Chicago Streets of the Future

A City Tech Collaborative Investigation

Photo credit: Chris Freda, SOM
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The Purpose

This investigation explores how new mobility, technology, changes in behavior, and sustainability aspirations will impact the form and function of future urban streets.

The resulting themes and vision offer open-source ideas to build on and advance mobility conversations in Chicago.
The Process

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>RESULTS</th>
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</thead>
<tbody>
<tr>
<td><strong>Pooled Background + Trend Research</strong>&lt;br&gt;Pooled research to understand the state of mobility in Chicago, including existing challenges and opportunities.</td>
<td>“Chicago’s Streets of the Future,” a collaboratively-developed concept by City Tech and SOM that envisions how urban street networks could evolve over the next 10 to 30 years.</td>
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<tr>
<td><strong>Selected 3 Chicago Streets</strong>&lt;br&gt;Applied design ideas, with an eye for 2030, to three streets:&lt;br&gt;1. Arterial: Ashland Avenue&lt;br&gt;2. Retail: 26th Street&lt;br&gt;3. Residential: S. Loomis Blvd.</td>
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<td><strong>Convened 20+ Subject Matter Experts</strong>&lt;br&gt;Convened experts to identify key components, agree on assumptions, and provide perspective.</td>
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<td><strong>Held 2 Design Sessions</strong>&lt;br&gt;Held discussions in 2019 to apply design ideas to collaboratively identify how urban design will enable future mobility technologies and trends.</td>
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What does mobility in Chicago look like today?

- **3,000+ flights** depart and arrive at O'Hare & Midway Airports each day.
- **728,000+** CTA rail boardings each day in 2018.
- **778,000+** CTA bus boardings each day in 2018.
- **266,000+** TNP trips were taken in Chicago every day in 2018.
- **6,000** Divvy bikes at 570 in the Chicago area stations.
- **2,500** e-scooters were launched in Chicago's 2019 pilot program.
- **48.5%** of Chicago commuters drive to work alone each day.
- **38 minutes** is the average commute for Chicagoans in 2018.

Sources: Transit Chicago, O'Hare Airport, Chicago Tribune, McKinsey & Company, City of Chicago, Divvy.
Chicago’s transportation network is robust & growing

4,000 miles of roadways
overseen by the Chicago Department of Transportation

292 miles of bike lanes
on Chicago’s streets

224 miles of CTA rail track
connecting 8 lines and 145 stations

125,000 automobiles
used in TNP, chauffeur, and public passenger service in Chicago

6,000 Divvy bikes
located at more than 570 stations throughout Chicago

1,500 bus route miles
connecting 129 routes and 10,000 bus stops

Sources: City of Chicago, Divvy
There is a rapidly changing array of public and private transportation options

Public transit services
CTA, Metra, PACE, Loop Link

Private transit services
Uber, Lyft, Via, Chariot

On-demand personal & Micro-transit services
Divvy, Car2Go, ZipCar, Lime, Bird, Jump

Photo credits: SOM; Robin Trajano; Natalie Battaglia, Loyola University - Chicago
Breakthrough technologies are changing mobility at every level

More real-time information
available to make efficient decisions on how to get from A to B and beyond.

Enhanced efficiency of transit
through demand measurement, priority signaling and leap-frogging of vehicles.

New technology-based business models
(e.g. global mapping and routing, the gig economy of service providers, customer led services).

Autonomous/driverless vehicles
for personal cars, taxi, freight and transit.

Enhanced efficiency of freight
service to optimize multi-stop deliveries.

Real-time ride-hail & micro-transit rental technologies
for short trips by car, scooter, and bike.

Artificial intelligence & the ‘Internet of Things’
allows the possibility of more efficiency, and more central management and control.

Electric trucks, transit, cars, scooters & bikes
ushering in a more sustainable and carbon-neutral future.

Software-enabled integration
of public and private, legacy and emerging modes of transportation.
New, emerging technologies will shift travel behaviors

Rideshare use will continue to increase, along with average vehicle occupancy.

Public transit ridership will increase as fleets expand to include micro-buses, autonomous and/or electric vehicles.

Personal vehicle use and parking demands will fall, changing dynamics at the curb.

Micro-mobility use, such as e-bikes and scooters, will continue to increase, calling for safer infrastructure.

Vehicle Lane | Parking | Sidewalk | Planting
These shifting travel behaviors will influence changes in the streetscape.

- **Digital infrastructure** will be needed to increase connectivity and accommodate emerging technologies.
- **Green infrastructure and stormwater maintenance** strategies will be implemented, including remote sensing and monitoring capabilities.
- **Designated pick-up and drop-off locations for deliveries and ride-shares** will reduce curb congestion.
- **The public realm will expand** to incorporate opportunities for cafes and greenery.

Diagram:
- Vehicle Lane
- Parking
- Sidewalk
- Planting

Legend:
Future Streets: Components

We accommodated key components of future streets to share spaces and enhance people’s overall experience.
## Future Streets: Case Studies

We selected three streets as representative typologies to envision how future street components would be implemented at different scales.

<table>
<thead>
<tr>
<th>Arterial Street</th>
<th>Retail Street</th>
<th>Residential Street</th>
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</thead>
<tbody>
<tr>
<td>• High-capacity thoroughfare</td>
<td>• Medium-capacity thoroughfare</td>
<td>• Low-capacity</td>
</tr>
<tr>
<td>• Higher speeds</td>
<td>• Medium speeds</td>
<td>• Low speeds</td>
</tr>
<tr>
<td>• Planted median</td>
<td>• Commuter and small freight traffic</td>
<td>• Light commuter traffic</td>
</tr>
<tr>
<td>• Heavy commuter and freight traffic</td>
<td>• Heavy pedestrian activity</td>
<td>• Heavy pedestrian activity</td>
</tr>
<tr>
<td>• Connects to urban hubs and interstate highways</td>
<td>• Light bike infrastructure</td>
<td>• Connects to residential neighborhoods</td>
</tr>
<tr>
<td>• Public transit service route</td>
<td>• Connects to residential neighborhoods</td>
<td>• No public transit service routes</td>
</tr>
<tr>
<td></td>
<td>• Public transit service route</td>
<td></td>
</tr>
</tbody>
</table>
Future Streets: Chicago Case Studies

Three streets in Chicago served as real-life examples of each typology

1. **Arterial: Ashland Avenue**
2. **Retail: 26th Street**
3. **Residential: S. Loomis Blvd.**
Arterial: Ashland Avenue
North Avenue to Division Avenue
Arterial: Ashland Avenue
Street Section – 2020

Vehicle Lane
Parking
Planting
Sidewalk
Arterial: Ashland Avenue

2020
Arterial: Ashland Avenue
Future Vision

- Micro-mobility and bike parking zones
- Limited long dwell time on-street parking
- Defined micro-mobility and bike lane on adjacent street
- Bus stops, integrated solar
- Pick-up and drop-off placed mid-block
- Charging points combined with parking spaces
- Smaller buses can use ride-share pick up points
- Rain gardens in median
- Drone parcel delivery for larger and flat roof buildings
- Deliveries via alley or managed use of drop-off zones
- New café and landscape space
- Sensors, telecoms, cameras within street lighting array
- Curbs retained
- Rain gardens in median
- Deliveries via alley or managed use of drop-off zones
- Pick-up and drop-off placed mid-block
- Charging points combined with parking spaces
- New café and landscape space
- Sensors, telecoms, cameras within street lighting array
- Drone parcel delivery for larger and flat roof buildings
- Curbs retained
Arterial: Ashland Avenue

Street Level – 2020

Street Level – Future Vision

- Ride-share pick up points, integrated solar
- Sensors, telecoms, cameras within street lighting array
- New cafe and landscape space
- Limited long dwell time on-street parking
- Permeable surface at ride-share pick up
Retail: 26th Street
Pulaski Road to Kedzie Avenue
Retail: 26th Street
Street Section – 2020
Retail: 26th Street
Street Section – Future Vision

Future Components

- Pedestrians
- Vegetation
- Parking
- Electric Car Charging
- Ride-Hail Zones
- Transit
- Biking
- Water
- Street Furniture

- Vehicle Lane
- Bike Lane
- Parking/ Drop Off
- Planting
- Sidewalk
Micro-mobility zones required
Bus stops, integrated solar
Smaller buses can use ride-share pick up points
Limited long dwell time on-street parking
Pick-up and drop-off placed mid-block
Charging points combined with parking spaces
50% of parking retained for local retail and restaurants, alternating sides on each block
New café and landscape space
Rain gardens added to landscape areas
Sensors, telecoms, cameras within street lighting array
Enhanced bike and micro-mobility lanes
Curbs retained
Bus stops still needed
Ride-share pick up points required
Deliveries via alley or managed use of drop-off zones
Retail: 26th Street
Future Vision
Retail: 26th Street

Street Level – 2020

Street Level – Future Vision

- New café and landscape space
- Rain gardens added to landscape areas
- Enhanced bike and micro-mobility lanes
- Pick-up and drop-off placed mid-block
- Sensors, telecoms, cameras within street lighting array

Retail: 26th Street
Residential: S. Loomis Blvd.
76th Street to 83rd Street
Residential: S. Loomis Blvd.
Street Section
Future Vision

Future Components

- Pedestrians
- Vegetation
- Water
- Ride-Hail Zones
- Remote Sensors
- Parking Eliminated
- Biking

Shared Surface
Bike Lane
Pick-Up/Drop Off
Planting
Sidewalk
Residential: S. Loomis Blvd.
2020
Micro-mobility and bike parking

Shared parcel delivery lockers placed mid-block

New landscape play and habitat space

Smaller buses can use ride-share pick up points mid-block

New landscape play and habitat space

Enhanced bike and micro-mobility lanes

Sensors, telecoms, cameras within street lighting array

Resident parking accommodated in garages

Shared permeable surface

Rain gardens added to landscape areas

Future Vision
Residential: S. Loomis Blvd.

Street Level – 2020

Street Level – Future Vision

New landscape play and habitat space

Pick-up and drop-off placed mid-block

Rain gardens added to landscape areas

Sensors, telecoms, cameras within street lighting array

Shared permeable surface used

New landscape play and habitat space
Future components and behaviors will combine to address current challenges and provide a more efficient network of multi-modal, digitally connected, and more socially and environmentally equitable streets.
Future Streets: Vision

- Transit stops still needed
- Designated **Ride-share** pick-up points
- Pick-up and drop-off points for rideshare and deliveries
- **Microbuses** added to transit fleets
- Parking reduced
- Electric charging available
Future Streets: Vision

- **Micro-mobility zones designated**
- **Rain gardens** added for sustainability
- **Public spaces** added near the curb
- **Bike lanes enhanced**
- **Digital infrastructure** to increase connectivity
- **Drones**: parcel delivery and public safety
Through the Advanced Mobility Initiative, City Tech, SOM, and over 30 partners are actively engaged in developing solutions to urban mobility challenges.

This vision and the input from the participants who helped create it will guide decisions that shape future streets in Chicago and offer a more seamless, productive transportation system.

Sharing this vision serves as an opportunity to foster additional insights.

Next Steps
Future Considerations

**The Challenges:** What are the most prevalent mobility challenges (i.e. first-last-mile connectivity, curb congestion, safety, etc.)? Which components of the vision can be a focus for further investigation?

**The Stakeholders:** What roles are needed in cross-sector collaboration? And, what tends to be the barrier(s) to successful, strategic partnerships?

**The Solutions:** Are we over-planning? As transportation modes evolve, should future streets designate specific uses such as bus-only, bike-only, or car-only? Or should infrastructure be flexible allowing organic, coexistence of similar uses?

**Implementation:** What type of financing models could support large-scale infrastructure developments and maintenance? What are other requirements for implementation?
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