

# Emerging Technologies, COVID, and the Future of Public Space

---

**Nico Larco**

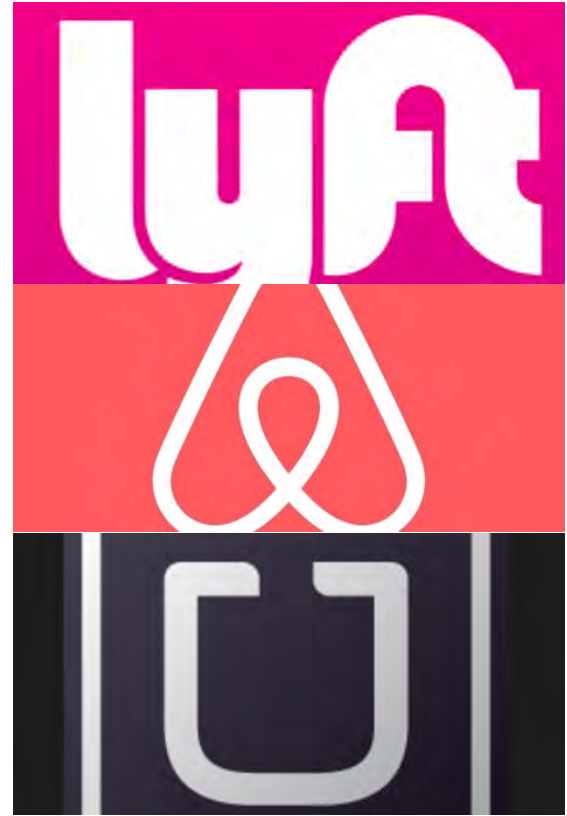
Director - Urbanism Next Center  
Professor – Department of Architecture  
University of Oregon  
@nicolarco

urbanismnext.org  
nlarco@uoregon.edu



UNIVERSITY OF  
OREGON

Urbanism Next  
Center



UNIVERSITY OF  
OREGON

Urbanism Next  
Center

# URBANISM NEXT | FRAMEWORK

## Forces of Change

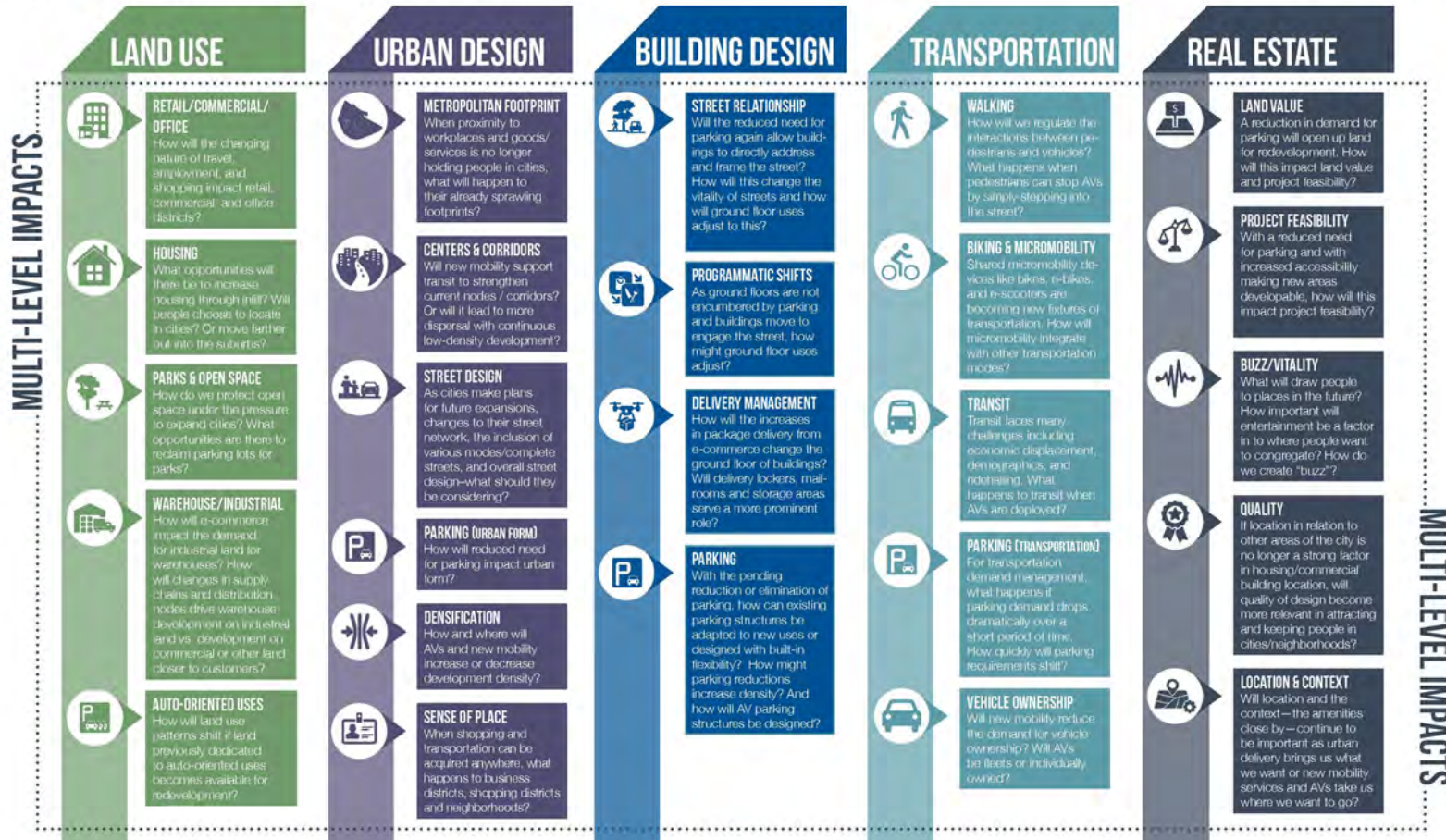
New Mobility

Autonomous Vehicles

E-Commerce

Urban Delivery

COVID-19



urbanismnext.org

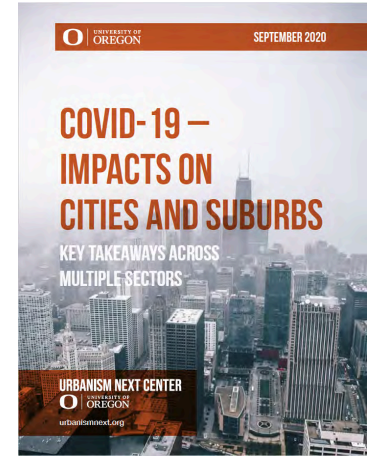
# Streets are Places / Contested Spaces



# COVID Impacts

## Transportation

- Work From Home (WFH)
- Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
- Reduced Public Transit Services Revenues
  - Reduced TNC ridership
- Reduced E-scooter Ridership/Availability
- Reduced Interest in Passenger AV Tech
- Increased Interest in AV Delivery Devices

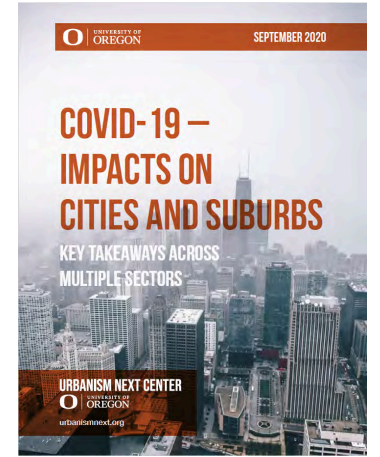


# COVID Impacts

Transportation

Retail/Rest.

- Work From Home (WFH)
- Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
- Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Increased E-Commerce
- Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores



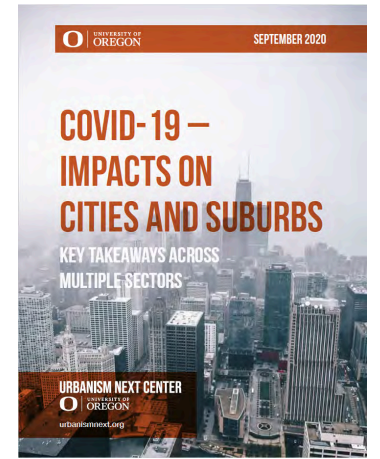
# COVID Impacts

Transportation

Retail/Rest.

Econ.

- Work From Home (WFH)
- Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
- Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Increased E-Commerce
- Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores
- Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding



# COVID Impacts

## Work From Home (WFH)

- Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
- Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
  - Increased E-Commerce
- Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores
- Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding

Transportation  
Retail/Rest.  
Econ.



# 42%

of US Labor Force Working from Home Full Time

Stanford Institute for Economic Policy Research (SIEPR)  
June 29, 2020

<https://news.stanford.edu/2020/06/29/snapshot-new-working-home-economy/>



# COVID Impacts

## Work From Home (WFH)

- Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
  - Reduced Public Transit Services Revenues
    - Reduced TNC ridership
    - Reduced E-scooter Ridership/Availability
    - Reduced Interest in Passenger AV Tech
    - Increased Interest in AV Delivery Devices
    - Increased E-Commerce
  - Maturity of Delivery Business Models
    - Increased Tactical Urbanism
    - Increased Goods and Meal Delivery
    - Reduced Dining Out/# of Restaurants
    - Reduced # of Brick-and-Mortar Stores
    - Reduced Economic Activity
    - Small Businesses Closing
    - Reduced Venture Capital Funding

Transportation

Retail/Rest.

Econ.



# ±50%

## Don't Have That Option

Stanford Institute for Economic Policy Research (SIEPR)  
June 29, 2020

<https://news.stanford.edu/2020/06/29/snapshot-new-working-home-economy/>

# COVID Impacts

## Work From Home (WFH)

- Reduced Overall Transportation and Travel
- Increased Driving alone
- Increased Bicycle Purchases and Use
- Reduced Public Transit Ridership
- Reduced Public Transit Services Revenues
- Reduced TNC ridership
- Reduced E-scooter Ridership/Availability
- Reduced Interest in Passenger AV Tech
- Increased Interest in AV Delivery Devices
- Increased E-Commerce
- Maturity of Delivery Business Models
- Increased Tactical Urbanism
- Increased Goods and Meal Delivery
- Reduced Dining Out/# of Restaurants
- Reduced # of Brick-and-Mortar Stores
- Reduced Economic Activity
- Small Businesses Closing
- Reduced Venture Capital Funding

Transportation  
Retail/Rest.  
Econ.

## Impact of the COVID-19 recession on key economic indicators

53 very large metro areas with populations over 1 million

August 2020

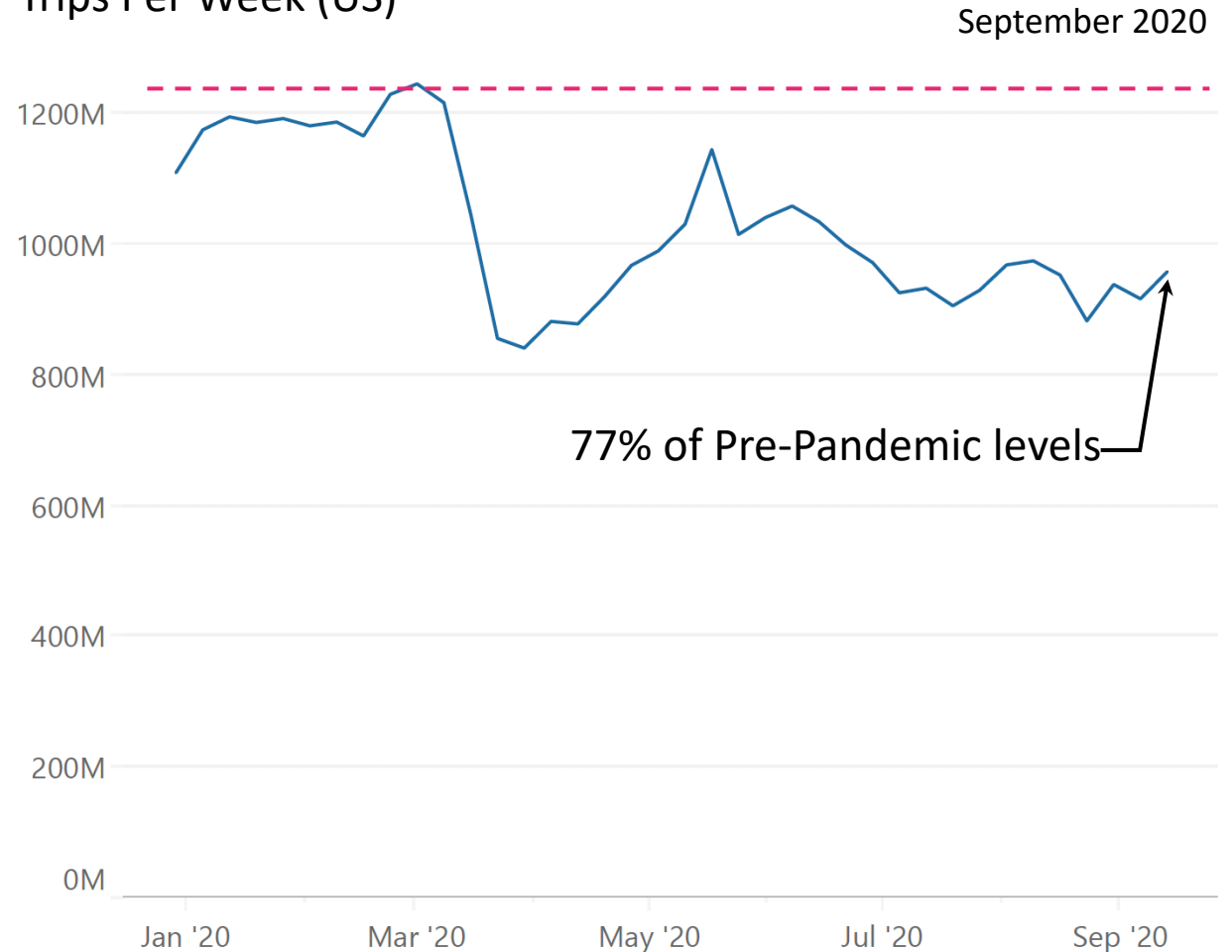
Metro area	Labor market			Economic activity		
	Jobs	Unemp. rate	UI claims	Work trips	Small biz hours	Small biz open
San Jose-Sunnyvale-Santa Clara, CA	-8.7%	+6.6%	N/A	-46.1%	-26.1%	-27.0%
San Francisco-Oakland-Berkeley, CA	-11.6%	+8.4%	N/A	-43.7%	-43.3%	-33.7%
Washington-Arlington-Alexandria, D...	-7.3%	+4.9%	N/A	-39.7%	-31.7%	-25.5%
Seattle-Tacoma-Bellevue, WA	-8.1%	+6.3%	N/A	-39.2%	-26.2%	-21.7%
Austin-Round Rock-Georgetown, TX	-4.0%	+3.9%	N/A	-38.5%	-18.8%	-16.2%
Boston-Cambridge-Newton, MA-NH	-11.4%	+12.8%	N/A	-36.7%	-24.7%	-23.5%
Raleigh-Cary, NC	-10.4%	+4.6%	N/A	-36.5%	-19.8%	-23.4%
New York-Newark-Jersey City, NY-NJ-...	-12.8%	+12.7%	N/A	-36.1%	-39.4%	-30.5%

<https://www.brookings.edu/interactives/metro-recovery-index/>

# COVID Impacts

- Transportation
  - Work From Home (WFH)
  - Reduced Overall Transportation and Travel**
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
  - Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Retail/Rest.
  - Increased E-Commerce
  - Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores
- Econ.
  - Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding

Trips Per Week (US)



Bureau of Transportation Statistics, USDOT

<https://www.bts.gov/daily-travel>

**URBANISM NEXT CENTER**



# COVID Impacts

Transportation  
Retail/Rest.  
Econ.

Work From Home (WFH)

Reduced Overall Transportation and Travel

Increased Driving alone

Increased Bicycle Purchases and Use

**Reduced Public Transit Ridership**

**Reduced Public Transit Services Revenues**

Reduced TNC ridership

Reduced E-scooter Ridership/Availability

Reduced Interest in Passenger AV Tech

Increased Interest in AV Delivery Devices

Increased E-Commerce

Maturity of Delivery Business Models

Increased Tactical Urbanism

Increased Goods and Meal Delivery

Reduced Dining Out/# of Restaurants

Reduced # of Brick-and-Mortar Stores

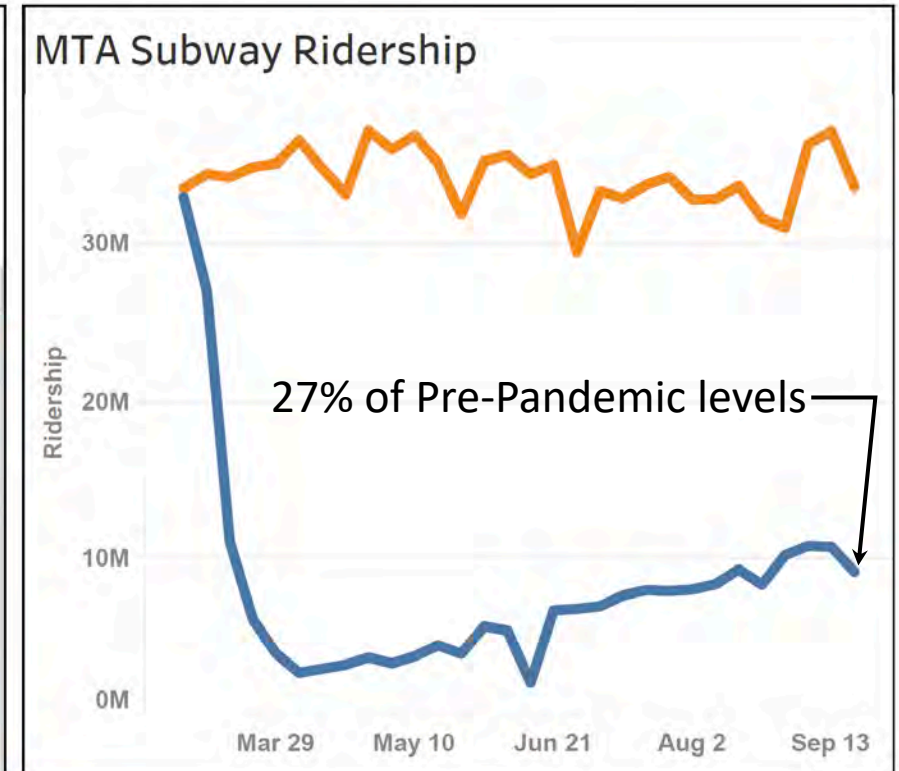
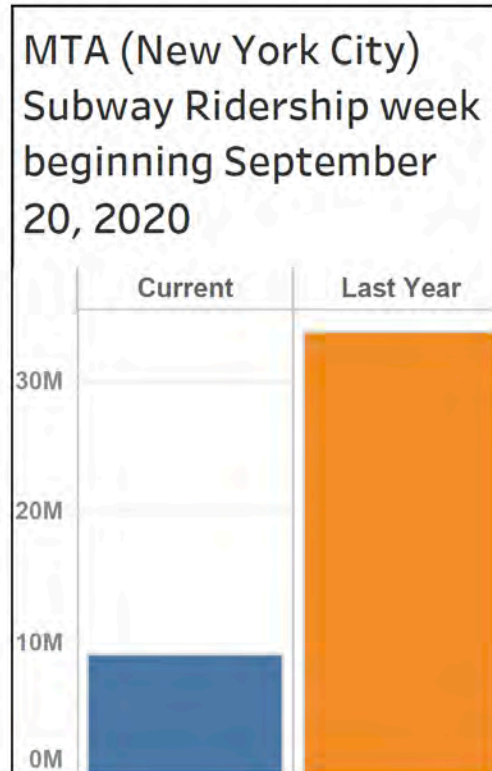
Reduced Economic Activity

Small Businesses Closing

Reduced Venture Capital Funding



September 2020



<https://www.bts.gov/covid-19/week-in-transportation#transit>

**URBANISM NEXT CENTER**

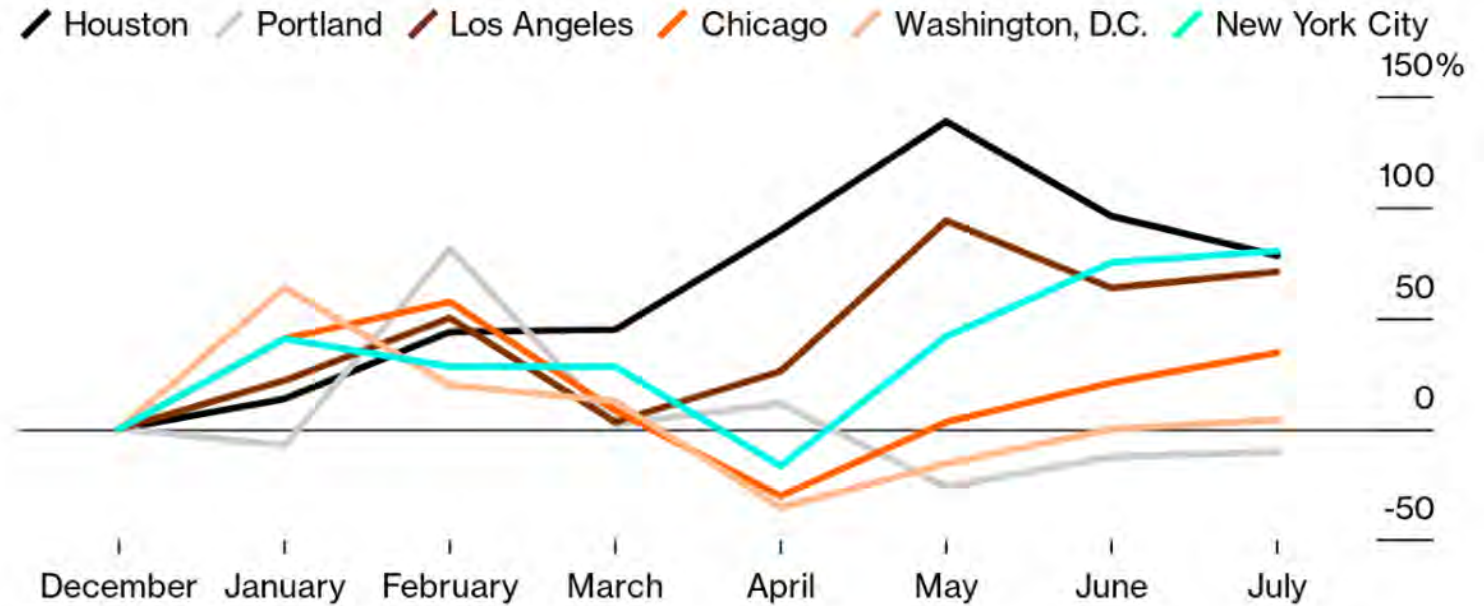
**UNIVERSITY OF OREGON**

# COVID Impacts

Transportation	Work From Home (WFH)
	Reduced Overall Transportation and Travel
	Increased Driving alone
	<b>Increased Bicycle Purchases and Use</b>
	Reduced Public Transit Ridership
	Reduced Public Transit Services Revenues
	Reduced TNC ridership
	Reduced E-scooter Ridership/Availability
	Reduced Interest in Passenger AV Tech
	Increased Interest in AV Delivery Devices
Retail/Rest.	Increased E-Commerce
	Maturity of Delivery Business Models
	Increased Tactical Urbanism
	Increased Goods and Meal Delivery
	Reduced Dining Out/# of Restaurants
	Reduced # of Brick-and-Mortar Stores
	Reduced Economic Activity
	Small Businesses Closing
	Reduced Venture Capital Funding
	Econ.

## A Boom Year For Bicycling

Bike trips on Strava surged during the pandemic in several U.S. cities



Data: Strava Metro  
 Chart shows year-over-year percent change in Strava bicycle trips each month, 2019 vs 2020.

CITYLAB

<https://www.bloomberg.com/news/articles/2020-09-23/how-the-coronavirus-affected-biking-in-u-s-cities?sref=LOxEm0mA>

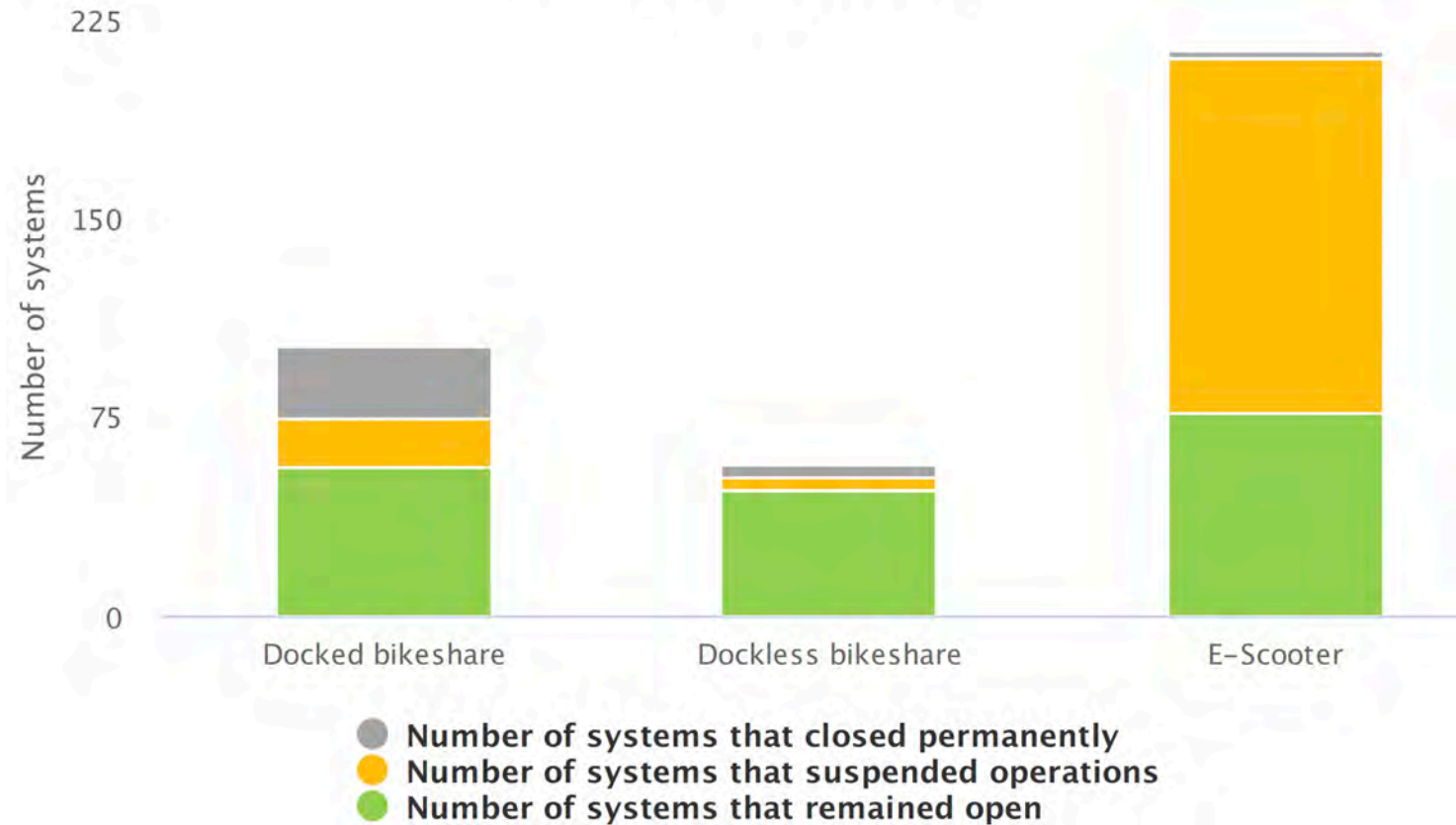
URBANISM NEXT CENTER

UNIVERSITY OF OREGON

# COVID Impacts

Transportation	Work From Home (WFH)
	Reduced Overall Transportation and Travel
	Increased Driving alone
	Increased Bicycle Purchases and Use
	Reduced Public Transit Ridership
	Reduced Public Transit Services Revenues
	Reduced TNC ridership
	<b>Reduced E-scooter Ridership/Availability</b>
	Reduced Interest in Passenger AV Tech
	Increased Interest in AV Delivery Devices
Retail/Rest.	Increased E-Commerce
	Maturity of Delivery Business Models
	Increased Tactical Urbanism
	Increased Goods and Meal Delivery
	Reduced Dining Out/# of Restaurants
	Reduced # of Brick-and-Mortar Stores
	Reduced Economic Activity
	Small Businesses Closing
	Reduced Venture Capital Funding
	Econ.

Bikeshare and E-scooter System Operation Changes March through August 2020



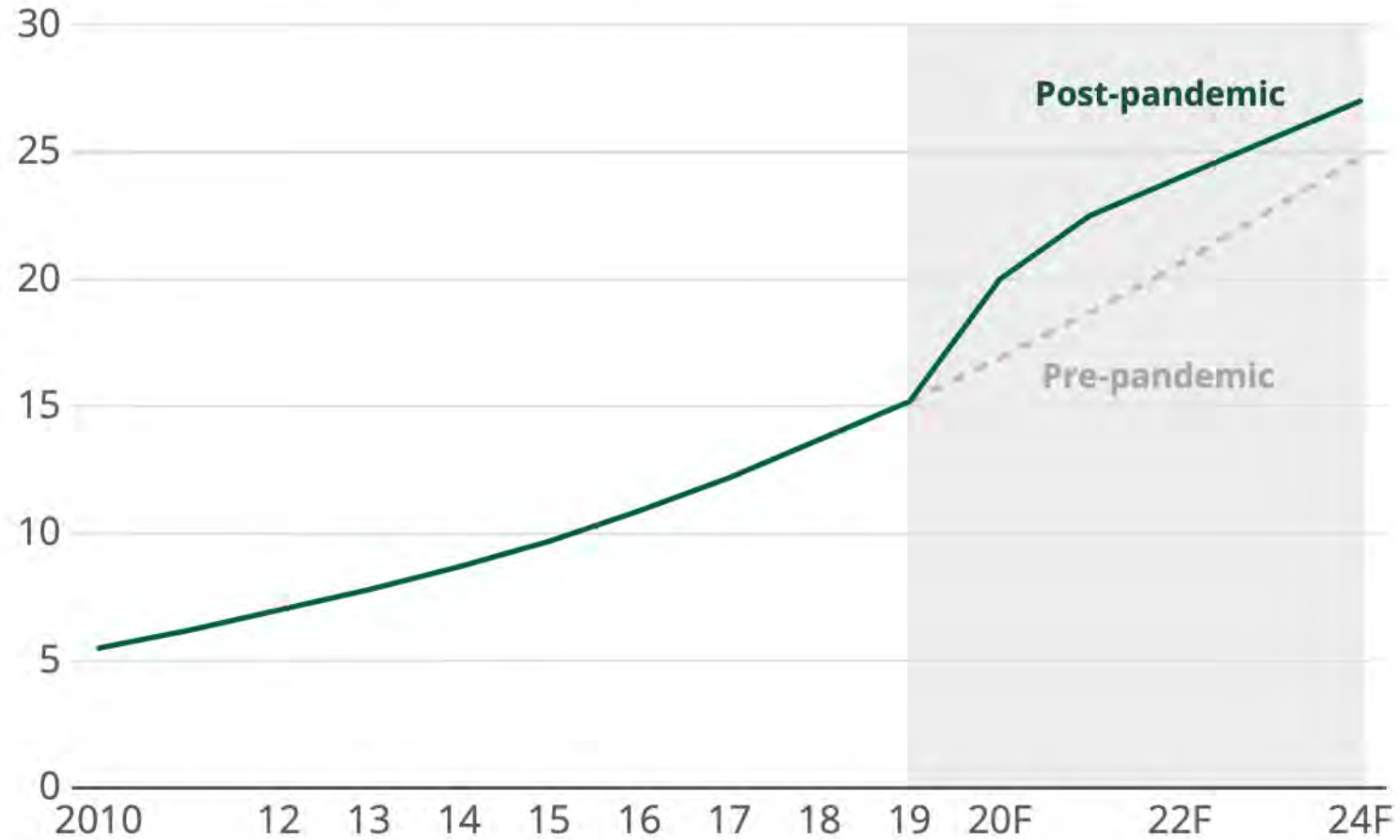
<https://data.bts.gov/stories/s/Docked-and-Dockless-and-E-Scooter-System-Changes-2/kar5-6dnp/>

# COVID Impacts

- Transportation
  - Work From Home (WFH)
  - Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
  - Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Retail/Rest.
  - Increased E-Commerce**
  - Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores
- Econ.
  - Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding

## E-COMMERCE SALES PENETRATION, UNITED STATES

E-Commerce as a % of Total Retail Sales

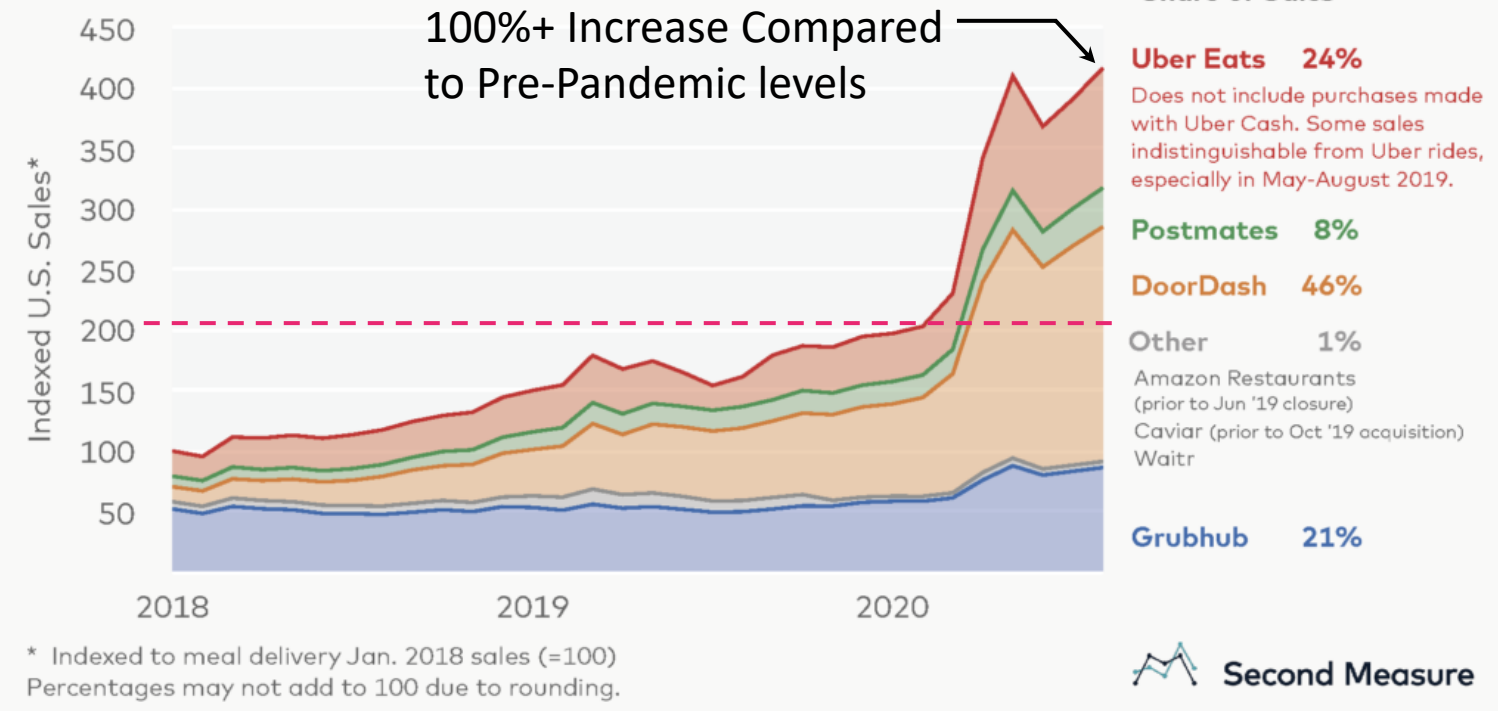


Source: U.S. Census Bureau, Euromonitor, Prologis Research forecast

# COVID Impacts

- Transportation
  - Work From Home (WFH)
  - Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
  - Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Retail/Rest.
  - Increased E-Commerce
  - Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery**
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores
- Econ.
  - Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding

## Meal Delivery - Monthly Sales



<https://secondmeasure.com/datapoints/food-delivery-services-grubhub-uber-eats-doordash-postmates/>



# COVID Impacts

- Transportation
  - Work From Home (WFH)
  - Reduced Overall Transportation and Travel
    - Increased Driving alone
    - Increased Bicycle Purchases and Use
    - Reduced Public Transit Ridership
  - Reduced Public Transit Services Revenues
    - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Retail/Rest.
  - Increased E-Commerce
  - Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants**
  - Reduced # of Brick-and-Mortar Stores
- Econ.
  - Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding

More than

# 100,000

restaurants and bars have permanently closed due to COVID

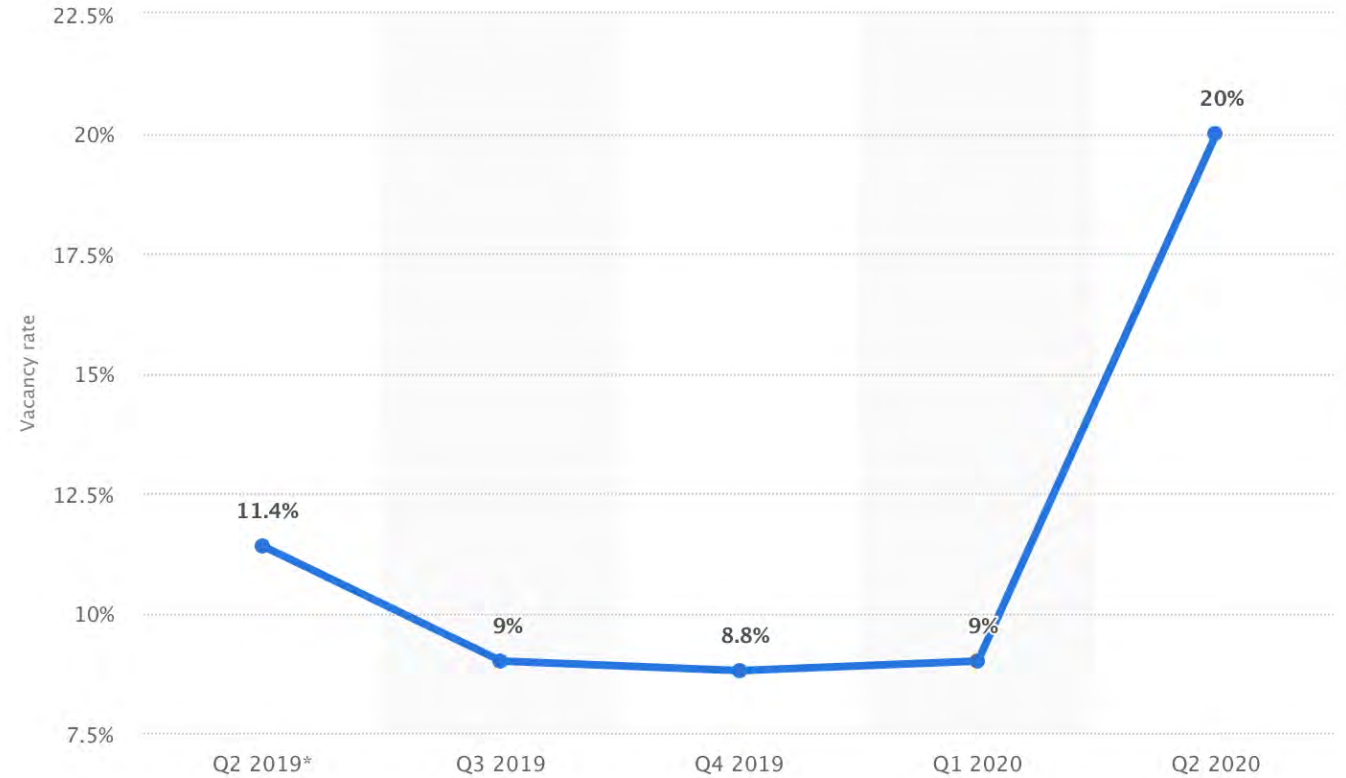
National Restaurant Association Survey, July 2020

<https://restaurant.org/news/pressroom/press-releases/association-calls-for-needed-federal-support>

# COVID Impacts

- Transportation
  - Work From Home (WFH)
  - Reduced Overall Transportation and Travel
  - Increased Driving alone
  - Increased Bicycle Purchases and Use
  - Reduced Public Transit Ridership
  - Reduced Public Transit Services Revenues
  - Reduced TNC ridership
  - Reduced E-scooter Ridership/Availability
  - Reduced Interest in Passenger AV Tech
  - Increased Interest in AV Delivery Devices
- Retail/Rest.
  - Increased E-Commerce
  - Maturity of Delivery Business Models
  - Increased Tactical Urbanism
  - Increased Goods and Meal Delivery
  - Reduced Dining Out/# of Restaurants
  - Reduced # of Brick-and-Mortar Stores**
- Econ.
  - Reduced Economic Activity
  - Small Businesses Closing
  - Reduced Venture Capital Funding

## Retail Vacancy Rates in the US (Q2-2019 to Q2 2020)



© Statista 2020

<https://www.statista.com/statistics/194102/us-retail-vacancy-rate-forecasts-from-2010/>

**COVID IMPACTS  
ARE NOT EQUITABLE**

# WHAT DOES THIS MEAN FOR PUBLIC SPACE?



UNIVERSITY OF  
OREGON

Urbanism Next  
Center





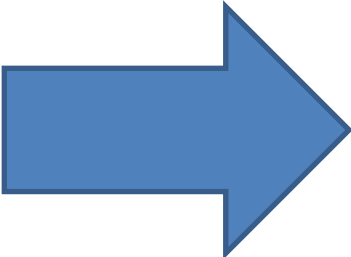
UNIVERSITY OF  
OREGON

Urbanism Next  
Center

# Public Spaces Used as Public Spaces



# Shift From Urban Cores to Neighborhood Centers (?)





# WHAT WILL STICK?

**NOT KNOWING EVERYTHING ABOUT THE  
FUTURE DOESN'T MEAN WE DON'T  
KNOW ANYTHING ABOUT THE FUTURE**

# Variables That Will Decide What Sticks

- Length of Time in Pandemic (Habits)
- Entry Barriers Overcome
- Business Model Maturity – and Consolidations
- Large Decision Points
- Timeline Thresholds
- Continued Fear of Future Pandemics
- Policy Decisions

**CITIES ARE CHANGING  
HOW THEY WORK.**

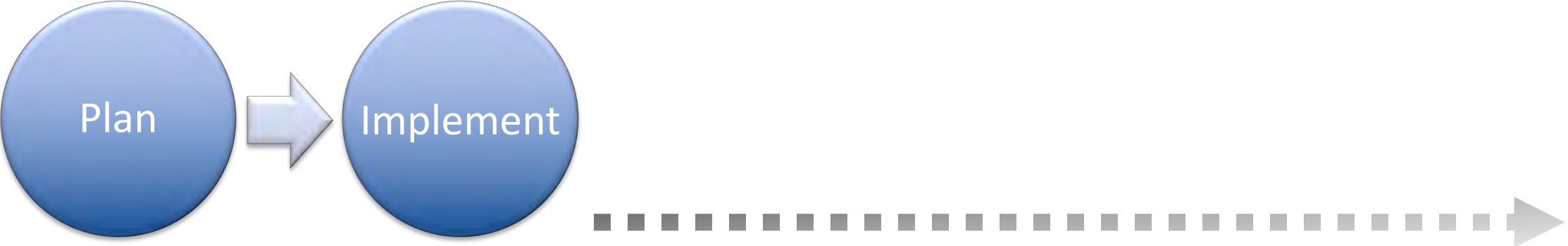


UNIVERSITY OF  
OREGON

Urbanism Next  
Center

# Typical Planning Process

---



# Planning In Uncertainty

---



# Planning In Uncertainty



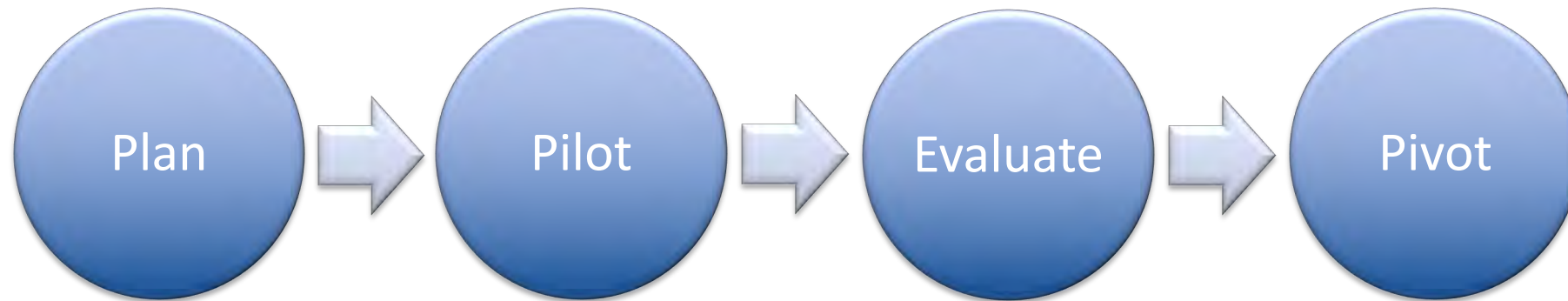
Focus on  
Desired  
Outcomes



UNIVERSITY OF  
OREGON

Urbanism Next  
Center

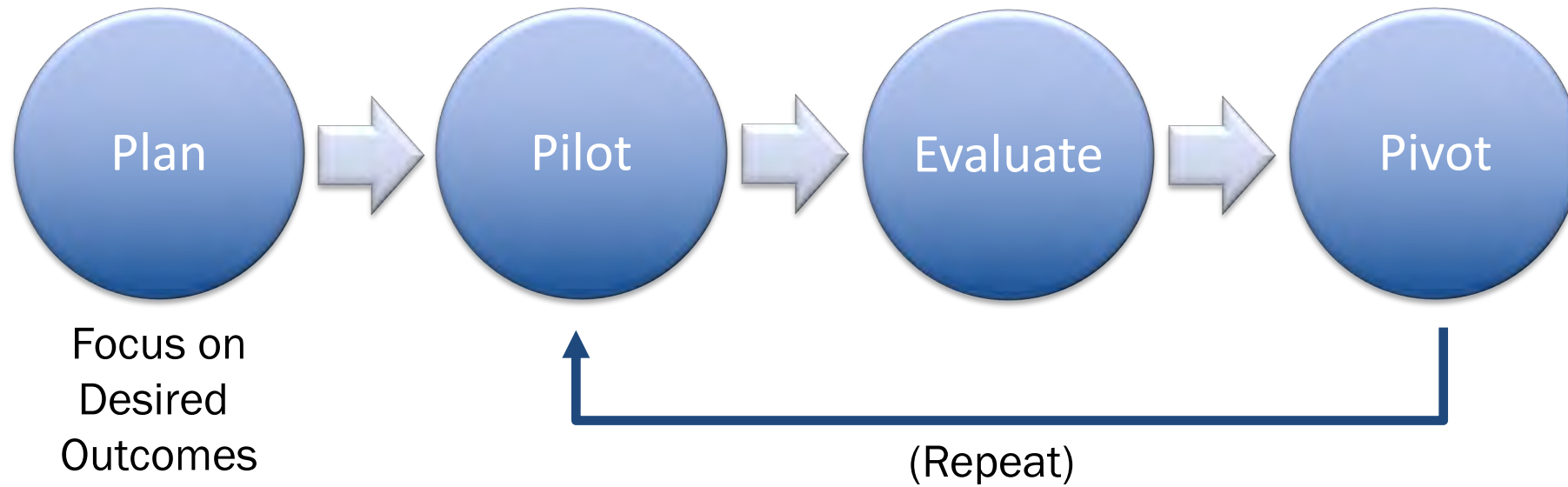
# Planning In Uncertainty



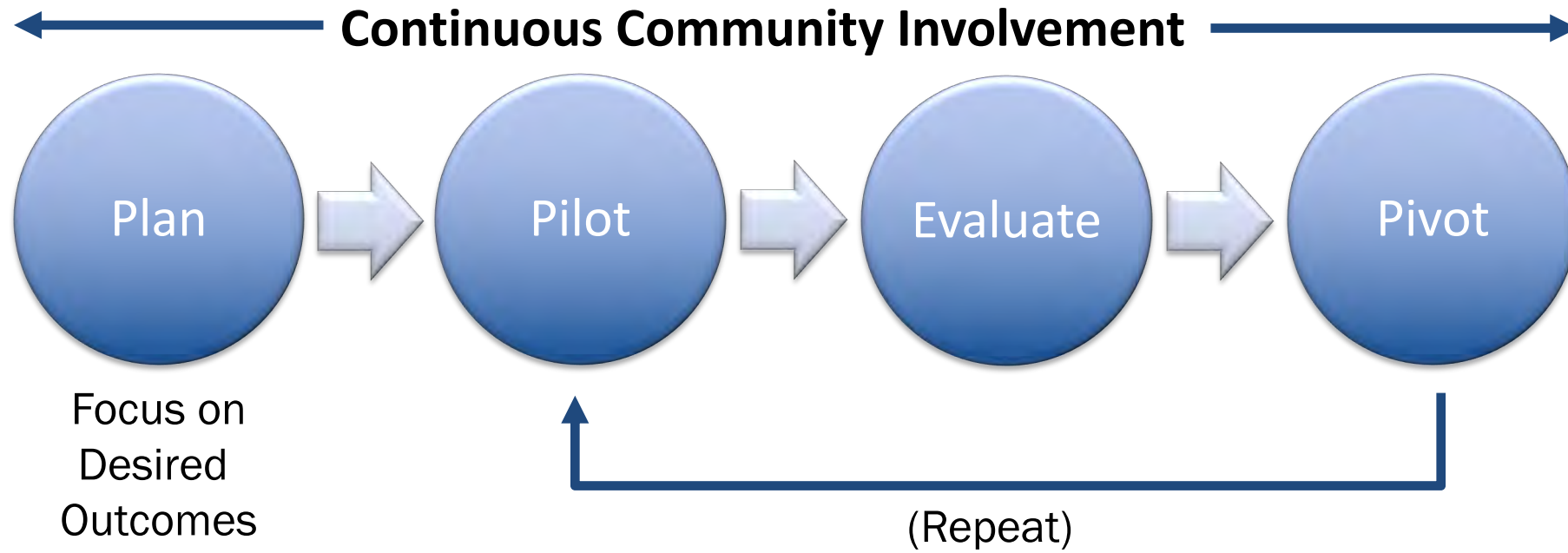
Focus on  
Desired  
Outcomes



# Planning In Uncertainty

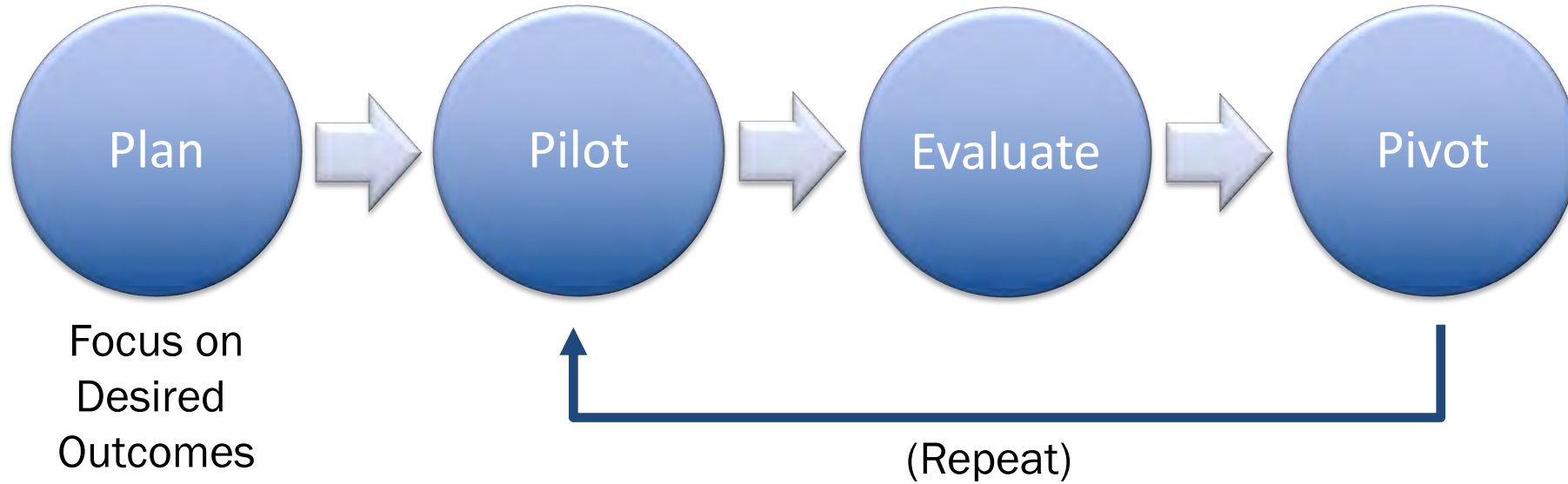


# Planning In Uncertainty



# Planning In Uncertainty

← **Continuous Community Involvement** →




- New Policy/Regs
- Modify Existing Policy
- Pilot Scale-Up
- Develop Capabilities
- Modify Processes
- New Initiatives
- Modify Existing Goals

# ADDITIONAL RESOURCES

URBANISM NEXT UNIVERSITY OF OREGON

## THE NEXUS



# THE NEXUS

**Welcome to The Nexus!**


The Nexus examines the potential impacts of mobility, autonomous vehicle innovations will have on cities.

**Understanding how new technologies might be making.** Use the below links to explore The Nexus on these issues, and access resources for research.

URBANISM NEXT UNIVERSITY OF OREGON


## COVID-19

Examining the near- and long-term impacts on cities.



**GENERAL**

Here are a collection of resources that aren't directly related to transit.



**TRANSIT**

Since the onset of the pandemic, transit workers find the right balance between safety and service. Which temporary measures are most effective?

**TRANSPORTATION**

UNIVERSITY OF OREGON SEPTEMBER 2020

## COVID-19 — IMPACTS ON CITIES AND SUBURBS

KEY TAKEAWAYS ACROSS MULTIPLE SECTORS

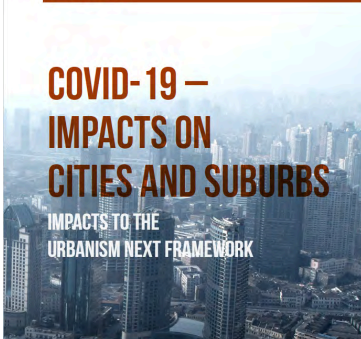


URBANISM NEXT CENTER UNIVERSITY OF OREGON urbanismnext.org

UNIVERSITY OF OREGON

## COVID-19 — IMPACTS ON CITIES AND SUBURBS

IMPACTS TO THE URBANISM NEXT FRAMEWORK




URBANISM NEXT CENTER UNIVERSITY OF OREGON urbanismnext.org

## COVID Mobility Works

# Find mobility solutions

Search initiatives by location

And/or browse by category



How are communities using open streets to accommodate economic recovery during the COVID-19 pandemic?

[covidmobilityworks.org](https://covidmobilityworks.org)

# Emerging Technologies, COVID, and the Future of Public Space

---

**Nico Larco**

Director - Urbanism Next Center  
Professor – Department of Architecture  
University of Oregon  
@nicolarco

urbanismnext.org  
nlarco@uoregon.edu



UNIVERSITY OF  
OREGON

Urbanism Next  
Center