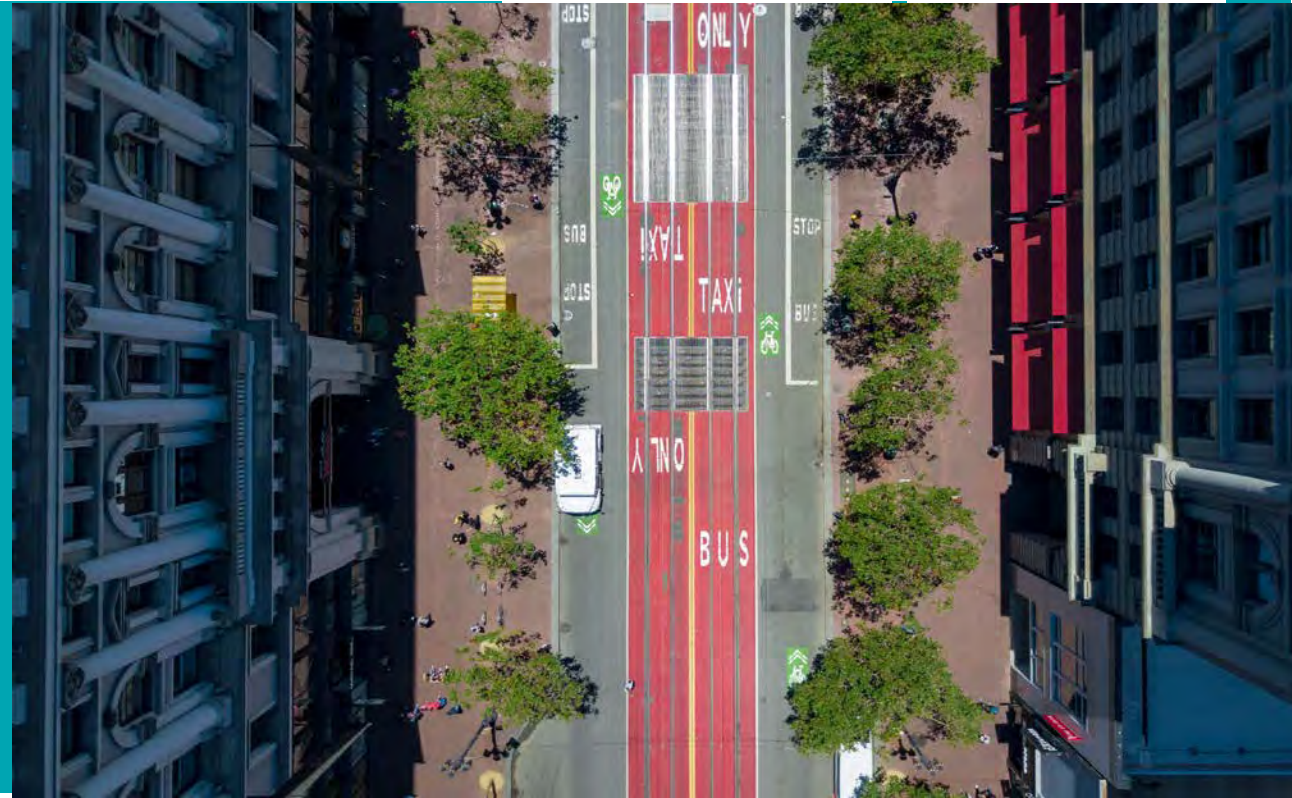


CURB PLANNING AND MANAGEMENT WORKSHOP

February 5, 2020



TODAY'S AGENDA

1: Getting to Know Each Other

2: What is Curb Management?

3: Planning for a Dynamic Curb: Tools for Success

4: When, Where, and How to Implement Curb Management

5: Best Practices and Approaches from Other Cities

6: Conclusion and Key Contacts

7: Group Activity: "You are Here"

1. Getting to Know Each Other

WHAT IS CURB MANAGEMENT?

To get here today I...

- A) Drove alone.
- B) Carpooled.
- C) Walked or biked.
- D) Took an Uber or Lyft.
- E) Took public transit.
- F) Other.

WHAT IS CURB MANAGEMENT?

In my community...

- A) We have not yet considered curb management.
- B) We are just starting to think about curb management.
- C) We are most focused on enforcing rules and regulations in the right-of-way.
- D) We are most focused on prioritizing certain modes of travel in the right-of-way.
- E) We are most focused on ways to monetize our curb space.

WHAT IS CURB MANAGEMENT?

I am most excited to learn about...

- A) Basic methods to make the right-of-way in my community a public, usable space.
- B) Ways to create rules for the curb and enforce them.
- C) Ways to prioritize certain modes of transportation and/or discourage others.
- D) Ways to recoup costs from operations and maintenance of the curb and the right-of-way.
- E) Other

2. What is Curb Management?

LEARNING OBJECTIVES

1. Define curb management.
2. Understand why curb management is important.
3. Understand the historic and changing demands for curb space.
4. Understand the core functions of the right-of-way/curb space.
5. Understand what effective curb management can accomplish.

WHAT IS CURB MANAGEMENT?

“Curb Management” is a catch-all term that references the intentional act of defining the use, designation, and organization of curb space. It brings order to a complex, shared place with competing uses.

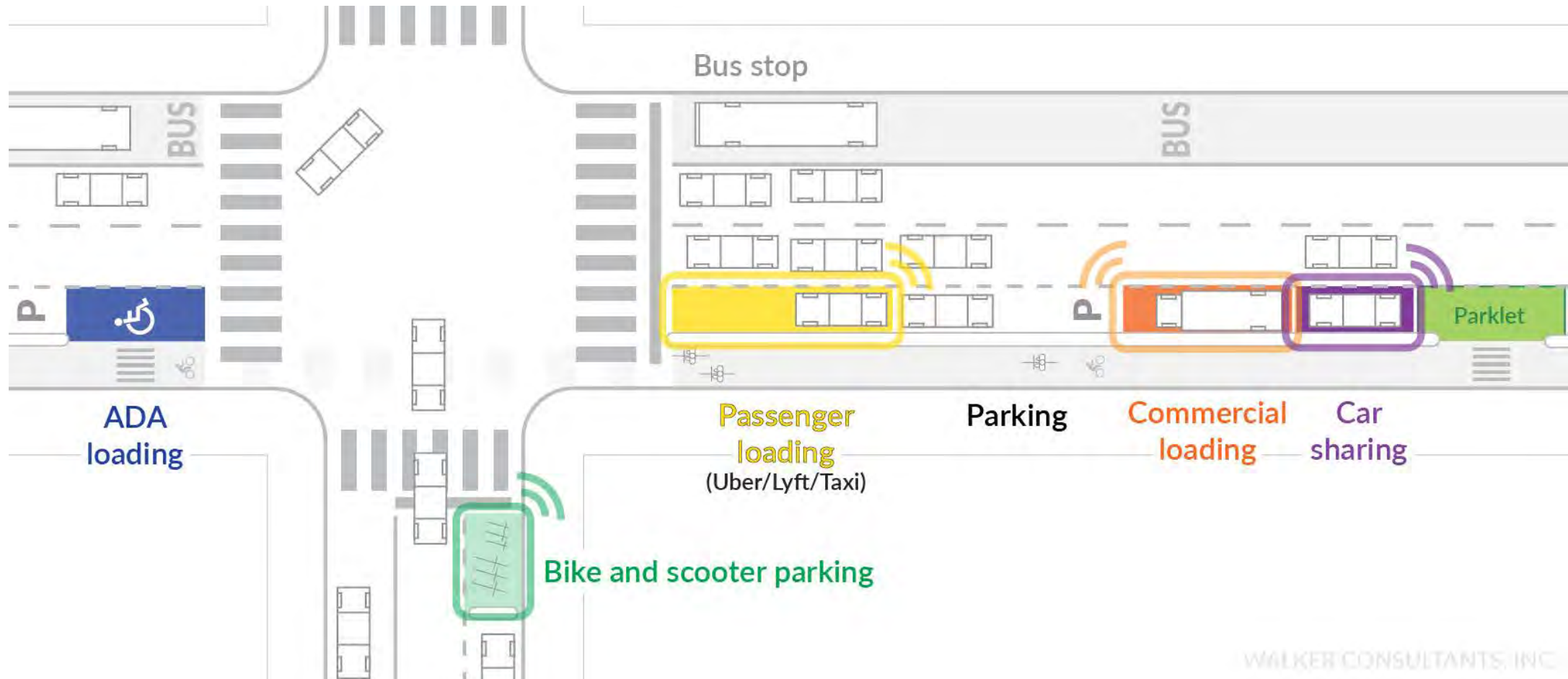


WHAT IS CURB MANAGEMENT?



WALKER CONSULTANTS, INC.

WHAT IS CURB MANAGEMENT?

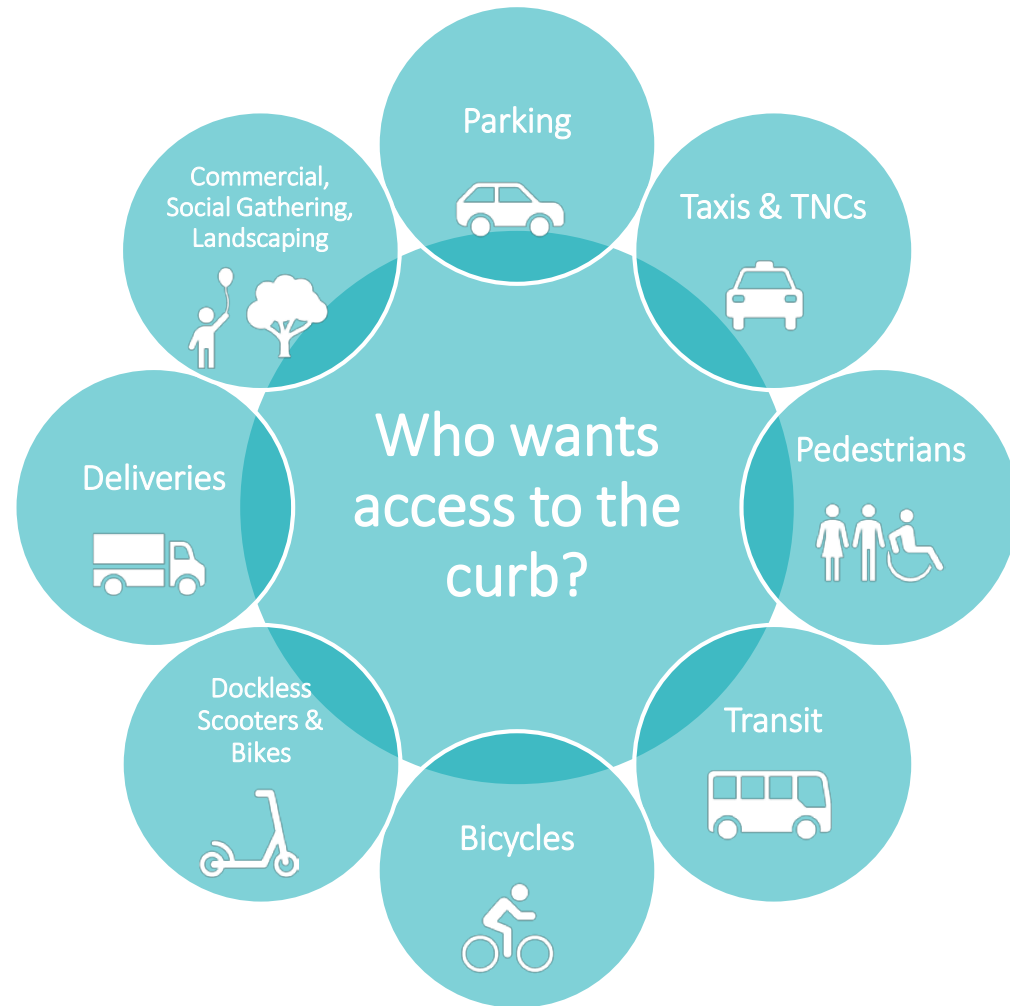


COMMON ISSUES

- Competing and conflicting demands
- Congestion
- Accessibility and safety issues
- Difficulty accessing the curb for public improvements
- New and ever-changing transportation methods



DEMAND FOR THE CURB: THEN AND NOW



“Curb management” brings order to a complex, shared place with competing uses.

A historically car-centric place is now a multi-faceted meeting ground for multiple modes of transportation and access.

DEMAND FOR THE CURB: THEN AND NOW

- Pick-up/Drop-off
- Dockless Vehicles
- Active Modes
- Transit
- Parking
- Commercial Deliveries
- Future Mobility
- Other Uses



FROM PARKING TURNOVER TO CURB TURNOVER



PRIVATE MOTOR VEHICLES
600–1,600/HR



MIXED TRAFFIC WITH FREQUENT BUSES
1,000–2,800/HR



TWO-WAY PROTECTED BIKEWAY
7,500/HR



DEDICATED TRANSIT LANES
4,000–8,000/HR



SIDEWALK
9,000/HR



ON-STREET TRANSITWAY, BUS OR RAIL
10,000–25,000/HR

Source: NACTO

MODES THAT SHARE THE STREET



Pedestrians

Cyclists

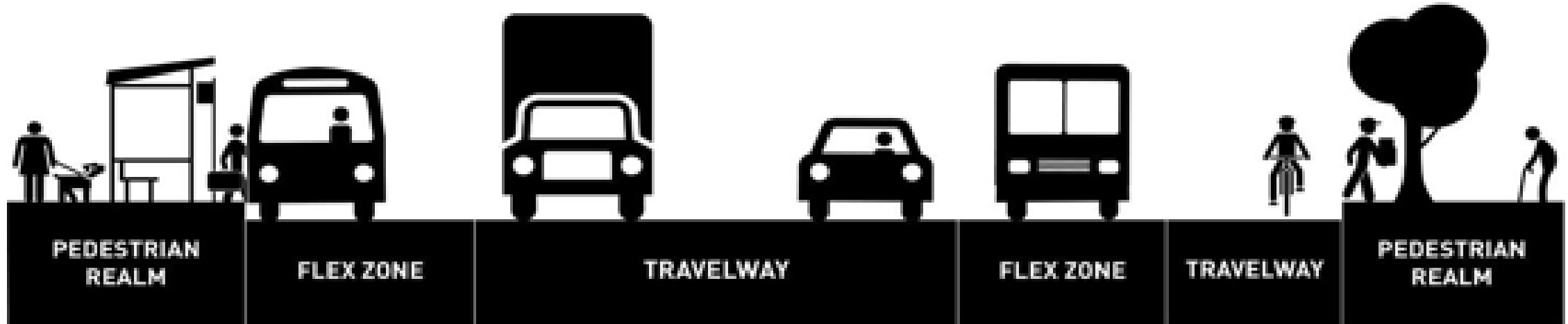
Transit

Motorists

Delivery/MAAS

Vendors

FUNCTIONS OF THE RIGHT-OF-WAY



Pedestrian Realm: Pedestrian mobility and community space

Travelway: Dedicated areas for moving vehicles

Flex Zone: Separation between moving vehicles and people (e.g. parklets or on-street parking)

FUNCTIONS OF THE RIGHT-OF-WAY

The right-of-way is a pedestrian realm.



FUNCTIONS OF THE RIGHT-OF-WAY

The right-of-way is a travelway.



FUNCTIONS OF THE RIGHT-OF-WAY

The right-of-way is a flex zone.



WHAT CAN WE ACHIEVE WITH CURB MANAGEMENT?



We can make access more equitable among different modes of travel.



We can improve level of service for multiple modes.



We can collect data.



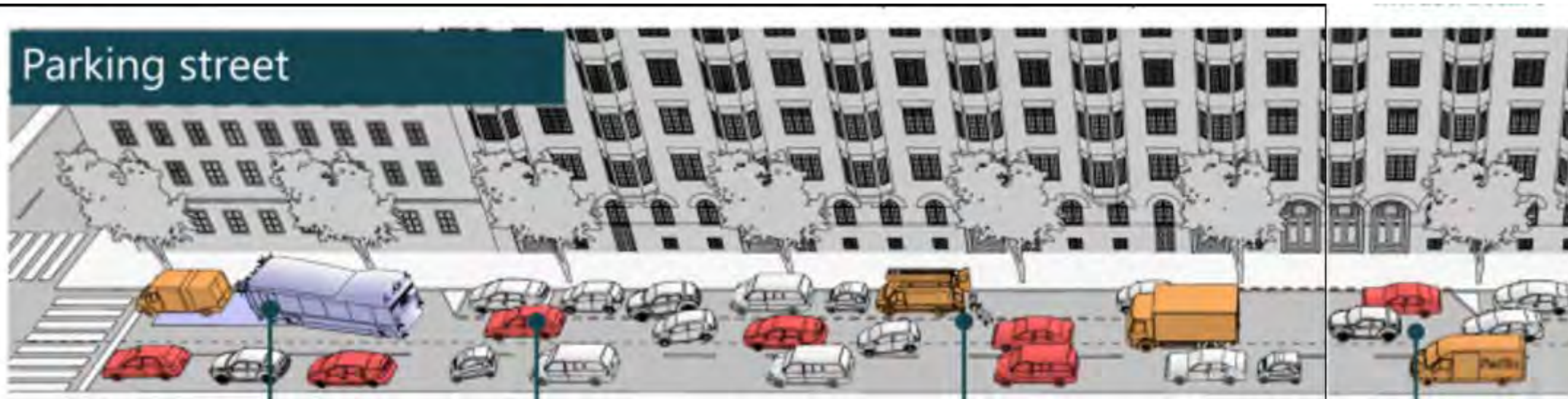
We can monetize the curb.

3. Planning for a Dynamic Curb: Tools for Success

LEARNING OBJECTIVES

1. Identify basic, mid-level, and advanced interventions to improve access for various user groups at the curb.

PLANNING FOR A DYNAMIC CURB: EXPANDED PRIORITIES



Curbs that prioritize parking only can result in:

- Rideshare double-parking
- Loading/delivery double-parking
- Transit slow-downs
- Unsafe cycling
- And more

PLANNING FOR A DYNAMIC CURB: EXPANDED PRIORITIES



Curbs that prioritize and accommodate space for multiple modes can:

- Support safe and efficient transit
- Improve safety for cyclists and reduce conflicts with motorists
- Expand and expedite loading/unloading and deliveries
- Improve pedestrian experience
- Create safe pick-up and drop-off opportunities for rideshare

TOOLS FOR SUCCESS: PASSENGER PICK-UP AND DROP-OFF

- **Designated pick-up and drop-off areas:** Signage or curb markings to designate certain areas for pick-up, drop-off, or loading.
- **Video data collection:** Video collection facilities near pick-up and drop-off locations to monitor passenger and driver behavior.



TOOLS FOR SUCCESS: PASSENGER PICK-UP AND DROP-OFF

- **Geofencing:** Virtual geographical boundaries within which TNC pick-ups and drop-offs are permitted.
- **Monetized passenger loading zones:** City fee collection for passenger pick-up and drop-off in geofenced loading zones.



TOOLS FOR SUCCESS: ANTICIPATING AV IMPACT

The Impacts of Autonomy: Some project 90% of parking and vehicle storage will disappear by 2030

Reality:

- Requires mass adoption of shared rides
- Most of the U.S. population lives in suburban areas
- Requires changes in federal and state law
- Fees to pay for infrastructure

TOOLS FOR SUCCESS: ANTICIPATING AV IMPACT

1. AV Technology & Smart Infrastructure

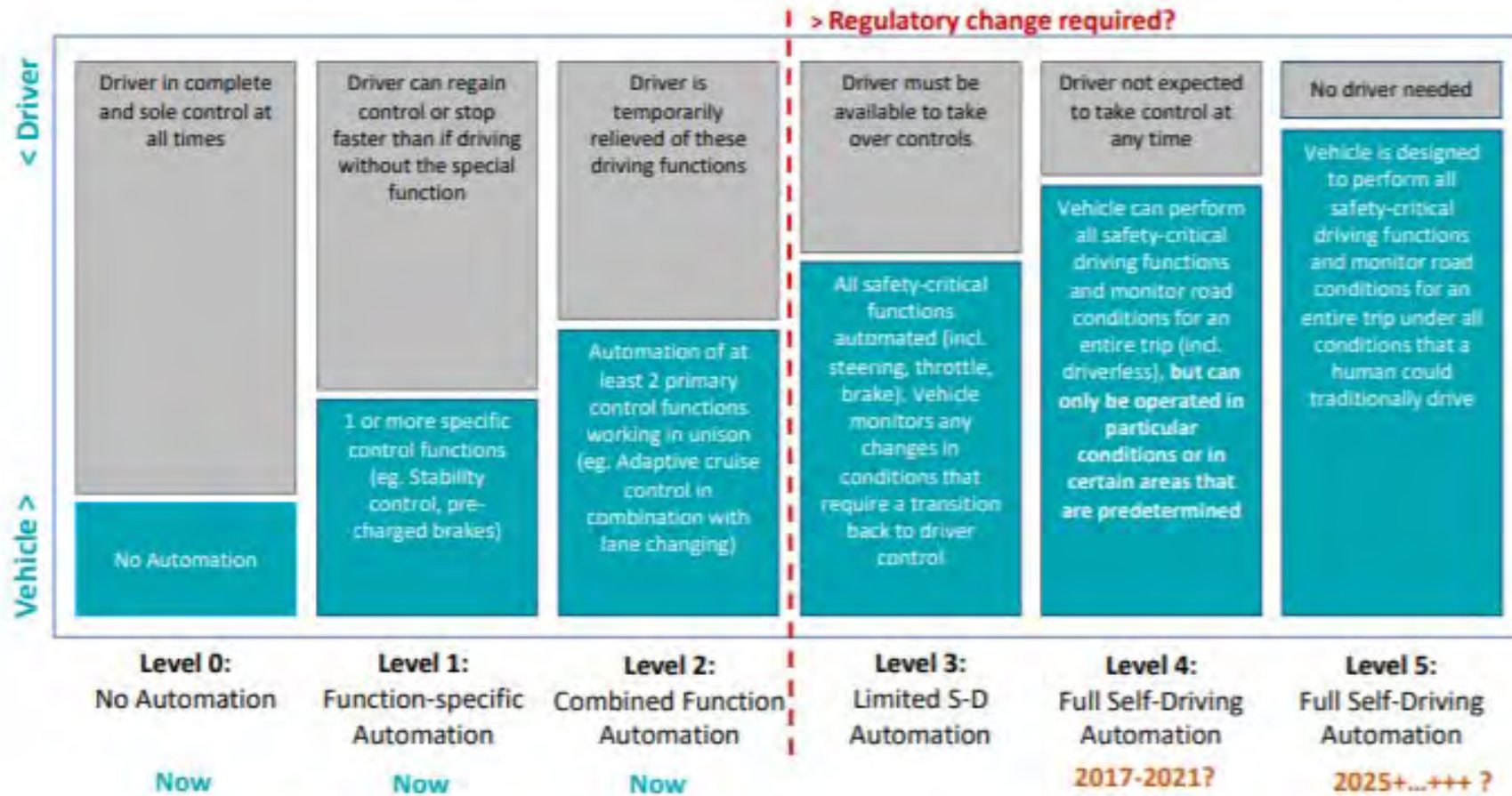


2. Consumer Acceptance



TOOLS FOR SUCCESS: ANTICIPATING AV IMPACT

Increasing levels of autonomy will require different responses from a regulations and infrastructure perspective.



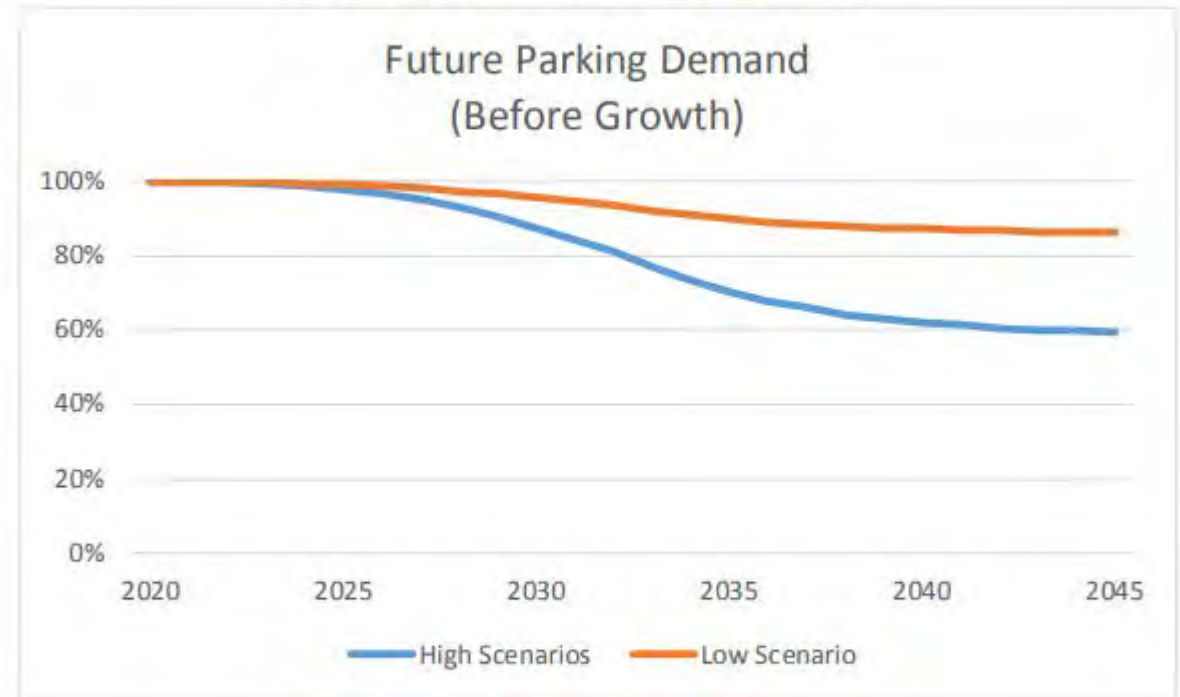
Source: SAE, NHTSA

TOOLS FOR SUCCESS: ANTICIPATING AV IMPACT

Greatest impact will be in dense urban areas and those with high parking costs

15% -40%

Decrease in Parking Demand*



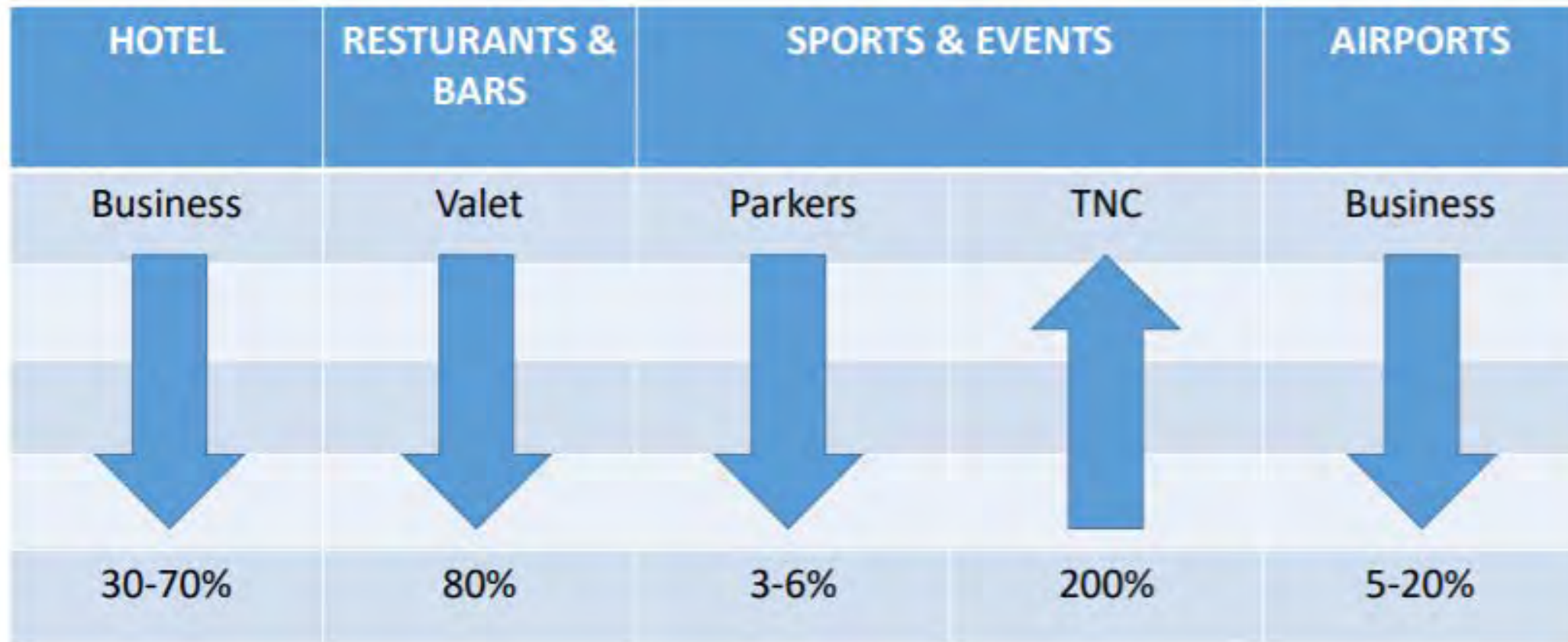
2020-2040

Market Penetration Timeline

* Projection

TOOLS FOR SUCCESS: ANTICIPATING TNC IMPACT

The permeation of Transportation Network Companies (TNCs) has already impacted parking demand in certain markets.



Source: Walker Consultants

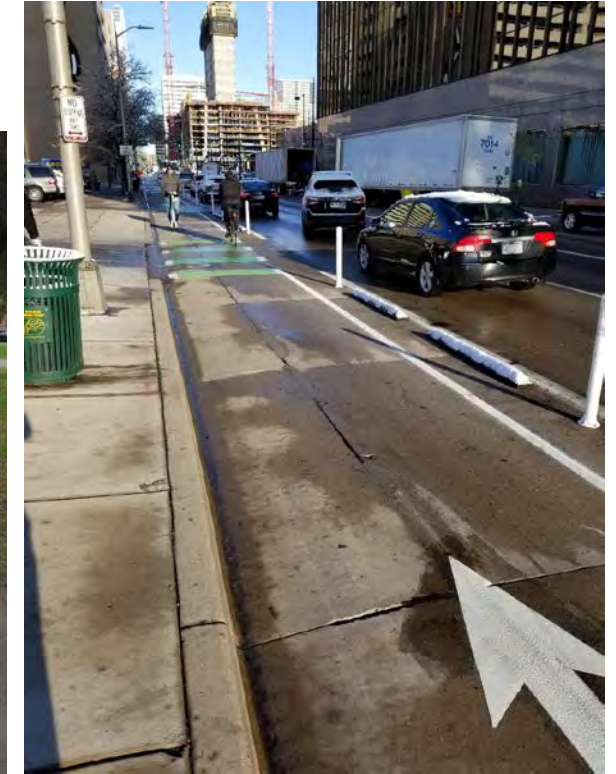
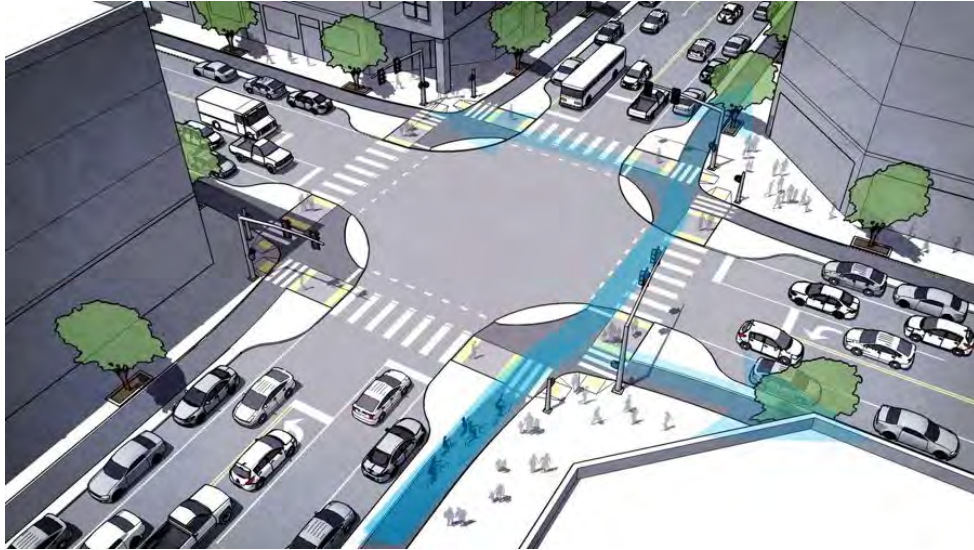
TOOLS FOR SUCCESS: PEDESTRIAN REALM

- Curb Extensions
- Sidewalk Enhancements
- Parklets



TOOLS FOR SUCCESS: BICYCLES

- Protected Bike Lanes and Intersections



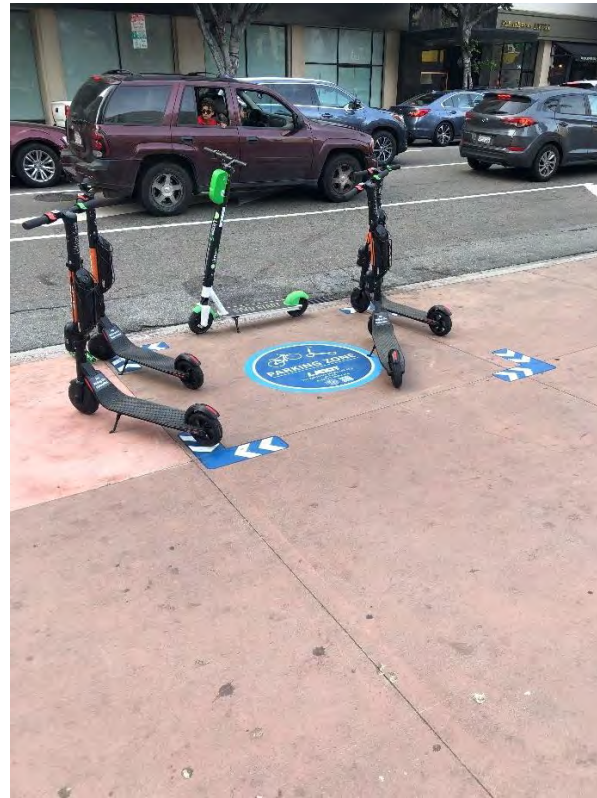
TOOLS FOR SUCCESS: TRANSIT

- Queue Jumps
- Bus Bulbs
- Right-Turn Pockets
- Transit Only Lanes
- Automated Transit-Only Lane Enforcement



TOOLS FOR SUCCESS: DOCKED AND DOCKLESS VEHICLES

- Delineated parking areas for shared mobility options, such as e-bikes and e-scooters



TOOLS FOR SUCCESS: E-COMMERCE AND DELIVERIES

- Designated Loading Zones
- Loading Zone Time Restrictions
- Incentivizing use of non-SOVs



TOOLS FOR SUCCESS: E-COMMERCE AND DELIVERIES

- **Monetized Commercial/Freight Loading:** City fee collection for commercial deliveries in designated loading zones
- **Demand-Based Loading Zone Pricing:** Fees set based on demand for loading zone space (both location and time of day/week)



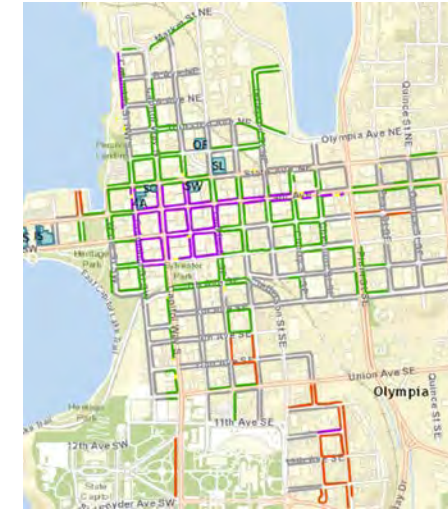
TOOLS FOR SUCCESS: PARKING

- Residential/Neighborhood Parking Permits
- Parking Time Limits
- **Flexible Curb Lanes:** Signage or other means to use a curb lane as parking during certain times and as a travelway or other purpose during others



TOOLS FOR SUCCESS: PARKING

- **Parking Pricing:** Paid on-street parking
- **Parking Management/Benefit Districts:** Shared use, funding, and operation of parking assets
- **Demand-Based Pricing:** Pricing on-street parking based on demand—e.g. higher pricing during weekday peaks or on event days



Parking Business/Improvement District in Olympia, WA



Demand-Based Parking Rates in Washington, D.C.

FLEXIBILITY IN CURB MANAGEMENT

- **Early Morning:** Freight and commercial deliveries
- **Mid-Morning:** Parklet use, employee pick-up and drop-off
- **Mid-Day:** Deliveries and street vendors; micro-mobility usage for errands and meetings
- **Evening:** Maximize travelway capacity for rush hour; micro-mobility usage for after-work travel
- **Night:** Commercial deliveries



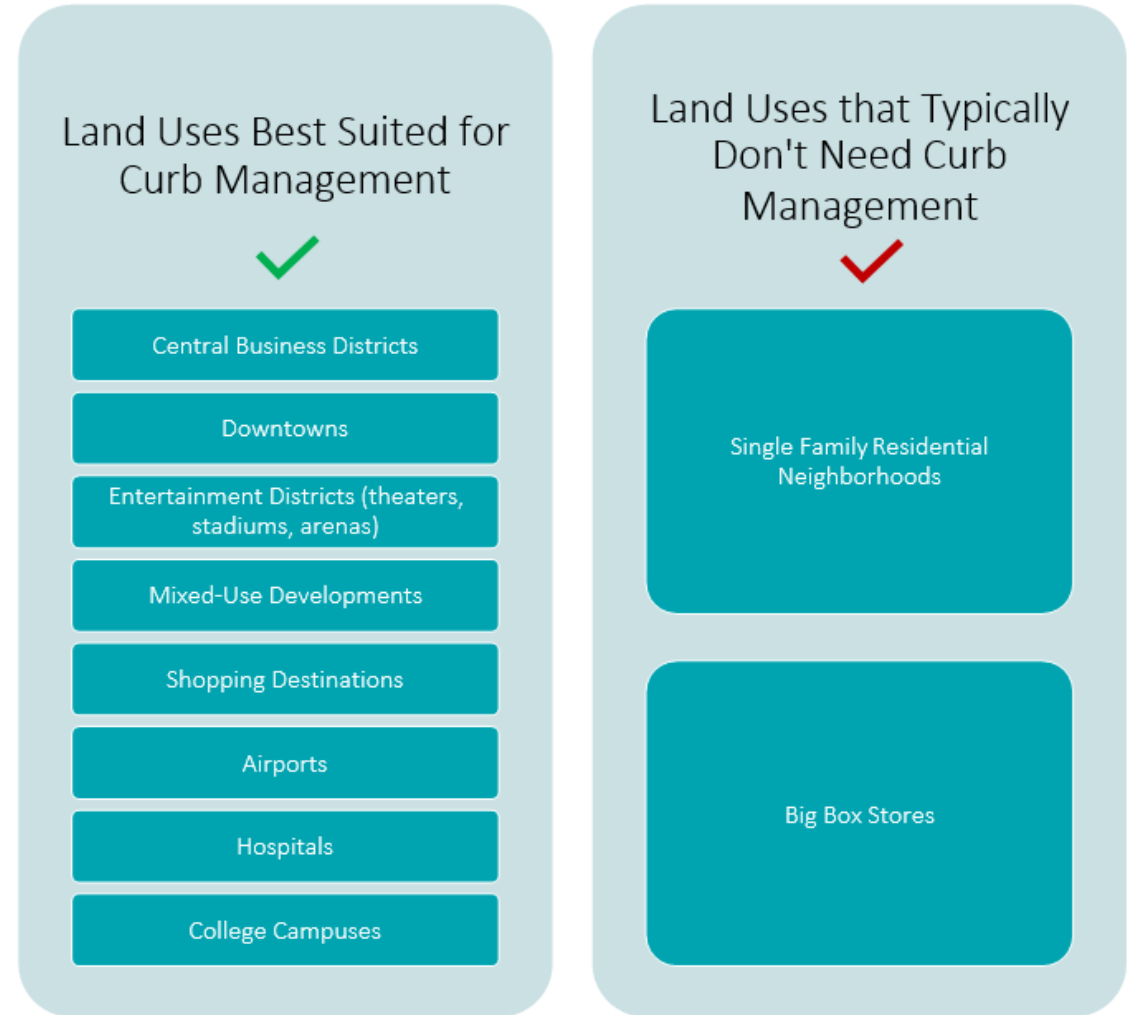
4. When and How to Implement Curb Management

LEARNING OBJECTIVES

1. Identify opportunity areas in your community for curb management.
2. Create a framework for prioritizing access by user group and context.
3. Evaluate opportunity areas for curb management interventions.
4. Select and implement treatments.
5. Engage with the public.
6. Monitor success and mitigate shortfalls.

IDENTIFYING OPPORTUNITIES IN YOUR COMMUNITY

Curb Management is best suited for areas where multiple modes of travel converge, such as central business districts, shopping destinations, and airports.

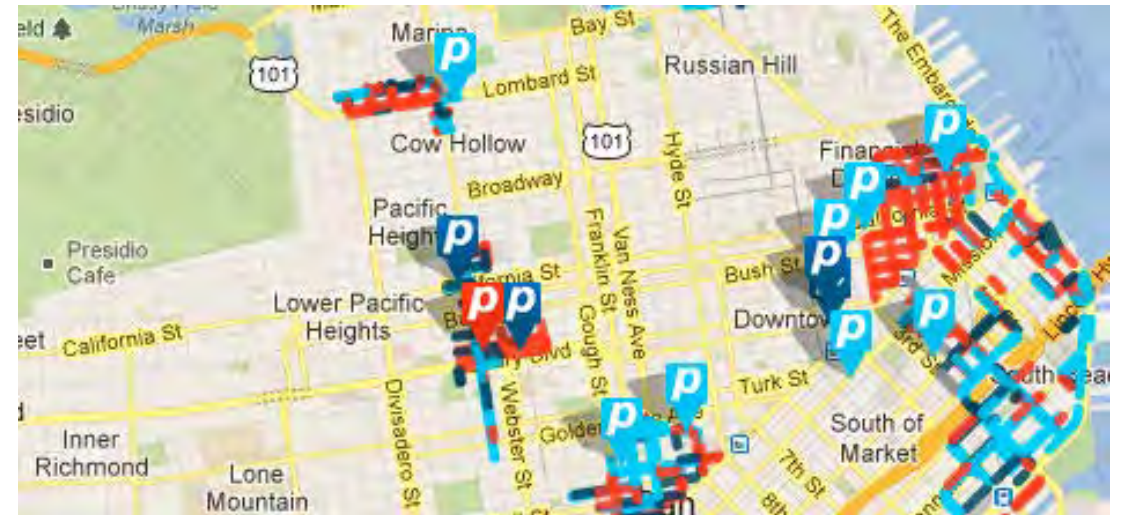
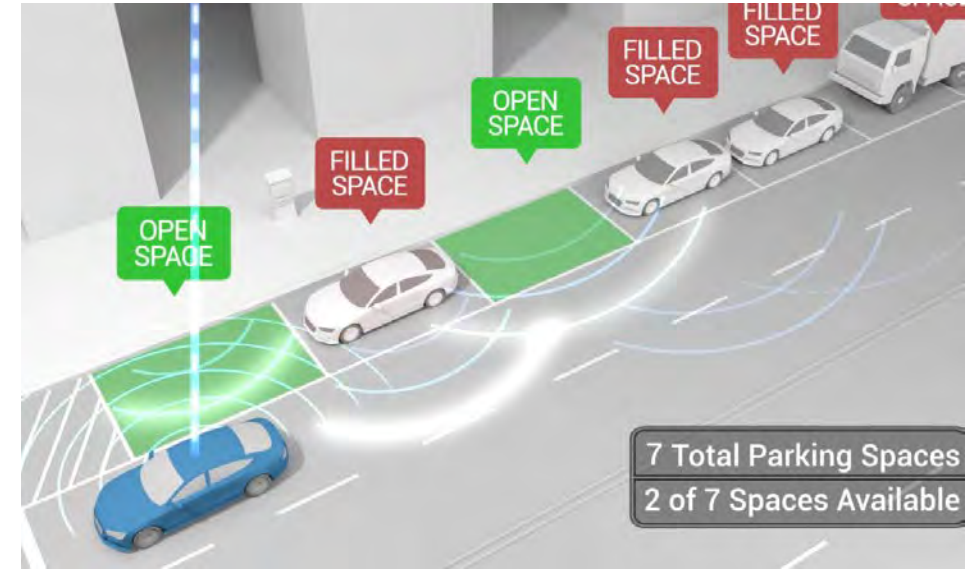


EXISTING CONDITIONS ASSESSMENT

- **Field Observations:** Physically observing the curb to understand demands and conflict points (e.g. parking inventory/occupancy studies, origin/destination studies, intersection analysis, etc.)
- **Physical Conditions:** Existing street and curb design, land use characteristics, and other infrastructure conditions
- **Existing Regulations:** Policies, regulations, and signage that influence behaviors
- **Qualitative Feedback:** Direct input from the people who use the curb

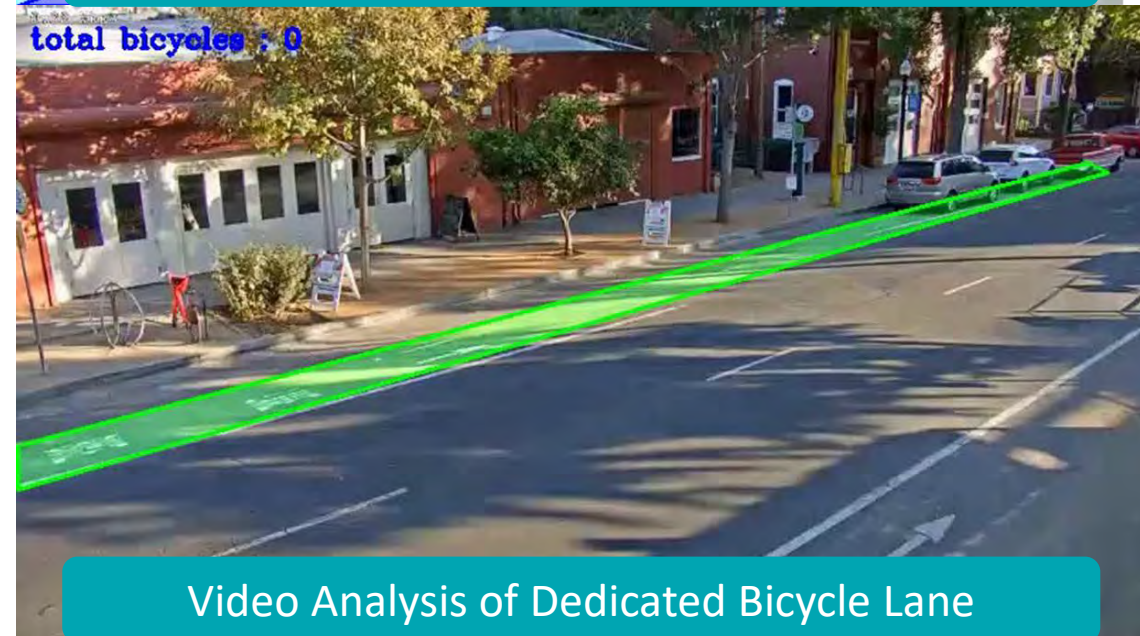
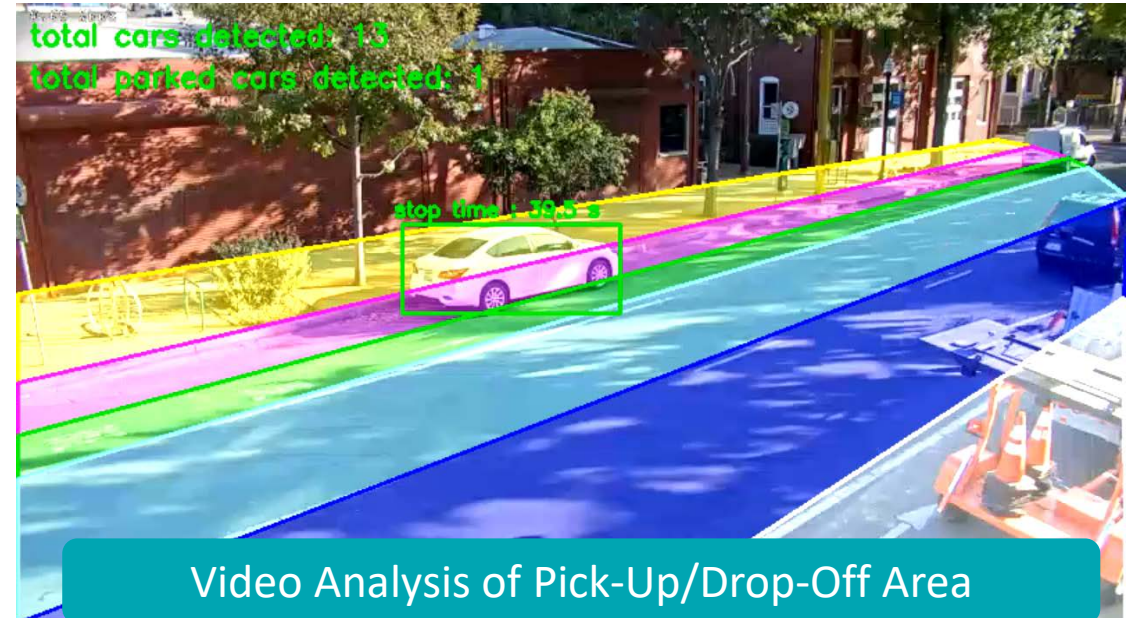
TECHNOLOGY FOR DATA COLLECTION AND MANAGEMENT

- **APGS:** Automated Parking Guidance Systems to alert drivers to real-time parking availability information
- **Sensor-Based Technology:** Ground sensors to monitor vehicle presence within a space/location
- **Mobile Applications**



TRACKING AND ENFORCEMENT

Continued data collection and analysis even after a treatment is selected is essential to determining the effectiveness of the treatment and troubleshooting issues.



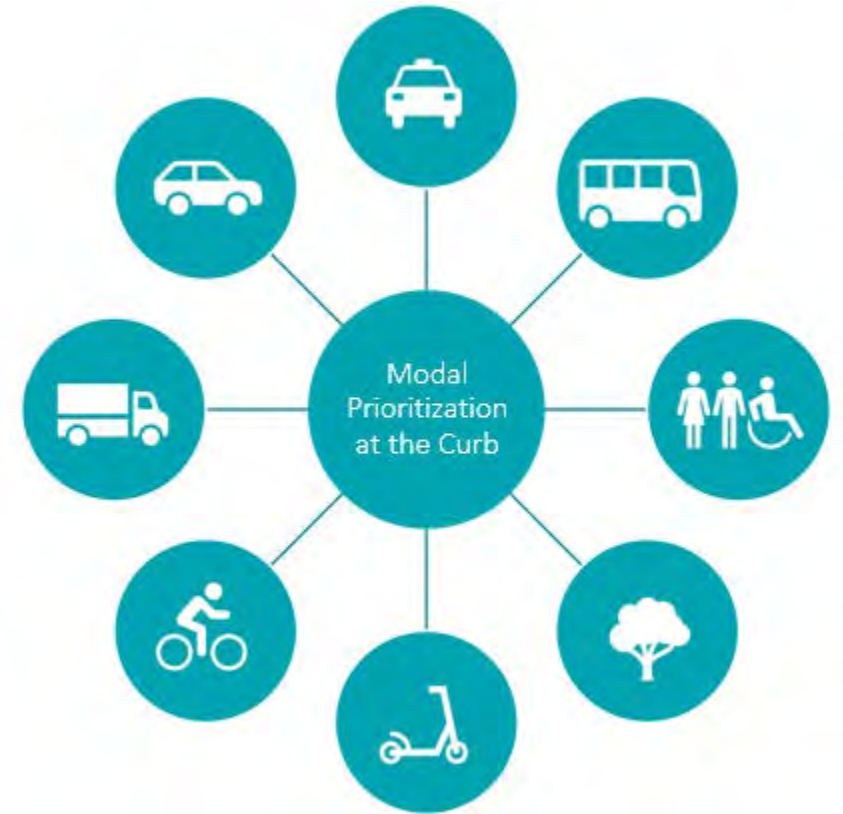
EDUCATION AND OUTREACH

- **Adjusting Behaviors:** Using communication, ambassadorship, and transitional enforcement to adjust behaviors
- **Establishing Mutual Benefit:** Sharing with the public and stakeholders ways in which an organized curb can benefit them
- **Pilot Programs:** Establishing pilot programs to test the efficacy of selected treatments



PRIORITIZING ACCESS

- Who are the primary user groups?
- What types of land uses are most prevalent?
- What are the primary activities occurring at the curb?
- What are the community's goals for the curb and for mobility generally?



PRIORITIZING ACCESS

The City of Sacramento is prioritizing allocation of curb fees to meet their larger mobility goals, such as a desire to expand bike facilities and encourage use of active modes.



PRIORITIZING ACCESS

For example, the City of Seattle prioritizes based on land use context.

	Industrial Areas	Residential Areas	Commercial or Mixed-use Areas
Modal Plan Priorities	1	1	1
Access for Commerce	2	3	2
Access for People	3	2	3
Public Space Activation	5	6	4
Greening	6	4	5
Private Vehicle Storage	4	5	6

Source: *Curb Appeal*, NACTO, 2017

TRADEOFF EVALUATION

Example: Your community is considering a separated lane for its express bus service. Possible benefits may include more frequent headways and safer boarding and unloading, while trade-offs may include infrastructure cost, challenges with developing new bike lanes, and potential reduction in vehicle throughput.

TRADEOFF EVALUATION

Example: Your community is considering designating specific loading and unloading zones for commercial deliveries and Uber/Lyft. Benefits include reduced double parking, safer loading/unloading, and improved traffic flow. Tradeoffs include reduced on-street parking capacity and possible reduction in vehicle throughput in the travelway.

TRADEOFF EVALUATION

Static Treatments

Permanent changes to the curb, where one or two modes are prioritized and clearly accommodated.



Flexible Treatments

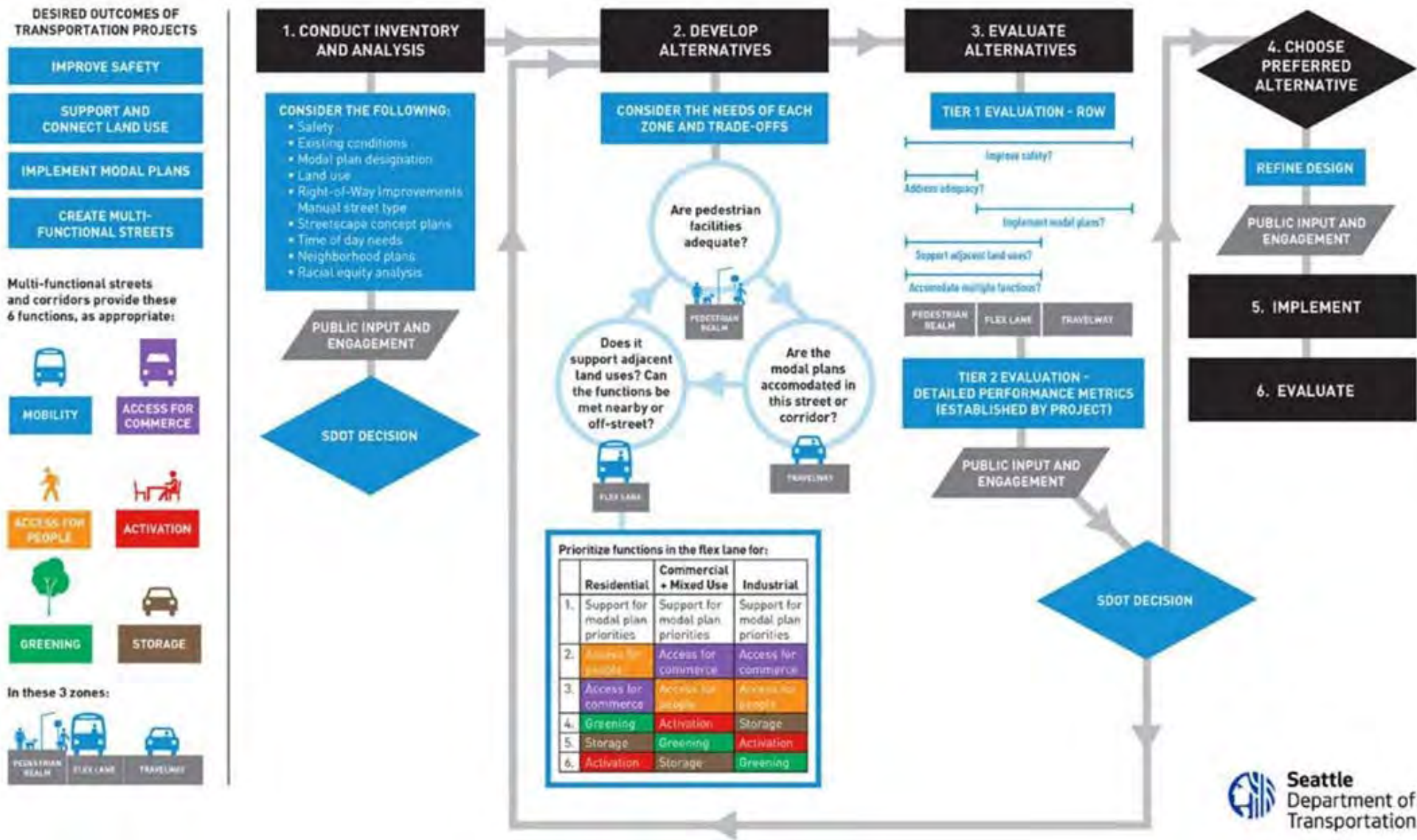
Transient, flexible updates to improve access for multiple modes when they need them.



SELECTING TREATMENTS

- Data Collection Results
- Public Feedback
- Tradeoffs and Modal Prioritization
- Performance Metrics

SELECTING TREATMENTS



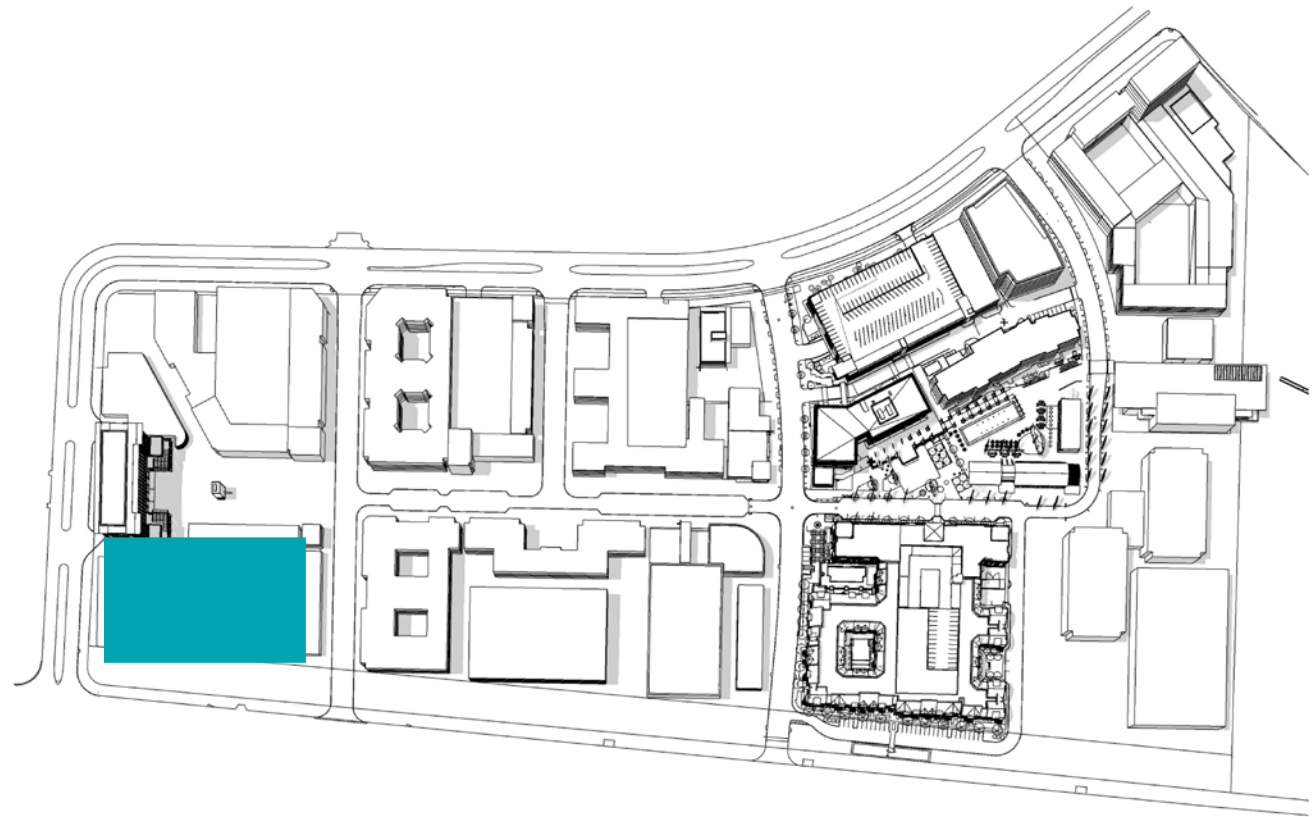
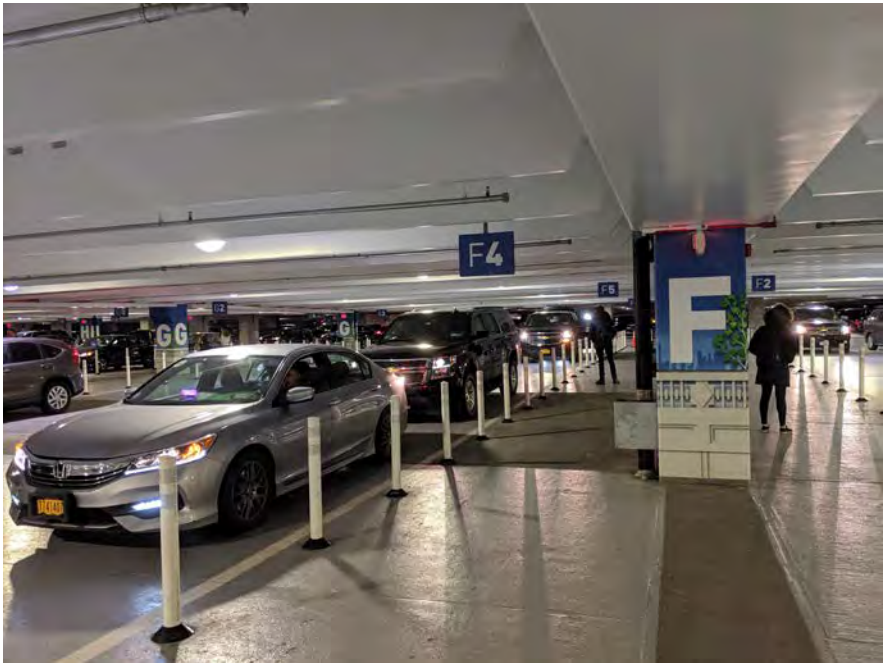
REGULATIONS, INSURANCE, AND CONTRACTS

- Regulatory and legal process
 - Public role
 - Operators
 - Riders/Passengers
- Local authority
- Insurance and indemnification
- Choosing operators
- Administrative
- Privacy and data

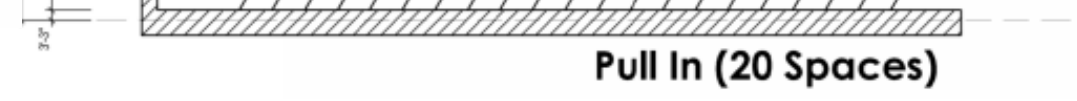
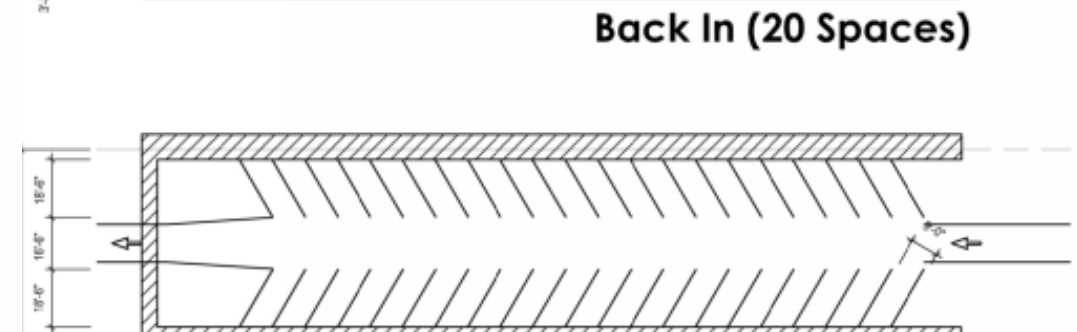
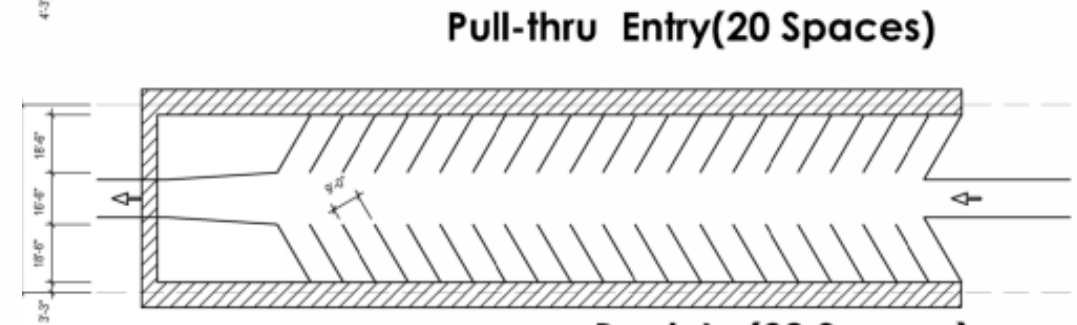
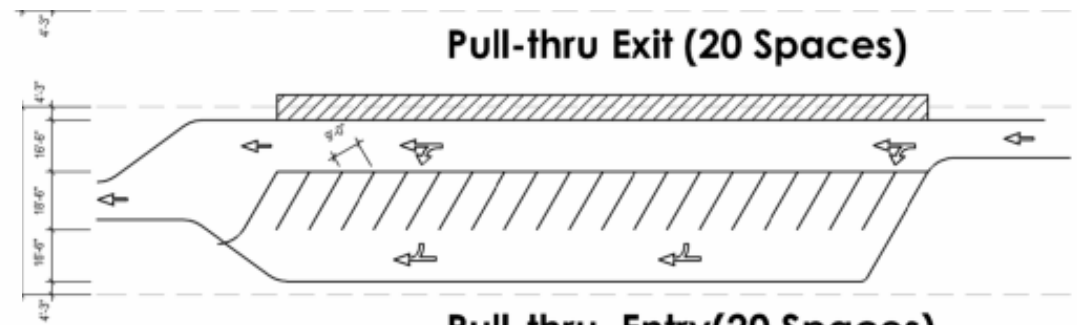
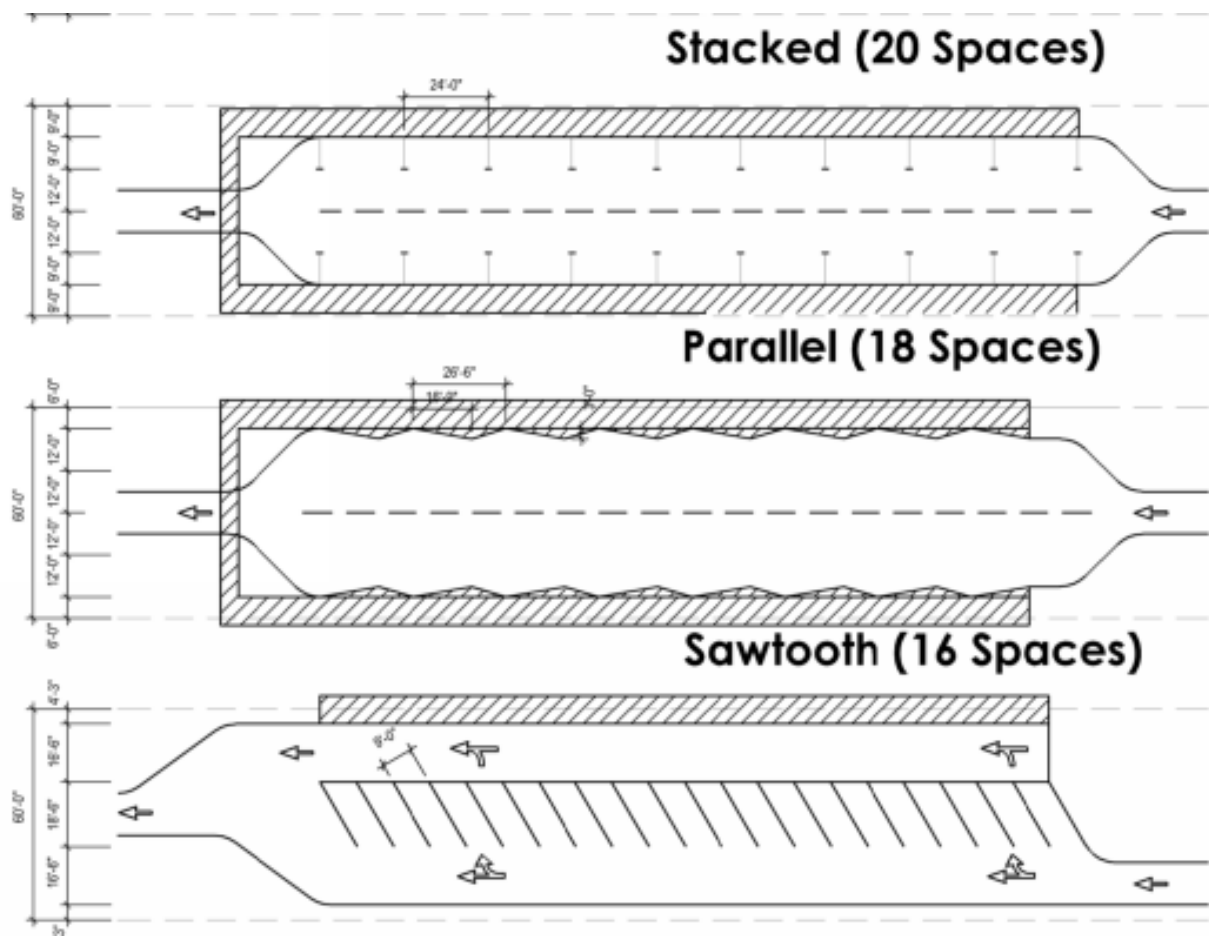


ACCOMMODATING TRAVEL MODES OFF-STREET

Off-street accommodation of certain travel modes, like rideshare, is an effective way to expand and re-prioritize usage of parking structures.



ACCOMMODATING TRAVEL MODES OFF-STREET



DESIGN CONSIDERATIONS

- Use bollards and NOT curbs
- Passenger Loading Zones must meet ADA
- Signage and Wayfinding
- Decision Points for Drivers
- Pedestrian Safety
- Staging Areas



Example of bollards at SFO

5. Best Practices and Approaches from Other Cities

EAGLE, CO

Eagle, CO used extensive community outreach and education to maximize function of the right-of-way and enforce existing regulations.

2-HOUR PARKING

2-Hour parking along Broadway is enforced between the hours of 9 a.m. and 6 p.m., Monday through Saturday. Help keep these spaces open for customers and visitors by limiting your parking time to two hours, or parking in an unrestricted space.

PARKING FINES

General Infraction	\$30
Unlawful use of ADA stall	\$100

Everyone makes mistakes. The Town of Eagle offers courtesy warnings to first-time downtown parking violators.

DID YOU KNOW?

Town ordinance 11.10 prohibits parking in the public right-of-way for more than 24 hours at a time. Leaving your vehicle on-street for more than 24 hours can prevent effective snow plowing, utility work, and repair of streets and sidewalks.

For more information about parking downtown, please contact:

Town of Eagle
Community Development
Department
200 Broadway, P.O. Box 609
Eagle, CO 81631
(970) 328-9655
www.townofeagle.org



Park Smart!
Rules and Guidelines for Parking in Downtown Eagle

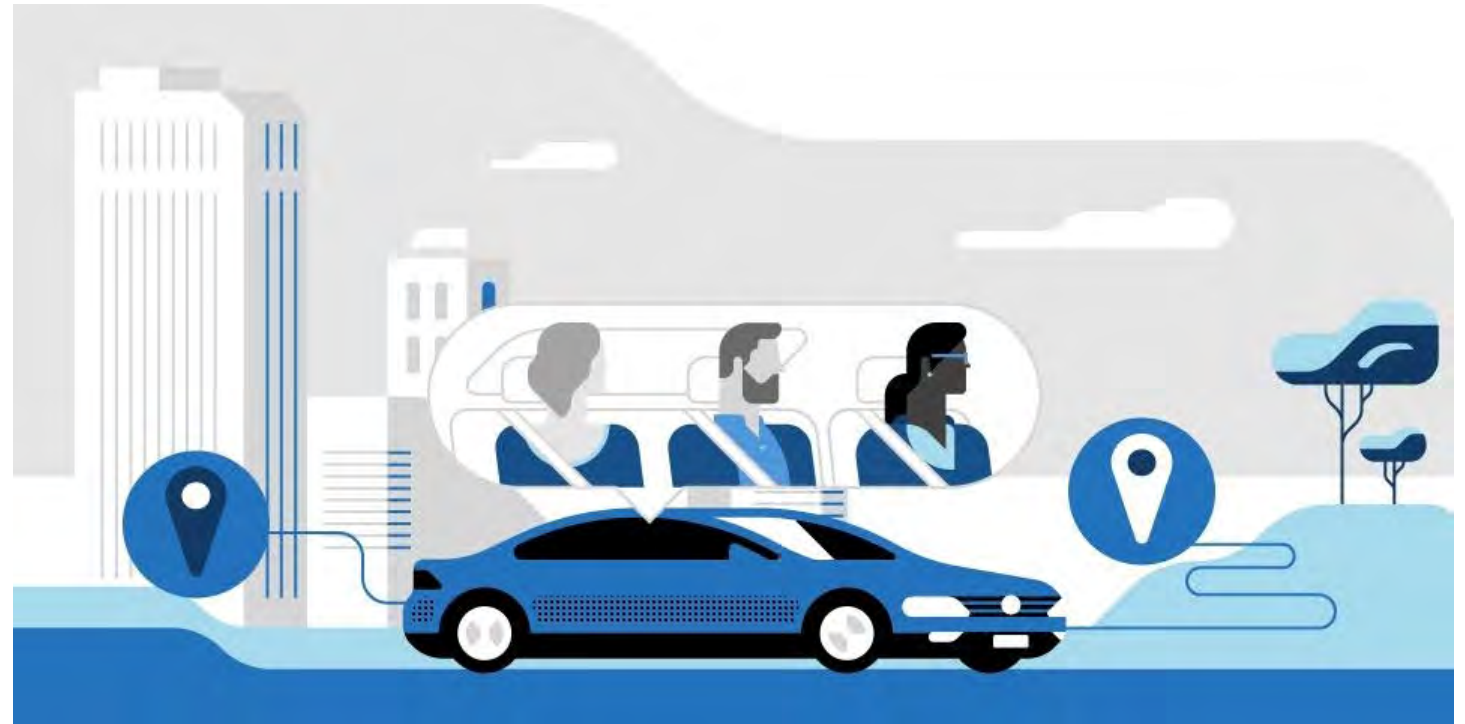
CHICAGO, IL

Chicago, IL developed a permanent infrastructure solution (dedicated bus lanes) to declining bus ridership and expediency and rising Uber/Lyft usage.



CHICAGO, IL

Chicago, IL is tiering its existing TNC fees to incentivize some ride types and discourage others.



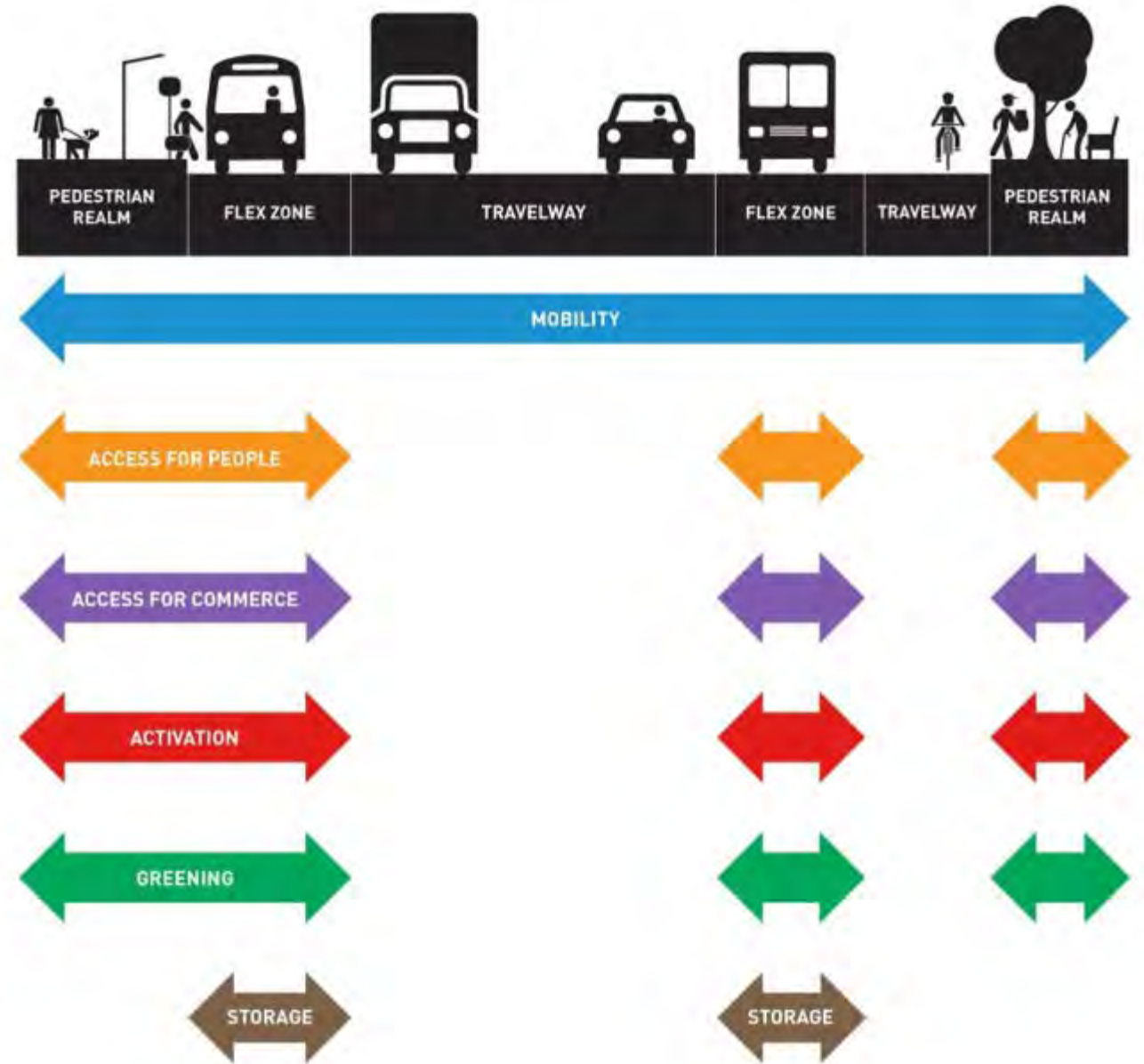
COLUMBIA, MO

Columbia, MO took control of the e-scooter craze by developing a Dockless Mobility RFP alongside the University of Missouri.



SEATTLE, WA

Seattle, WA has planned for and started to implement different priorities for the curb based on land use context, location in the right-of-way, and broader community priorities.



SACRAMENTO, CA

Sacramento, CA is studying implementation of TNC and commercial loading fees (in addition to increases to on-street parking rates) to expand the financial output of the curb and respond to changing consumer demand.



Walker Consultants, 2019

6. Conclusion and Key Contacts

CONCLUSION: WHAT IS CURB MANAGEMENT?

Curb management is anything done intentionally to better organize, define, designate, or bring order to the curb space.

Demands for the curb are changing and expanding beyond the single-occupancy vehicle.

Curb management can help make access to the curb **more equitable and improve level of service among multiple transportation modes**. It can also help communities collect data on transportation activity, and can make it possible for communities to monetize the curb.

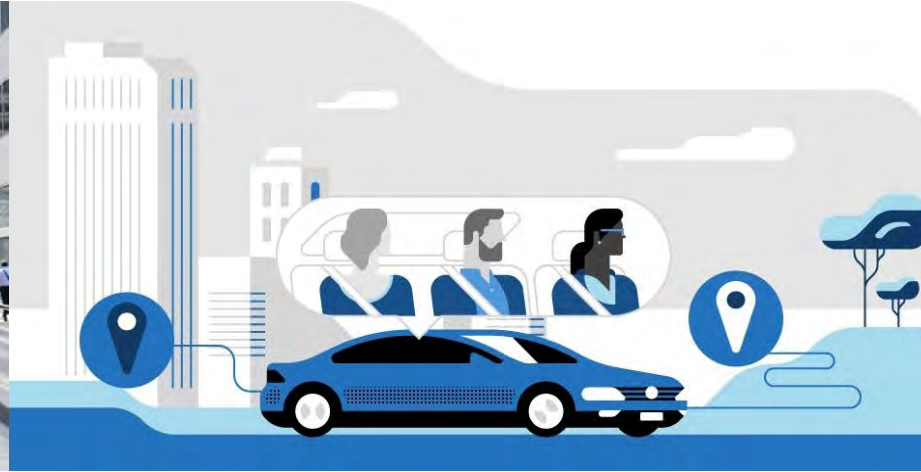
CONCLUSION: PLANNING FOR A DYNAMIC CURB

There are many tools for success for initiating a managed curb. Basic strategies may include improvements to the pedestrian realm, such as curb extensions, enforced and clearly-defined parking areas, and signed loading zones. Advanced strategies might include permanent infrastructure for transit and bicycles, paid parking or parking management districts, and fees for commercial loading or Uber/Lyft activity.

CONCLUSION: WHEN AND HOW TO IMPLEMENT CURB MANAGEMENT

- 1 Identify Opportunities:** Dense, active areas with multiple land uses
- 2 Analyze Existing Conditions:** Field work, review of available infrastructure and regulations, qualitative feedback from users
- 3 Perform Education and Outreach:** Establish mutual benefit, adjust behaviors, use pilot programs to develop familiarity
- 4 Prioritize Access:** Land use context, data analysis, broader mobility goals
- 5 Evaluate Tradeoffs:** Who wins? Does anyone lose? Can we mitigate losses? Can we use flexible treatments to test?

CONCLUSION: BEST PRACTICES AND APPROACHES FROM OTHER CITIES



Start Small

Support Broader
Goals and
Priorities

Establish
Protocols for
Your Community

Be Proactive, Not
Reactive

Understand the
Financial Value of
the Curb

PROJECT CONTACTS

NCTCOG

Shawn Conrad, Senior Transportation Planner
sconrad@nctcog.org

Karla Weaver, Senior Program Manager
kweaver@nctcog.org

WALKER

Mallory Baker, Project Manager
mbaker@walkerconsultants.com

Chrissy Mancini-Nichols, Planning and Policy Consultant
cmancini@walkerconsultants.com

ADDITIONAL RESOURCES

General Parking Management Guidelines & Resources: www.nctcog.org/parking

Nationwide Curb Management Planning Strategies: www.nacto.org/tsdg/curb-appeal-whitepaper

AV Impacts on Parking and The Curb: www.walkerconsultants.com/wp-content/uploads/2018/01/01-Summary-White-Paper-1.pdf

TNC Impacts on Parking and The Curb: www.walkerconsultants.com/wp-content/uploads/2018/01/TNC-Impacts

Advanced Project Planning Examples: www.seattle.gov/transportation/projects-and-programs

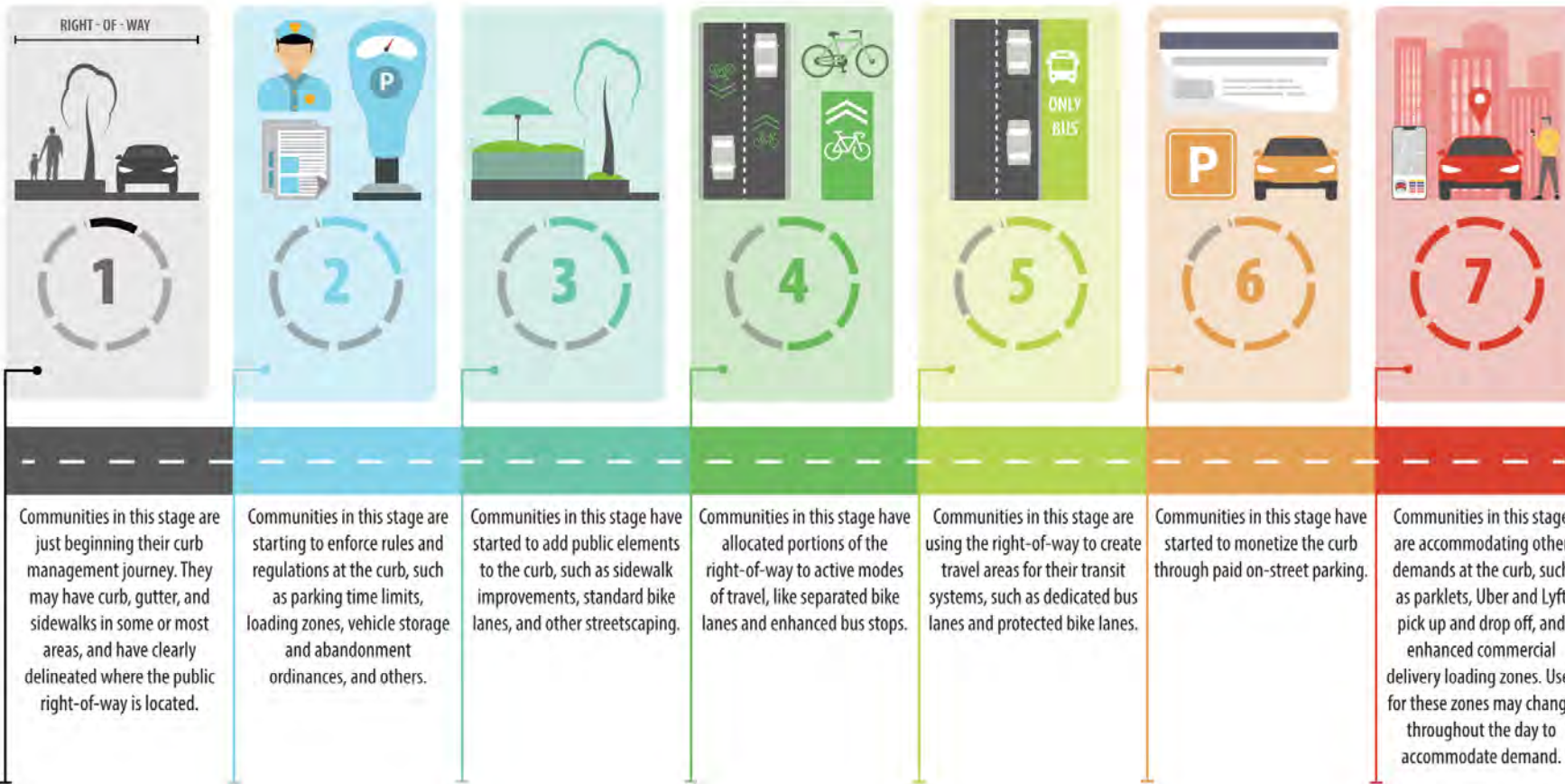
7. Group Activity: You Are Here

WHERE DOES YOUR COMMUNITY FALL?

Curb Management is a journey with many stops along the way. Each initiative to establish public usage of the right-of-way, prioritize certain modes, and/or monetize the curb is a building block toward comprehensive and sustainable Curb Management. Where does your community fall on the scale?

WHERE DOES YOUR COMMUNITY FALL?

YOU ARE HERE - THE CURB MANAGEMENT SCALE



WHERE DOES YOUR COMMUNITY FALL?

My community is just starting to think about curb management. In some or most areas of our community, there is a physical distinction between private property and the public right-of-way, either with curb and gutter, a sidewalk, or something else.



WHERE DOES YOUR COMMUNITY FALL?

My community has started to enforce rules and regulations in the public right-of-way, like time-limited parking, unlawful use of ADA spaces, and others.



WHERE DOES YOUR COMMUNITY FALL?

My community has added public elements to the right-of-way and the curb, like parklets, streetscaping, and other amenities, to enhance the pedestrian environment.



WHERE DOES YOUR COMMUNITY FALL?

My community has allocated portions of the right-of-way to active modes of transportation, like bicycles.



WHERE DOES YOUR COMMUNITY FALL?

My community is using the right-of-way to expand and improve service for our transit system (e.g. separated lanes for public buses).



WHERE DOES YOUR COMMUNITY FALL?

My community is monetizing the right-of-way through paid on-street parking.

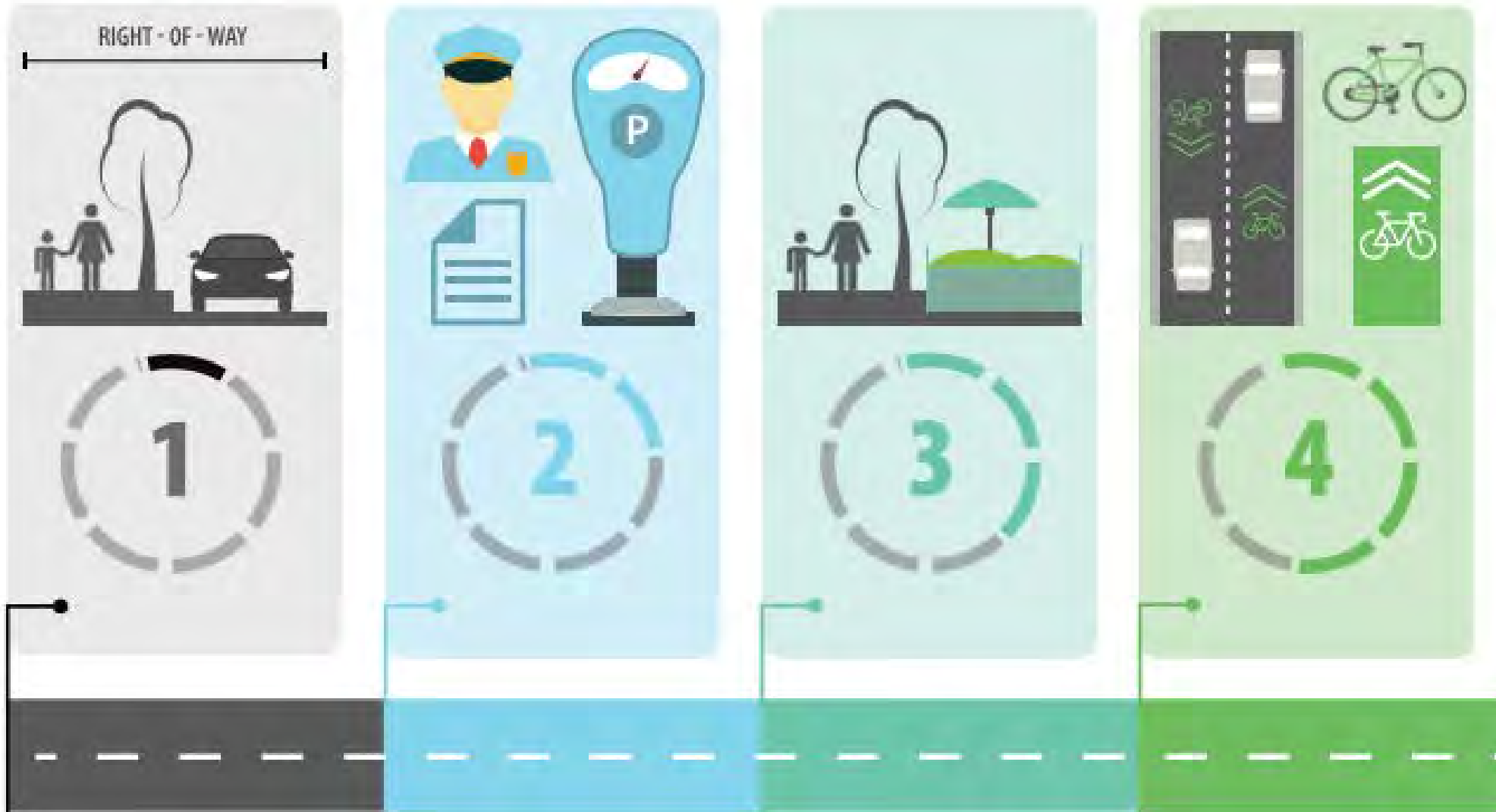


WHERE DOES YOUR COMMUNITY FALL?

My community has integrated other types of demand at the curb (e.g. Uber and Lyft) and is looking at other ways to monetize curb space, such as TNC fees or commercial delivery fees.



IF YOU ANSWERED 1-4, YOU ARE IN GROUP 1



GROUP 1 – LEARNING OBJECTIVES

1. Establishing and enforcing public ownership of the right-of-way.
2. Creating a framework for a well-organized and equitable curb.
3. Communicating decisions with stakeholders and the general public.

IF YOU ANSWERED 5-7, YOU ARE IN GROUP 2



GROUP 2 – LEARNING OBJECTIVES

1. Balance demands between multiple modes of travel in the right-of-way and at the curb.
2. Accommodating and regulating new modes of mobility and transportation.
3. Monetizing the curb space to meet community goals.

INSTRUCTIONS

If you are in Group 1, please go to the left side of the room.

If you are in Group 2, please go to the right side of the room.

Instructors and NCTCOG staff will further divide you into Task Groups.

Each Task Group will consider either Task 1 or Task 2 for the next hour.

After the hour is over, you will designate one person from your Task Group to share your findings and conclusions.

INSTRUCTIONS

If you are not representing a community today, please choose either Group 1 or Group 2 based on your preferred learning objectives.

If you are representing a community but feel that the other group's learning objectives are more relevant or helpful to you, please switch groups.