Introduction to the **ITE Guide**

- Planning Considerations
- Available Tools and Treatments
- Treatment Selection Process
- Performance Measurement
- Future Considerations
- Additional Resources
- Implemented Strategies and Projects
### What is Curbside Management?

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DEFINITION</th>
<th>USES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOBILITY</td>
<td>Moves people and goods</td>
<td>• Sidewalks&lt;br&gt;• Bus or streetcar lanes&lt;br&gt;• Bike lanes&lt;br&gt;• General purpose travel lanes - includes freight&lt;br&gt;• Right- or left-turn only lanes</td>
</tr>
<tr>
<td>ACCESS FOR PEOPLE</td>
<td>People arrive at their destination, or transfer between different ways of getting around</td>
<td>• Bus or rail stops&lt;br&gt;• Bike parking&lt;br&gt;• Curb bulbs&lt;br&gt;• Passenger load zones&lt;br&gt;• Short-term parking&lt;br&gt;• Taxi zones</td>
</tr>
<tr>
<td>ACCESS FOR COMMERCE</td>
<td>Goods and services reach their customers and markets</td>
<td>• Commercial vehicle load zone&lt;br&gt;• Truck load zone</td>
</tr>
<tr>
<td>ACTIVATION</td>
<td>Offers vibrant social spaces</td>
<td>• Food trucks&lt;br&gt;• Parklets and streateries&lt;br&gt;• Public art&lt;br&gt;• Seating&lt;br&gt;• Street festivals</td>
</tr>
<tr>
<td>GREENING</td>
<td>Enhances aesthetics and environmental health</td>
<td>• Plantings&lt;br&gt;• Boulevards&lt;br&gt;• Street trees&lt;br&gt;• Planter boxes&lt;br&gt;• Rain gardens and bio-swales</td>
</tr>
<tr>
<td>STORAGE</td>
<td>Provides storage for vehicles or equipment</td>
<td>• Bus layover&lt;br&gt;• Long-term parking&lt;br&gt;• Reserved spaces (e.g. for Police or other government use)&lt;br&gt;• Construction</td>
</tr>
</tbody>
</table>

Source: [City of Seattle](http://www.cityofseattle.gov)
Available **Tools and Treatments**

- Planning and Implementation
- Access to Loading/Unloading Zones
- Parking
- Transit
- Bicycles
- Pedestrians and Activation
Treatment Selection Process

- Inventory Existing Conditions
- Modal Prioritization
- Identify Treatments
- Assessment & Feedback
- Refine & Implement Treatments
**Treatment Selection Process**

**SEATTLE RIGHT-OF-WAY (ROW) ALLOCATION DECISION FRAMEWORK**

1. **CONDUCT INVENTORY AND ANALYSIS**
   - Consider the following:
     - Safety
     - Existing conditions
     - Modal plan design
     - Land use
     - Right-of-Way improvements
     - Manual street type
     - Stormwater concepts plans
     - Tone of development
     - Neighborhood plans
     - Social equity analysis

2. **DEVELOP ALTERNATIVES**
   - Consider the needs of each zone and trade-offs
   - Are pedestrian facilities adequate?
   - Do support adjacent land uses? Can the functions be met nearby or off-street?
   - Are the modal plans accommodated in this street or corridor?

3. **EVALUATE ALTERNATIVES**
   - Tier 1 Evaluation - Row
     - Improve safety?
     - Address adequacy?
     - Implement modal plan?
   - Tier 2 Evaluation - Detailed Performance Metrics (Established by Project)

4. **CHOOSE PREFERRED ALTERNATIVE**
   - Define design
   - Public input and engagement

5. **IMPLEMENT**

6. **EVALUATE**

**DESIRED OUTCOMES OF TRANSPORTATION PROJECTS**

- Improve safety
- Support and connect land use
- Implement modal plans
- Create multi-functional streets

**Multi-functional streets and corridors provide these 6 functions, as appropriate:**

- Mobility
- Access for commerce
- Access for people
- Activation
- Greening
- Storage

**In these 3 zones:**

- Residential
- Mix Use
- Commercial

**Prioritize functions in the Flex Lane Box:**

- Support for modal plan priorities
- Access for commerce
- Access for people
- Activation
- Storage
- Greening

Source: City of Seattle
1. **Inventory** Existing Conditions

- **Policies & Codes**
- **Supply & Utilization**
- **Needs & Opportunities**

*Source: Coord*
2. **Modal** Prioritization

Sample Priorities

- Transit Priority
- Bicycle Priority
- Pedestrian Priority
- Major Thoroughfare
- Mixed-use Main Street
- Mixed-use Access

Source: David Smith, Chicago Department of Transportation
3. **Identify** Treatments

Source: Uber Curb Studies, Fehr & Peers
4. Assessment & Feedback

Source (Both): Fehr & Peers
5. Refine & Implement Treatments
Additional Resources

https://www.ite.org/technical-resources/topics/complete-streets/curbside-management-resources/
Potential **Next Steps**

- Data Collection Methods
- Tool Development
- Additional Case Studies
- Pilot Projects

Source: SharedStreets

Source: Fehr & Peers
District Department of Transportation
Parking and Ground Transportation Division

Intro to Curbside Management:
Residential Areas

DATE
The District Department of Transportation (DDOT) plans, designs, builds, operates, and maintains the public right of way.

- Curbside management (parking, pick-up/drop-off, freight, and other uses)
- Sidewalks and uses of the sidewalk (cafes, bike infrastructure, etc.)
- Street trees
- Major projects (e.g. South Capitol Street Bridge)
- Transit (Streetcar, DC Circulator, Capital Bikeshare, scooters)
- Development review (Curbside policy, streetscaping, accessibility requirements)
Picture it...DC’s curbside...20th Century
Picture it... DC’s curbside... 20th Century
Picture it…DC’s curbside…20th Century
Picture it…DC’s curbside…20th Century
Picture it...DC's curbside...20th Century
An evolving curb...

1960s-2000s – Cars and Bikes
2010 – Bikesharing, Food Trucks, TNCs
2012 – Carsharing
2016 – On-Demand Delivery
2017 – Bikes, scooters, and more...

Background image from: https://realtyleadership.com/oh-the-places-youll-go/
Curbside Management Activities

- **Parking**
  - Policy (residential, commercial, carsharing, motorcoach)
  - Asset management (signs, meters, pay-by-cell)
  - Coordination of enforcement (DPW, MPD, DFHV)

- **Curbside Access**
  - Passenger loading/unloading (pick-up/drop-off, Uber/Lyft/Via/taxi)
  - Goods loading/unloading (freight, parcel service, on-demand delivery)
  - Vending (stationary vendors, food trucks)
  - ADA Compliance (DDOT Office of Human Rights)

- **Multimodal Transportation**
  - Transit (Metrobus, DC Circulator, commuter bus)
  - Bicycle infrastructure (lanes, cycle tracks, multimodal paths, bike racks, etc.)
  - Dockless bike/scooter
Curbside Management Study

• Vision
  – The District’s curbsides can support diverse commercial areas within the District.
  – Residents can generally expect to park within walking distance of home.
  – All modes of access are comfortable, efficient, and attractive.

• Goals
  – Preserve residential access for residents.
  – Prioritize customers and commercial vehicles in commercial areas.
  – Ensure the safety of all transportation users including pedestrians, cyclists, transit riders, and motorists.
Curbside Management Strategies

- Different parts of the District have radically different land use and community contexts.
- Curbside management should respond to the native context, demands, and needs of the District’s diverse neighborhoods.

- Although every neighborhood is unique, most fall into one of four broad context types:
  - **Downtown Core/High Intensity**
  - **Mixed-Use/High-Intensity**
  - **Neighborhood Centers**
  - **Residential/Low-Intensity**
Curbside Management Strategies

- DDOT’s Curbside Management Study identifies general approaches to the different neighborhood types in pursuit of the vision.
- These approaches ensure the proper tools are used to properly manage the curbside needs of each community.

<table>
<thead>
<tr>
<th>Zones</th>
<th>Managed Availability</th>
<th>Resident Protection</th>
<th>Equitable Access</th>
<th>Local Amenity Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Core</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-Intensity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood Commercial (established)</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Neighborhood Commercial (emerging)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Residential Low-Intensity (high-demand)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Residential Low-Intensity (low-demand)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Curbside Management Strategies – Downtown Core/Mixed-Use

- **Loading and delivery**: right-sized loading zones; appropriate hours and pricing.
- **Mass access**: appropriate policy and infrastructure for transit and other mass modes/sustainable transport.
- **Metered parking**: demand-responsive pricing and appropriate hours; enhanced monitoring via new technology.
- **Residential parking**: limited RPP with demand-responsive pricing; exclude new residences.
- **Visitor parking**: limited and paid use for visitors; tech-facilitated registration and automated enforcement.
Curbside Management Strategies – Neighborhood Centers

Established Areas

- **Mass access**: policy/infrastructure for transit and other mass modes/sustainable transport.
- **Loading and delivery**: right-sized loading zones, hours, and pricing.
- **Residential parking**: escalating rates for permits; exclude new residences; pay-to-park for non-residents; smaller zones.

Emerging Areas

- **Metered parking**: smart meters, occupancy monitoring, price-managed occupancy.
- **Loading and delivery**: enforcement of loading zones.
- **Residential parking**: confirm demand with monitoring; demand-responsive pricing for non-residents.
- **Visitor parking**: free limited number allocation to residents; Flex-pass type permit.
Curbside Management Strategies – Residential Areas

High Demand

• **Residential parking**: demand-based pricing; escalating rates for permits; maximum permits per household; smaller zones.

• **Visitor parking**: limited low-cost visitor passes; usage tracking; resident visitors and guests-only Flex-pass.

Low Demand

• **Residential parking**: confirm need for residential protection; remove curbside regulations where not needed, low-cost permit elsewhere.

• **Visitor parking**: free per day permits, Flex-pass type permit.
Sample Curbside Management Resources

DDOT Curbside Inventory
Registered Vehicles Per Residential Parking Permit Spaces

Existing Conditions: Demand in Petworth
Curbside Management...Like a Marathon, not a Sprint!
How New Mobility is Changing Parking and the On and Off-Street Curb

Chrissy Mancini Nichols
American Planning Association
June 27, 2019
OBJECTIVES

• TNC and AV projections and planning for growth
• Lessons learned and design ideas for on and off-street curbs
• What we need to consider when implementing curb management plans and policies
Will Parking Become the Dept. of Loading and Unloading?

The New York Times

Forget Tanning Beds. College Students Today Want Uber Parking.

Uber, Lyft and Other Mobility Options are Shaking Up Parking

The 2018 Emerging Trends in Parking report by the International Parking Institute points to a growing need to think of parking facilities as more than just places to park cars.

Uber trips starting near parking garages during the late night period

Walking Consultants
Some project 90% of parking 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
• Requires fees and investment in smart infrastructure
BIGGEST CHALLENGE: HUMANS!

1. AV Technology & Smart Infrastructure
2. Consumer Acceptance
L0-L2 ARE ON THE MARKET; L4 IS IN TESTING; L5 IS MUCH LATER
AV IMPACT ON PARKING DEMAND

Greatest Impact Will Be in Dense Urban Areas and Those With High Parking Costs

15% - 40%
Decrease in Parking Demand*

Future Parking Demand (Before Growth)

2020-2040
Market Penetration Timeline

* Projection
TNC IMPACT ON PARKING TODAY = CURB CONGESTION IN THESE LOCATIONS

<table>
<thead>
<tr>
<th>HOTEL</th>
<th>RESTURANTS &amp; BARS</th>
<th>SPORTS &amp; EVENTS</th>
<th>AIRPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>Valet</td>
<td>Parkers</td>
<td>TNC</td>
</tr>
<tr>
<td>30-70%</td>
<td>80%</td>
<td>3-6%</td>
<td>200%</td>
</tr>
</tbody>
</table>

Source: Walker Consultants
HAVE TNCs REACHED MAXIMUM PENETRATION?

Not that we can tell!

- 36% of U.S. adults say they have used a TNC as of fall 2018 and only 3% have never heard of it (per Pew Research)
  - Just 15% of Americans said they had used it in late 2015, and one-third had never heard of ride-hailing before
- TNCs estimated to have provided more than 31 million trips in Seattle in 2018 (Seattle Times)
  - At their peak, before Uber and Lyft arrived, Seattle taxicabs provided just over 5.2 million trips in 2012
- By some estimates TNCs captures 2% of all trips in major metro areas today (Seattle, SFO, DC, NY)
- And TNCs grew 5 times in the last 3 years

What if TNCs grow to 10% of trips in the next 10 years?
LESSONS LEARNED

Not ’appy

Airports have been hit by the rise of Uber and Lyft

They are looking at ways to make up falling revenues from car parking and car rentals
TNC IMPACTS AT AIRPORTS

- TNC impact on parking varies by airport
- Airports have not realized the impact of TNCs on parking revenues
  - Parking rates have increased and passenger enplanements are up
- Curb is congested
- Also impacting transit ridership to airports in major cities

AIRPORT TNC BEST PRACTICES

• Moving TNC pick-up off the curb to eliminate congestion and safety issues
  • Design pickup areas to expand should demand increase
• Contract agreement that defines TNC use
  • Pick-up and staging areas, vehicle and background checks, fees, compliance
• Annual and pick-up/drop-off fees that offset parking and other ground transportation revenue losses and associated TNC costs
• Limiting parking time and number of TNCs in staging area
• Audit TNC operations and compliance, real time data
In most cities, streets constitute the largest percentage of public space, and this space must be equitably distributed between the needs of the many different users of urban streets. Design must accommodate people walking, cycling, taking transit, using public spaces, providing city services, doing business, or driving. This chapter identifies design elements and strategies to support safe and inviting spaces for the variety of people using urban streets.

**MODES THAT SHARE THE STREET**

- **Pedestrians**
- **Cyclists**
- **Transit Riders**
- **Motorists**
- **Freight Operators and Service Providers**
- **People Doing Business**

Pedestrians include people of all abilities and ages, walking, sitting, standing, and resting within urban streets. Design for pedestrian zones making streets accessible to the most vulnerable users. Design safe spaces with continuous, unobstructed sidewalks. Include visual variances, engaging street furniture, design for human scale, and incorporate pedestrian-friendly environment from extreme weather to ensure an enjoyable street experience.

Cyclists include people on bicycles, cycle-rail vehicles, and cargo bikes. Cyclists need safe, direct, intuitive, easily-identifiable, and part of a comprehensive network. Encourage use by people of all ages and confidence levels. Cycle tracks that create an effective division from traffic, are well coordinated with signal timing, and are incorporated in intersection design form the basis of an accessible and connected cycle network.

Transit riders are people using collective transport such as rail, bus, or other collective vehicles. This sustainable mode of transportation dramatically increases the overall capacity and efficiency of the street. Dedicated space for transit support is convenient, reliable, and predictable for service for riders. Accessible boarding areas provide safe and comfortable use. The space dedicated to a transit network should be aligned with demand, making service assets without sacrificing street use quality.

Motorists are people driving personal motor vehicles for on-demand, point-to-point transportation. This includes drivers of private cars, for-hire vehicles, and controlled taxi and shared-ride vehicles. Streets and intersections must be designed to facilitate safe movement and manage interactions between motor vehicles, pedestrians, and cyclists.

Freight operators and service providers are people driving vehicles that move goods or conduct critical city services. These users benefit from dedicated space and access to spaces for easy loading and unloading and, as well as dedicated external and internal roads of operation. Freeway ramps, pedestrian, and loading vehicles need adequate space to operate, which must be accommodated while ensuring the safety of all other street users.

People doing business include vendors, street side operators, and owners or renters of commercial structures. These users provide an important service that support vibrant, active, and engaging street environments. Adequate space should be allocated to these users. Provide regular cleaning, maintenance schedules, power, and water in support of commercial activity and improve local quality of life.
PLUS NEW MODES THAT SHARE THE STREET

In many cities, streets constitute the largest percentage of public property, and this space must be equitably distributed between the needs of the many different users of urban streets. Designing space to accommodate people walking, cycling, taking transit, engaging public spaces, providing city services, doing business, or living. This chapter identifies design elements and strategies to support safe and inviting spaces for the variety of people using urban streets.

**Pedestrians**
- Include people of all ages and abilities, strollers, soliciting, and resting.
- Pedestrian boulevards are flattened, wheelchair accessible, and designed to allow for safe and comfortable walking.
- Design for human scale.

**Cyclists**
- Include people on bikes, bicycles, cycle-sinks, and cargo bikes.
- Cyclist facilities should be safe, direct, intuitive, easily distinguished, and part of a comprehensive connected network.
- Encourage use by people of all ages and ability levels.
- Separated cycle tracks create an effective division from traffic.
- Well-coordinated with signal timing.

**Transit Riders**
- Transit riders are people using collective transport such as rail, bus, or other collective vehicles.
- Facilities should be safe, direct, intuitive, clearly defined, and part of a comprehensive connected network.
- Encourage use by people of all ages and ability levels.
- Cycle tracks create an effective division from traffic.
- Well-coordinated with signal timing.

**Motorists**
- Motorists are people driving personal motor vehicles for on-demand, point-to-point transportation.
- Facilities should be safe, direct, intuitive, clearly defined, and part of a comprehensive connected network.
- Encourage use by people of all ages and ability levels.
- Cycle tracks create an effective division from traffic.
- Well-coordinated with signal timing.

**Freight Operators and Service Providers**
- Include people driving vehicles that move goods on demand or deliver critical city services.
- Facilities should be safe, direct, intuitive, clearly defined, and part of a comprehensive connected network.
- Encourage use by people of all ages and ability levels.
- Cycle tracks create an effective division from traffic.
- Well-coordinated with signal timing.

**People Doing Business**
- Include people doing business in the city, such as business owners or operators of commercial establishments.
- Facilities should be safe, direct, intuitive, clearly defined, and part of a comprehensive connected network.
- Encourage use by people of all ages and ability levels.
- Cycle tracks create an effective division from traffic.
- Well-coordinated with signal timing.
RESOURCES

SAN FRANCISCO CURB STUDY

The Shared-Use City: Managing the Curb

Corporate Partnership Board Report

CURBSIDE MANAGEMENT PRACTITIONERS GUIDE
WE CAN...AND SHOULD... THINK/PLAN/DO NOW

• Avoid over supply of parking
  • Provide just enough parking for commerce to thrive
  • Flexibility in planning
    • Shared parking, In-lieu fees, impact fees, TDM, parking districts, mechanical and automated parking

• Manage the curb
  • Street curb and garage curb
  • Plan for now and future demand
  • Flexibility is key
  • Fees for access
    • Analyze impact on parking revenues
HOW MUCH CURB LENGTH?
WHAT’S THE POTENTIAL DISRUPTION OF TNC?

- Expected TNC current (600 linear feet)
- Potential TNC space future scenario (1,200 linear feet)
WHAT IF WE ACCOMMODATE OFF-STREET?
PARKING BAY CONFIGURATIONS

Stacked (20 Spaces)

Parallel (18 Spaces)

Sawtooth (16 Spaces)

Pull-thru Exit (20 Spaces)

Pull-thru Entry (20 Spaces)

Back In (20 Spaces)

Pull In (20 Spaces)
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)
RECOMMENDATION: PULL THROUGH WITH PEDESTRIANS

- 12 spaces, 9’ waiting areas
- PLZ productivity index: 30

- 14 spaces, 6’ waiting areas
- PLZ productivity index: 34

- 20 spaces, 6’ waiting areas
- PLZ productivity index: 58
SHARED RIDES

- Circulators
- Universities
- Office Parks
- Transit First/Last Mile

Greatest Potential for Consumer Acceptance and Congestion Relief
Space Required to Transport 48 People

Gas  Electric  TNC  AV  Shared

Source: Adapted from Cycling Promotion Fund
THANK YOU!

Chrissy Mancini Nichols

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AV and TNC Policy Lead
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