The Curb: Leveraging Your Most Valuable Asset to Achieve Community Goals

Initial Findings From the Curb Management Research Study

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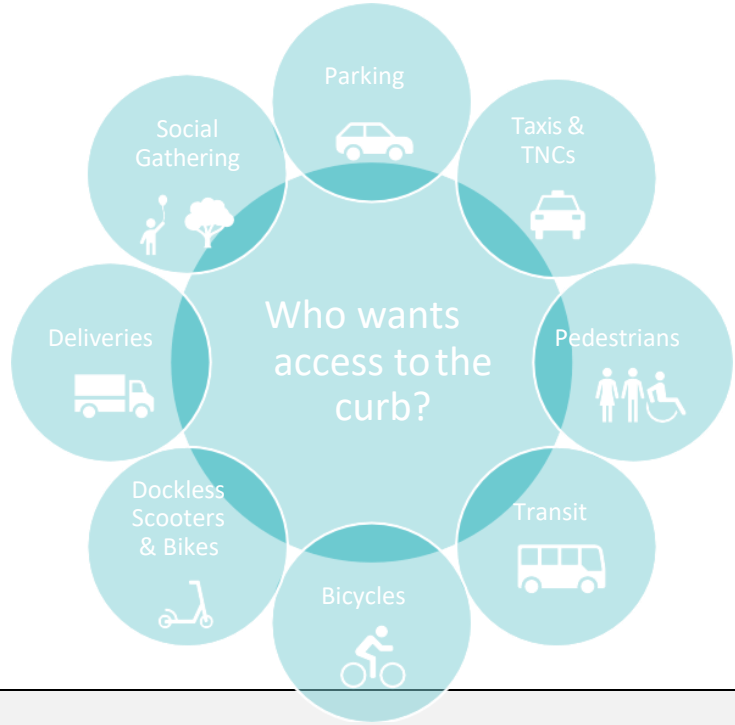
The Curb Is A Valuable Asset

- The curb is some of the **most extensive and valuable real estate**
- The curb is a **community space**
- **Changing demand** requires cities to rethink the curb for parking based on actual activity and citywide goals
- The curb has **potential to provide greater access to more people** and **generate additional revenue** if options beyond private vehicle parking are considered



Curb management is a journey based on local context:

- *Understanding how the curb is regulated and used today*
- *Creating a curb management framework based on priorities and community/stakeholder input*
- *Establishing a hierarchy of curb uses and leveraging infrastructure to serve the right user groups, in the right locations, at the right times of day and days of week*
- *Implementing the tools and processes to quickly adjust curb regulations to optimize for increasingly dynamic demands*
- *Institutionalize and operationalize curb management across city departments and create clear processes*
- *Monitoring, enforcing, and monetizing the curb in an equitable fashion*
- *Must have curb management strategies in place with any reduction in off-street parking minimums*

Curb Management Planning Process

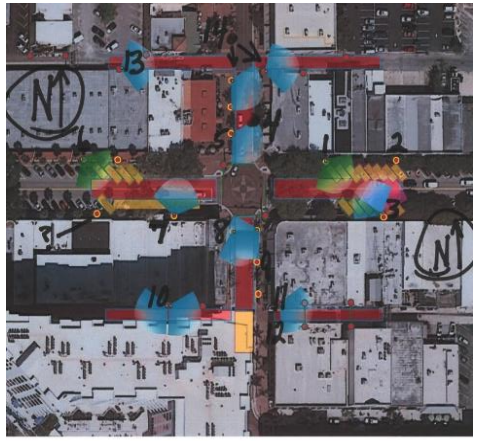
- Policy, plan, existing conditions analysis
- Establish goals /Create framework
- Data collection: Curb inventory and demand
- Education and community outreach
- Determine curb functions and tradeoffs
    - Access for People/Goods/Commerce
    - Vehicle Storage
    - Movement
- Determine treatments/curb typologies based on adjacent land use
    - Private vehicle parking
    - Passenger pickup/drop-off
    - Parklets
    - Bike / Micromobility lanes and parking
    - Bus/Transit lanes
    - Commercial loading zones
    - Parklets
    - Mobility hub
- Monetization, policy, partnerships, technology
- Administration/optimization, operations, enforcement
- Performance assessment

Curb Treatments That Prioritize Access, Equity, and People Turnover Based on Local Context

Walker's Curb Management Research Study

Walker is conducting a curb management research and development initiative with cities of various geographies, densities, and populations:

- Collect curb use activity data to understand demands in various settings
  - Location, land use, modes available
    - Data by mode
    - Average peak hour demand
    - Peak of the peak hour demand
    - Weekday/weekend
    - Dwell times
- Plan, implement, and test new curb designs and treatments
- Look for opportunities to move some functions to off-street parking facilities that could function as mobility hubs
- Create universal typologies based on modes and adjacent land use that can be applied locally
- Test and vet curb management technology to collect data, monitor, and enforce
  - Understand challenges with installing and using technology
- Evaluate policy issues
- Identify partnerships and agreements necessary with the private sector for implementation and curb monetization



Vetting a Spectrum Of Curb Management Technology

Inventory

- Visualize and map existing conditions

Monitoring and Enforcement

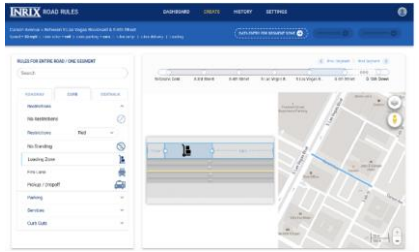
- Know curb use patterns
- Monitor demand and enforce regulations

Monetization

- Enact fees for curb activities beyond parking

Operationalize/Implement

Collector for ArcGIS



UNLEASH

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Automotus

Curb Use Data Collection: Sarasota, FL

Challenges

- TNC pickup and drop-off by double parking, vehicle staging blocking alleys
- Increased commercial delivery
- Need more pedestrian and bike space
- Accommodate an aging population

Potential Solutions

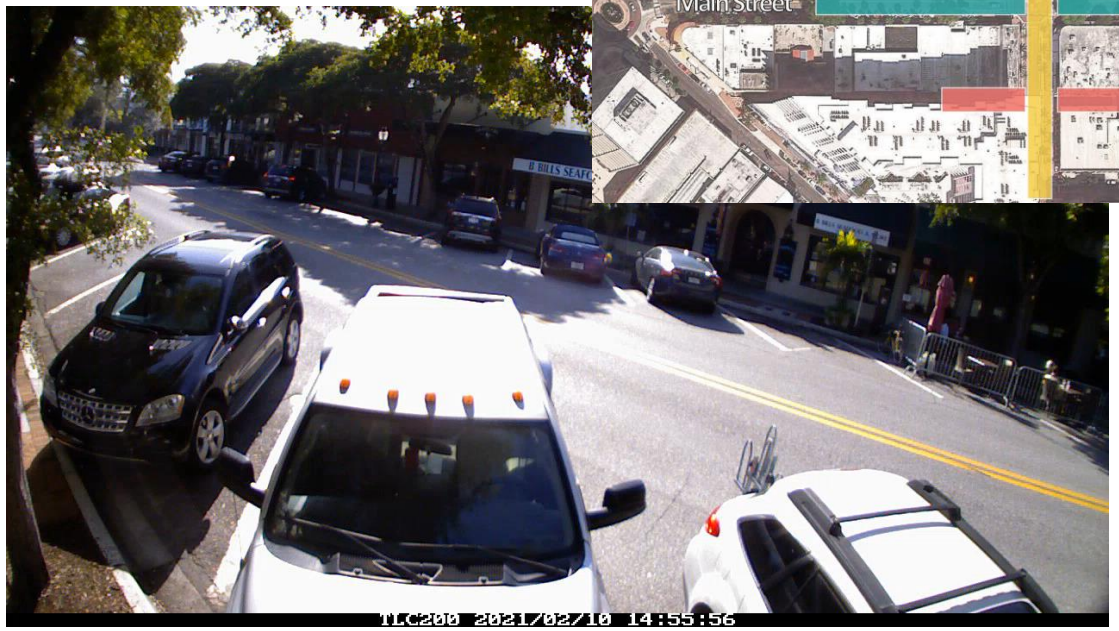
Establish a holistic curb management program for all users with opportunities including:

- Data based approach to planning
- Camera based data collection
- Commercial delivery management
- Passenger loading zones
- Short-term parking in congested areas, mobility hub with long-term parkers to garage/free shuttle
- Understand implications and issues for long-term monetization

Curb Use Data Collection: Sarasota, FL

Data Collection

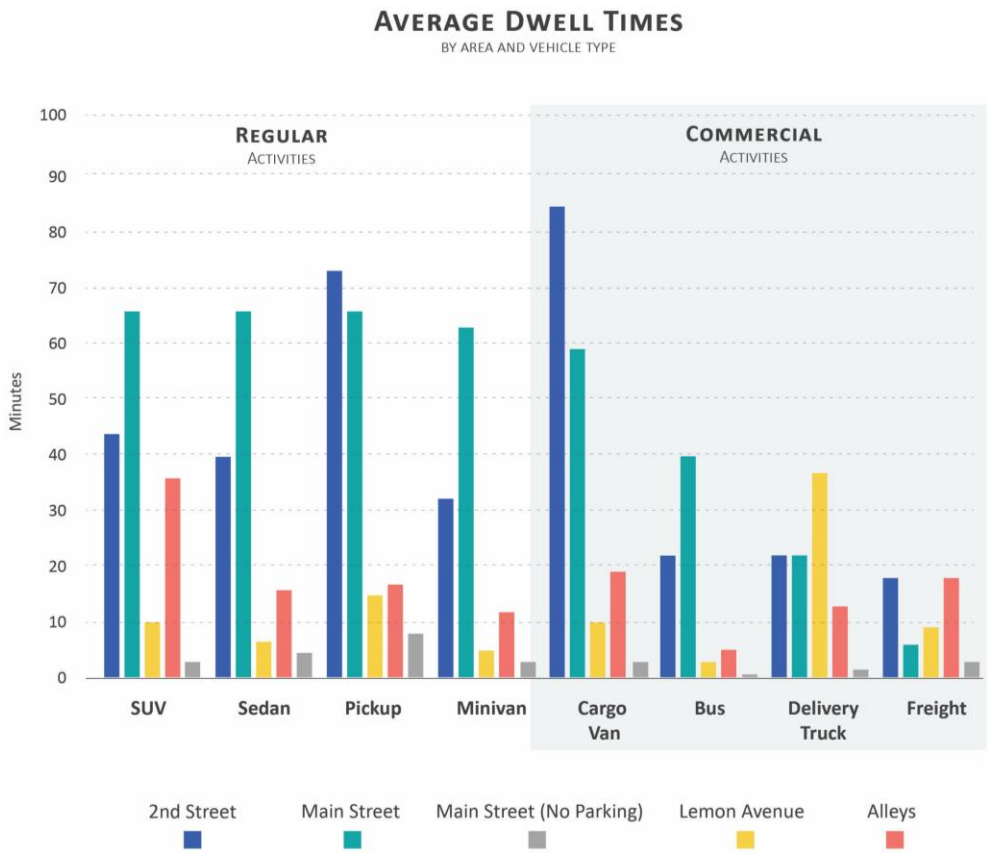
- 24 days of data collected Saturday, February 6 - Tuesday, March 2
- 16 cameras were positioned throughout the study area - 78 spaces
  - VADE solution funded by Walker
- Cameras captured activity in the study area every 10 seconds
- All images manually reviewed and labeled
- 13M+ data points
- Created a useful data dashboard
  - Critical due to administrative hurdles for implementation
- Also reviewed parking meter transaction data for comparison



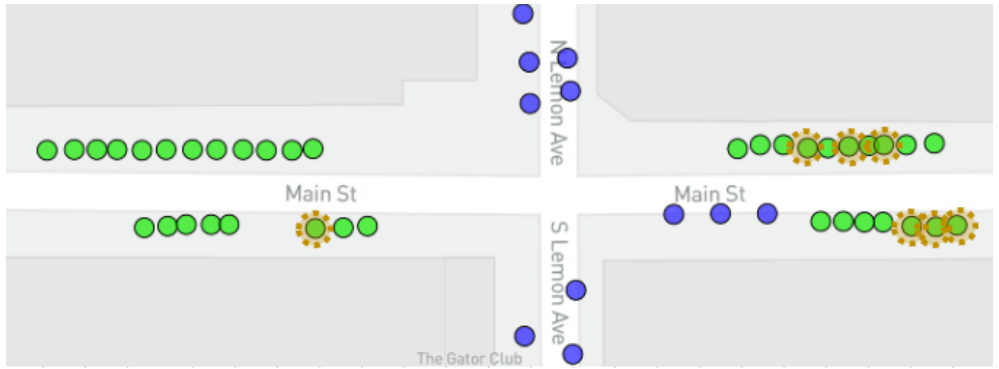
All videos were manually reviewed for accuracy

Curb Use Findings: Sarasota, FL

- Highly utilized system
- High rate of under 15-minute sessions:
  - Main Street, 30% of sessions had dwell times of less than 15-minutes
  - Suggests a high amount of curbside pickup and perhaps passenger pickup/drop-off
  - This finding did not appear in parking meter transaction data
- Commercial activities have lower dwell times

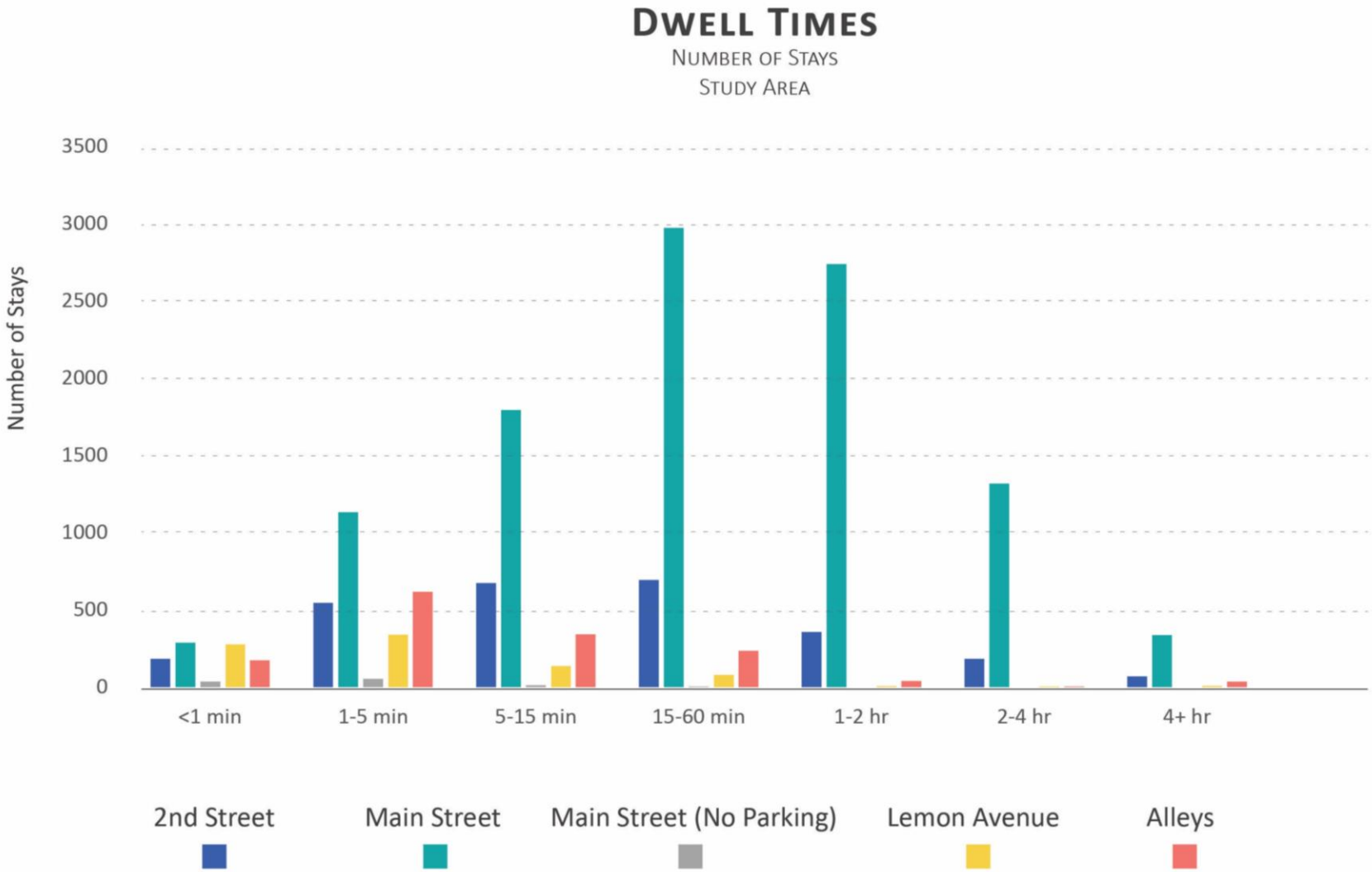


Most under 15-minute spaces



Dwell Time By Number Of Stays

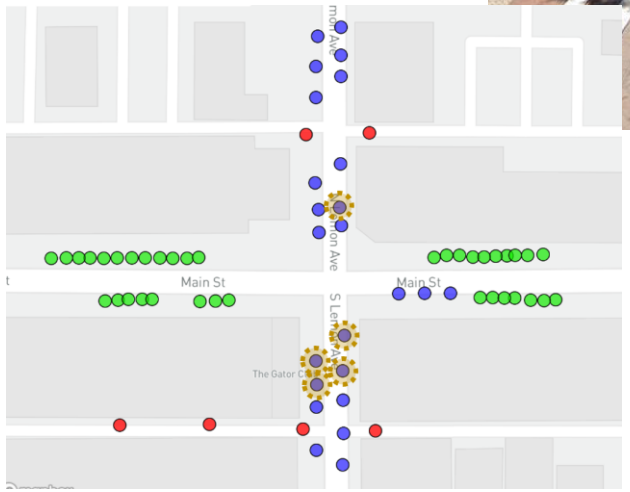
- Main Street, 30% of sessions had dwell times of less than 15-minutes
- Rest of dwell times on Main St skew longer (mostly parking private vehicles)
- Shortest dwell times in areas regulated for no parking/standing
- Alleyways and 2nd St dwell times are mostly under an hour



Curb Use Findings: Sarasota, FL

- No parking areas are likely being abused primarily by passenger vehicles serving commercial purposes (e.g. TNCs, food delivery)
  - Approx. 40 non-parking violations per day, on average
  - Busiest time periods: 11AM to 2PM & 4PM to 9PM
    - 90%+ by passenger vehicles
- Commercial delivery using alleys most heavily during weekday business hours
  - Alleys have capacity to accommodate more use

Most no parking violations



Curb Use Data Collection: Sacramento, CA

Challenges

- Complaints about TNC pickup and drop-off by double parking
  - Based on anecdotal observations
- Increased commercial delivery
- Long-term revenue implications from reduced parking demand

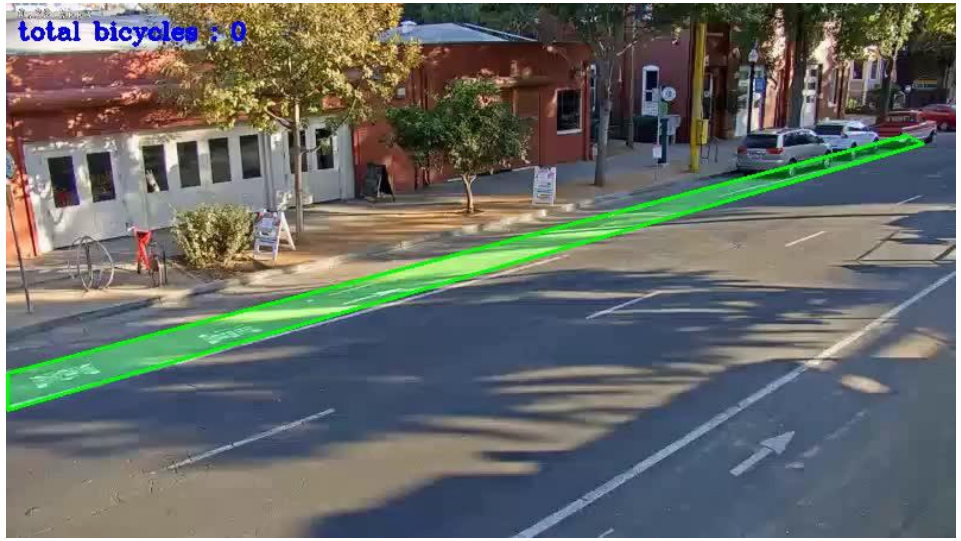
Potential Solutions

- Data based approach to planning passenger loading zones, parklets, commercial deliver
- Targeted enforcement
- Begin the process for curb access fees and monetization

Data Collection

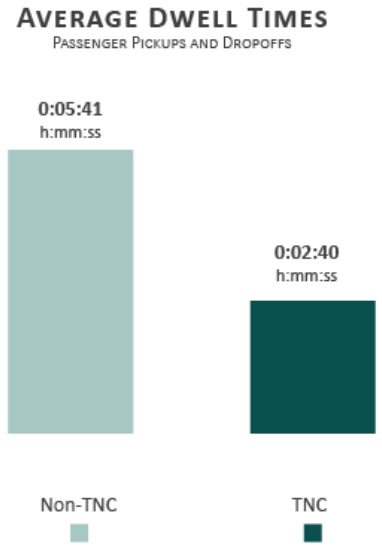
- Camera on Capitol Avenue monitoring newly created:
  - 3 loading zone spaces
  - 1 no parking (red curb)

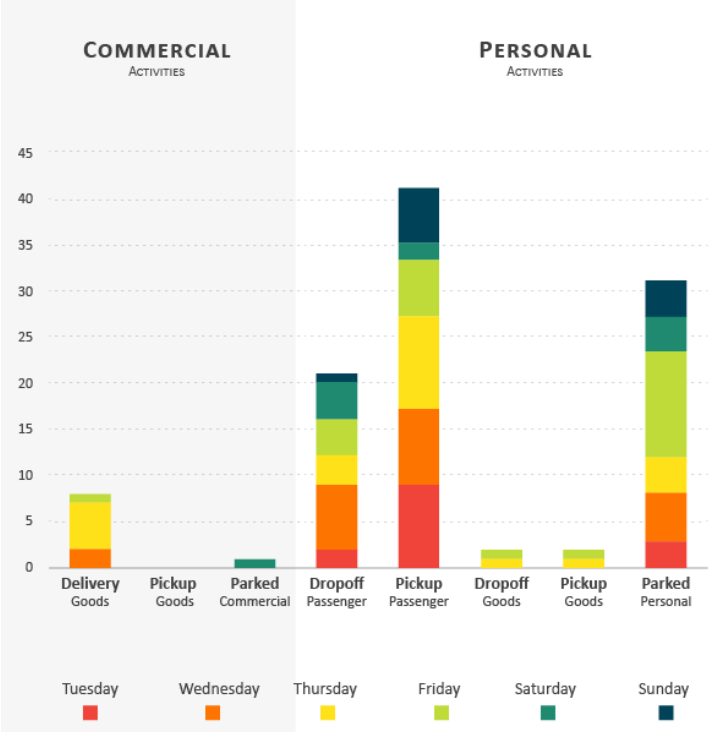
- January of 2021
  - Six days: Tuesday 1/19 to Sunday 1/24
  - 13 hours per day: 6:00 am to 7:00 pm
- City owned camera using video analytics
- Videos were manually reviewed and recorded by Walker
  - Activities logged by day, time, and type:
    - Passenger pickup/drop-off
    - Commercial delivery
    - Parking

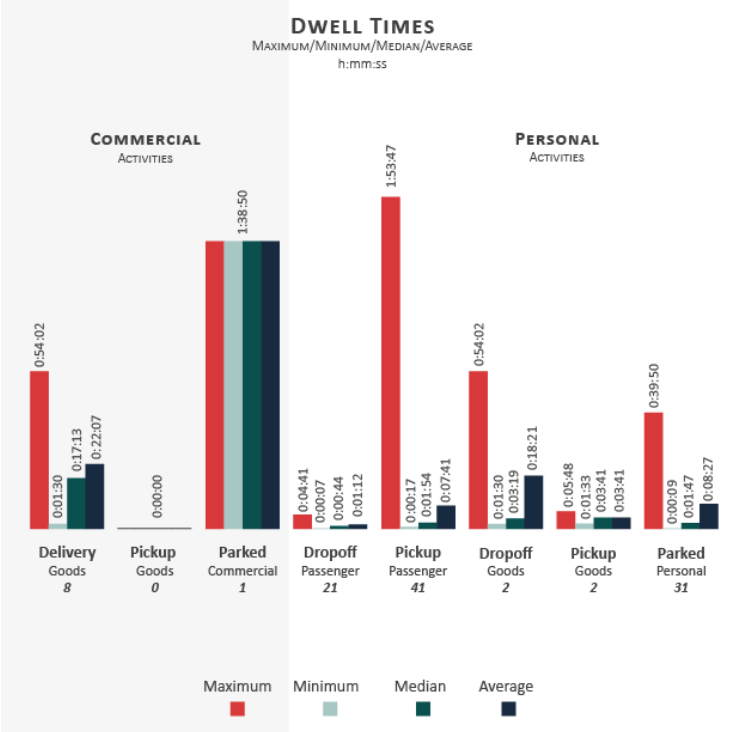


Curb Use Findings: Sacramento, CA

- Low activity, but useful finding because data showed that anecdotal observations were incorrect
  - This area may be better for longer-term parking, revenue capture
- Most common activities were passenger pickups and long-term parking
  - None of the spaces are regulated for short or long-term parking
- Based on average dwell times:
  - TNCs spent less time at the curb
    - Averaged nearly half the dwell time taken by non-TNC vehicles at the curb







Curb Use Data Collection: Noblesville, IN

Challenges

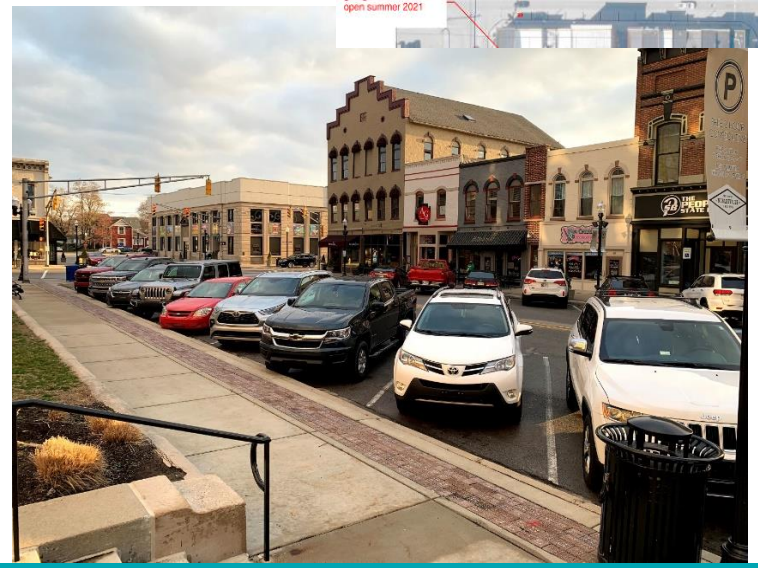
- Active commercial core
- 11 short-term parking spaces
- Need for more commercial delivery spaces
- New housing units downtown under development

Potential Solutions

- Maximize parking with short-term spaces
- Education and outreach to move long-term parkers to periphery
- More directed enforcement
- Upgrade signage to reduce confusion

Data Collection

- Manual collection to test efficiency and capability of collecting curb use data using manual counts
- Data collection:
  - Wednesday, March 24, 2021, from 7:30 a.m. through 3:15 p.m.
- Data was recorded in 15-minute intervals
- Activities logged by day, time, and type:
  - Passenger pickup/drop-off
  - Commercial delivery
  - Parking



Curb Use Findings: Noblesville, IN

During The Peak Curb Use Hour:

- Constant turnover of short-term loading spaces
  - Dwell time was less than 5 minutes
  - Peak of the peak use: each space turned over three (3) times in 15 minutes
- Turnover was not uniform and dependent on location
- 2-hour parking spaces were approximately 86% utilized, but very low turnover

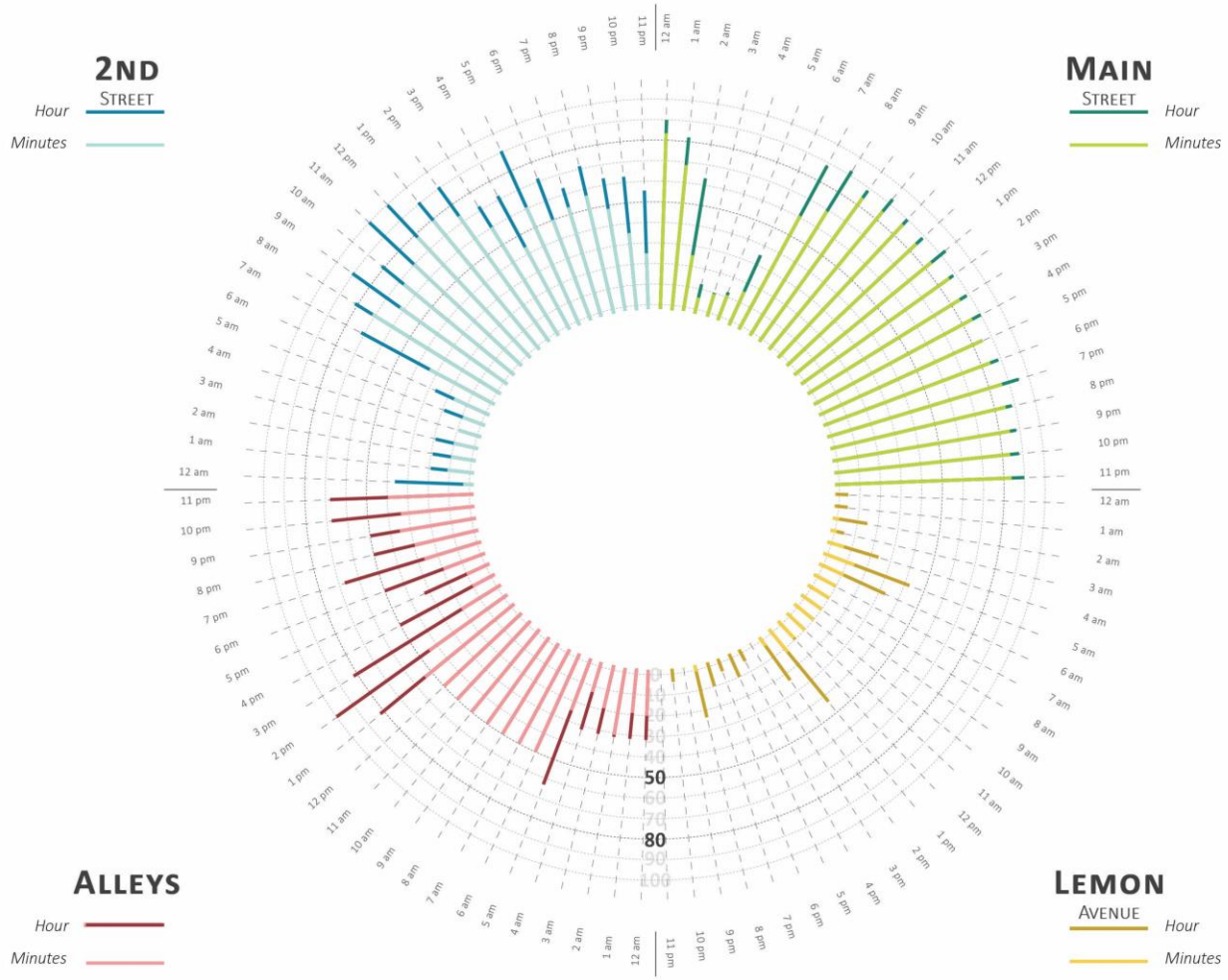
	Study Area Inventory
Short-Term Loading	11
ADA	3
Commercial Vehicle	n/a
2-Hour Parking	92

	Box Truck (Local Delivery, Food, Alcohol delivery, etc.)	Courier (Fedex, UPS, etc.)
7:30 AM	0	0
7:45 AM	0	0
8:00 AM	0	0
8:15 AM	0	0
8:30 AM	0	0
8:45 AM	0	0
9:00 AM	0	0
9:15 AM	0	0
9:30 AM	0	0
9:45 AM	3	2
10:00 AM	2	0
10:15 AM	2	0
10:30 AM	0	0
10:45 AM	0	0
11:00 AM	0	0
11:15 AM	0	1
11:30 AM	0	1
11:45 AM	0	0
12:00 PM	0	0
12:15 PM	0	0
12:30 PM	0	0
12:45 PM	0	0
1:00 PM	1	0
1:15 PM	0	0
1:30 PM	0	0
1:45 PM	0	0
2:00 PM	0	0
2:15 PM	0	0
2:30 PM	0	0
2:45 PM	0	0
3:00 PM	0	0

	Short-Term Loading	2-hour Parking	ADA
7:30 AM	55%	25%	0%
7:45 AM	27%	37%	0%
8:00 AM	27%	50%	0%
8:15 AM	45%	54%	33%
8:30 AM	27%	58%	33%
8:45 AM	45%	72%	67%
9:00 AM	55%	53%	33%
9:15 AM	36%	57%	33%
9:30 AM	45%	64%	33%
9:45 AM	27%	58%	33%
10:00 AM	36%	54%	67%
10:15 AM	55%	63%	0%
10:30 AM	55%	63%	33%
10:45 AM	27%	68%	33%
11:00 AM	45%	78%	0%
11:15 AM	73%	86%	100%
11:30 AM	118%	89%	100%
11:45 AM	73%	98%	100%
12:00 PM	82%	89%	100%
12:15 PM	55%	83%	67%
12:30 PM	73%	90%	133%
12:45 PM	45%	85%	100%
1:00 PM	55%	80%	100%
1:15 PM	64%	84%	67%
1:30 PM	64%	80%	100%
1:45 PM	36%	78%	67%
2:00 PM	45%	75%	67%
2:15 PM	27%	67%	67%
2:30 PM	27%	38%	33%
2:45 PM	9%	28%	33%
3:00 PM	18%	25%	33%

Data Collection Hour/Minute

- Cities have not typically had the amount of robust data collected in the study
  - Parking occupancy is traditionally measured by one count per hour or half-hour
    - Accuracy issues, data is just a point in time
    - Pickup/drop-offs and deliveries happen quickly, will likely not all be recorded with an hourly data collection method
    - Could result in higher reported occupancies than real conditions
- Data collected by both per hour and per minute, (i.e., 60 counts per hour)
  - More precise data about how spaces are used
  - Captures quick pickup/drop-offs and deliveries
- Occupancy by minute data shows:
  - Lower occupancies in areas with high commercial delivery and pickup/drop-off activity
  - Suggests there is additional capacity in these areas



Curb Use Research Study Initial Findings

Overall Findings

- **High number of short-term stays** (less than 15 mins) no matter the size of city
- Increase in **commercial delivery activity** could result in changes to peak times, or **create ongoing peaks throughout the day**
- On-street spaces **for pickup/drop-off and commercial delivery should be longer than traditional parking spaces** so drivers pull to the curb
- Opportunities to **repurpose off-street parking facilities to mobility hubs**

Challenges

- **Administrative time** for planning, implementation, ongoing monitoring, enforcement
- **Policy issues** (focus on long-term change, takes time to change)
- **Need robust education and outreach** with the community
- **Partnerships and agreements** with delivery companies can be **challengin**g to implement
- **Operationalizing** across city departments with **clear processes** for the public, operators, developers, etc.
- **Long lead times** for implementation – policy and technology, **start now**

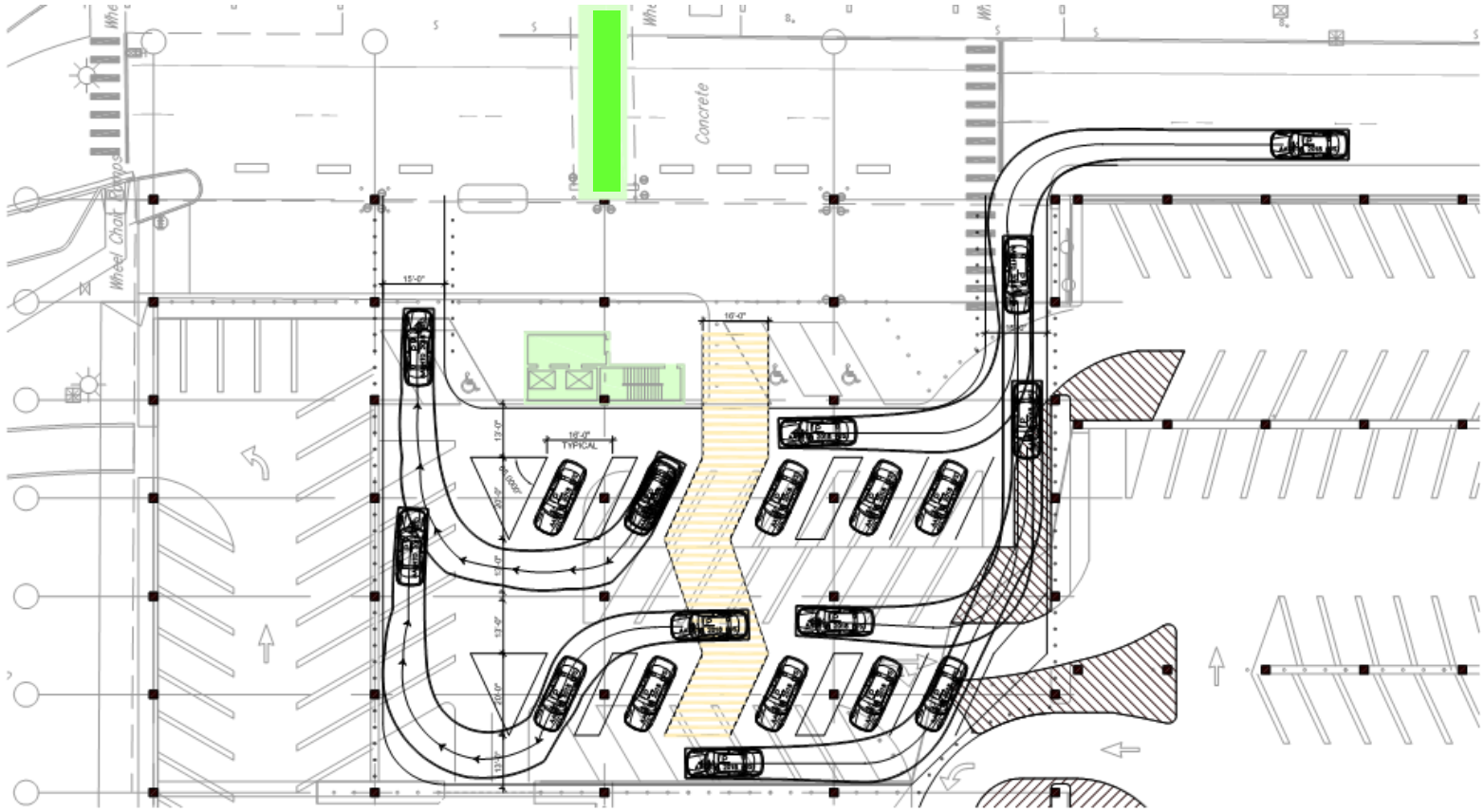
Data Collection/Technology Challenges

- Cities **have never had this amount of robust data sets** for curb use
  - Analysis can be **time consuming**
- **Technology** is evolving and **requires sophistication, funding, long lead times**
- **Manual data collection is challenging** even in small study areas with only a few modes
- Stays for **new demands of the curb are** less than an hour; **just a few minutes** (i.e., TNCs, delivery, short-term parking)
  - Cities are used to **planning in hours, not minutes**

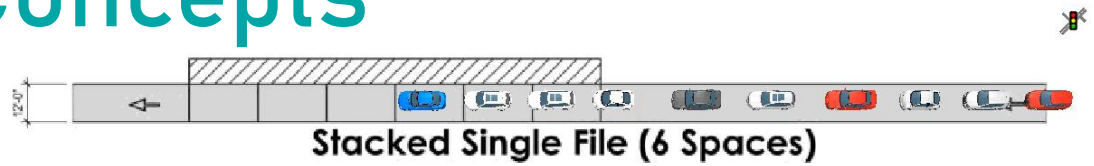
Mobility Hub Opportunities

- Opportunities to transition off-street parking facilities to mobility hubs
  - Long-term parking with connections through:
    - Transit/shuttle stop, bikeshare, scooters, carshare
    - Freight
- Especially if these facilities are underutilized
- Leaves the curb for “people centered’ activities and short-term curb uses
- Maximizes the value from these assets

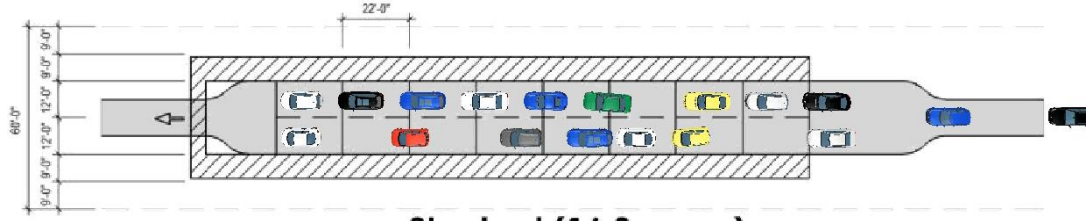
Walker’s Passenger pickup/drop-off design in a former parking facility



Walker's Pickup/Drop-off Models/Mobility Hub Concepts



Stacked Single File (6 Spaces)



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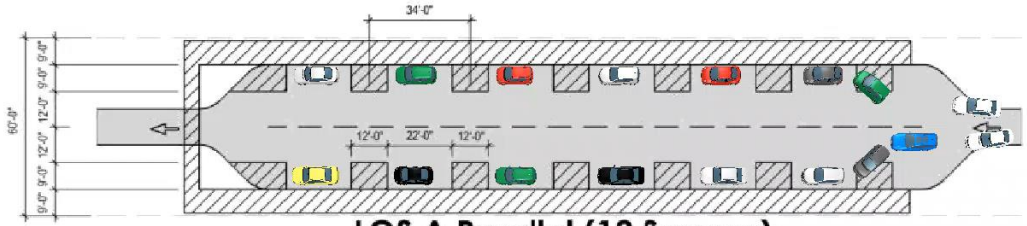
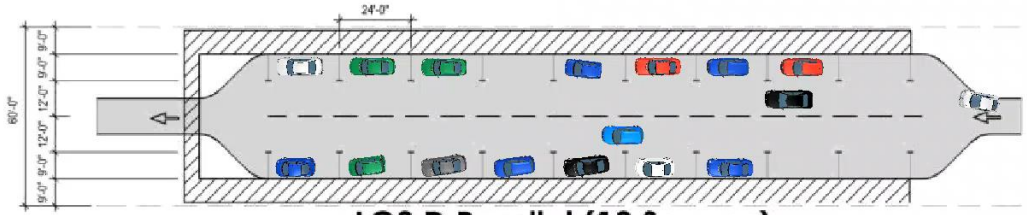


LOS A Parallel (12 Spaces)



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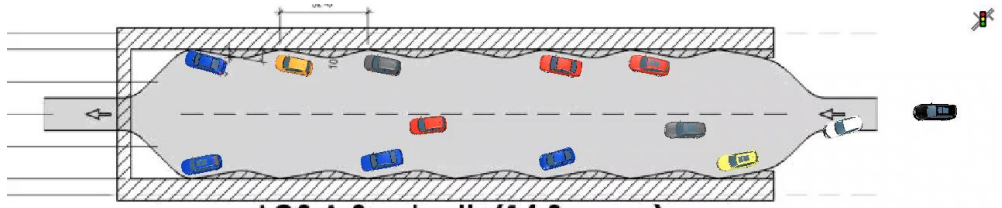
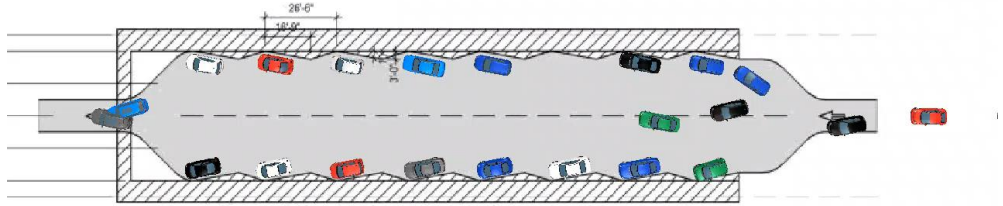
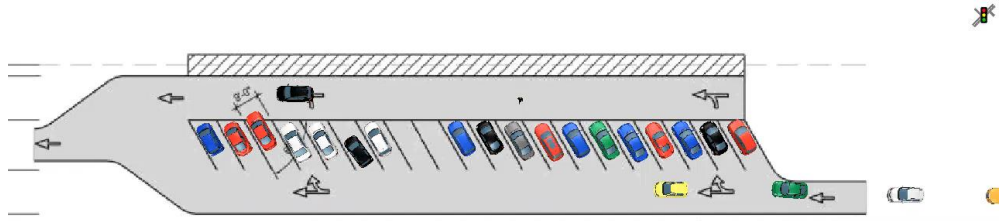


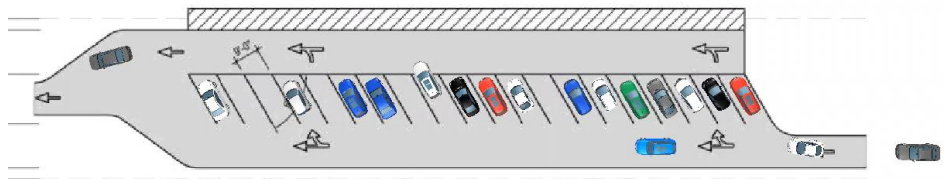
LOS A Sawtooth (14 Spaces)



LOS D Sawtooth (16 Spaces)



LOS A Pull-thru with peds (20 Spaces)



LOS A Pull-thru without peds (20 Spaces)

Curb Access Fees

Fees

- Charge access for all curb users
  - TNC/delivery/dockless vehicles/short-term stays
- Manage demand and prioritize access
- Diversify parking and transportation revenue sources
- Expand the financial output of the curb and respond to changing consumer demand, loss of parking revenue
- Invest in access and mobility improvements
- Sometimes requires voter approval
- State regulations can be limiting

✓ ***Incremental process***

✓ ***Allow regulatory flexibility***

✓ ***Data and monitoring***

✓ ***Enforcement***

✓ ***Move toward curb congestion pricing for the long-term***

Policy Considerations

Plan based on goals

- Equity, mobility, access, economic, environment

Permit flexibility

- Permit broad curb management framework and a range of fees
- More easily test and adapt, pilot

Track federal/state legislation

- Efforts to limit local control and data access

Consolidation of companies

- Can limit options and leverage

Partnerships

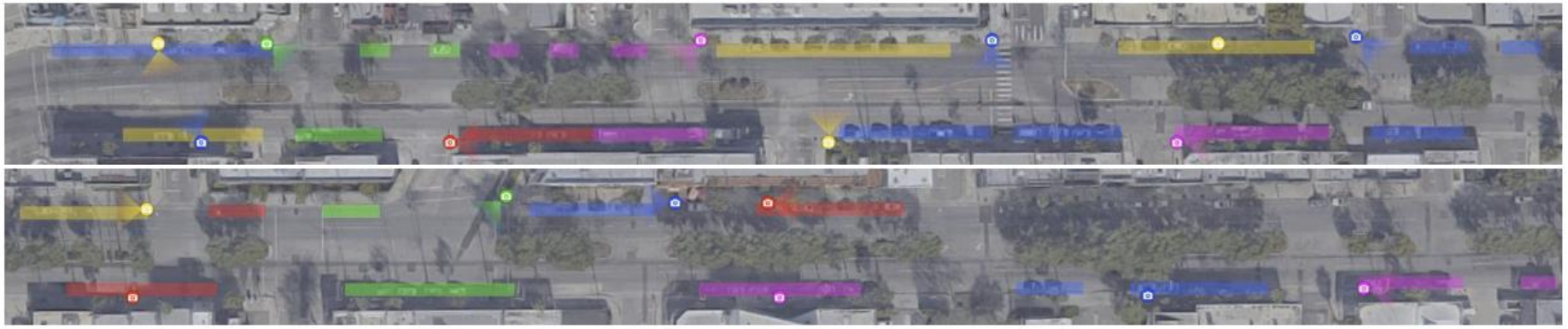
- Could bring innovation and access to capital
- Lessons from public private partnerships
  - The curb is the public realm
  - Need to align public and private sector goals
- Evaluate long-term considerations for data and monetization
- Data and privacy

This is a public sidewalk!

Current Projects

Two studies underway:

- Studying moving curb space:
  - Parking to parklets
  - Parking and travel lane to bus and bike lane
- Universal curb typologies that can be adapted locally



More Resources

- ***The Billion Dollar Curb, article series,*** American Planning Association
  - *The Billion Dollar Curb*
  - *8 Ways to Launch Your Parking Strategy*
- ***Curb Management,*** Gov Love Podcast
- ***The Curb: Leveraging Your Most Valuable Asset,*** ITE Annual Conference and Florida Parking and Transportation Association
- ***The Not So Humble Curb: Leveraging Your Most Valuable Asset to Achieve Your Community's Goals,*** International Parking and Mobility Institute Innovation Summit
- ***Curb Management & Off-Street Parking Strategies to Navigate the New Normal & Beyond***, California Public Parking Association
- ***The Value of the Curb: Organization, Regulation, and Monetization of Your Precious Right of Way,*** American Planning Association
- ***Parking Minimums and Curb Management***, International Parking and Mobility Institute
- ***The Curbside in the Modern Multi-Modal City,*** American Planning Association
- ***Surveying the Current Curb Management Tech and Policy Landscape***, International Parking and Mobility Institute Magazine
- ***A 10-Point Road Map for the New Normal in Parking and Mobility***, International Parking and Mobility Institute
- ***Measuring, The First Step in Curb Management,*** International Parking and Mobility Institute
- ***Are Parking Minimums a Thing of the Past? Managing the Curb with Changing Parking Regulations***, Institute of Transportation Engineers, ITE Journal
- ***The Curb: Gateway to the City, Prioritizing Assets to Maximize the City Experience***
- ***Weekly Planning and Policy Podcast***, *Mondays at the Overhead Wire*

Available at www.walkerconsultants.com/curb

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