Sidewalk Labs works with cities to build products addressing big urban problems.

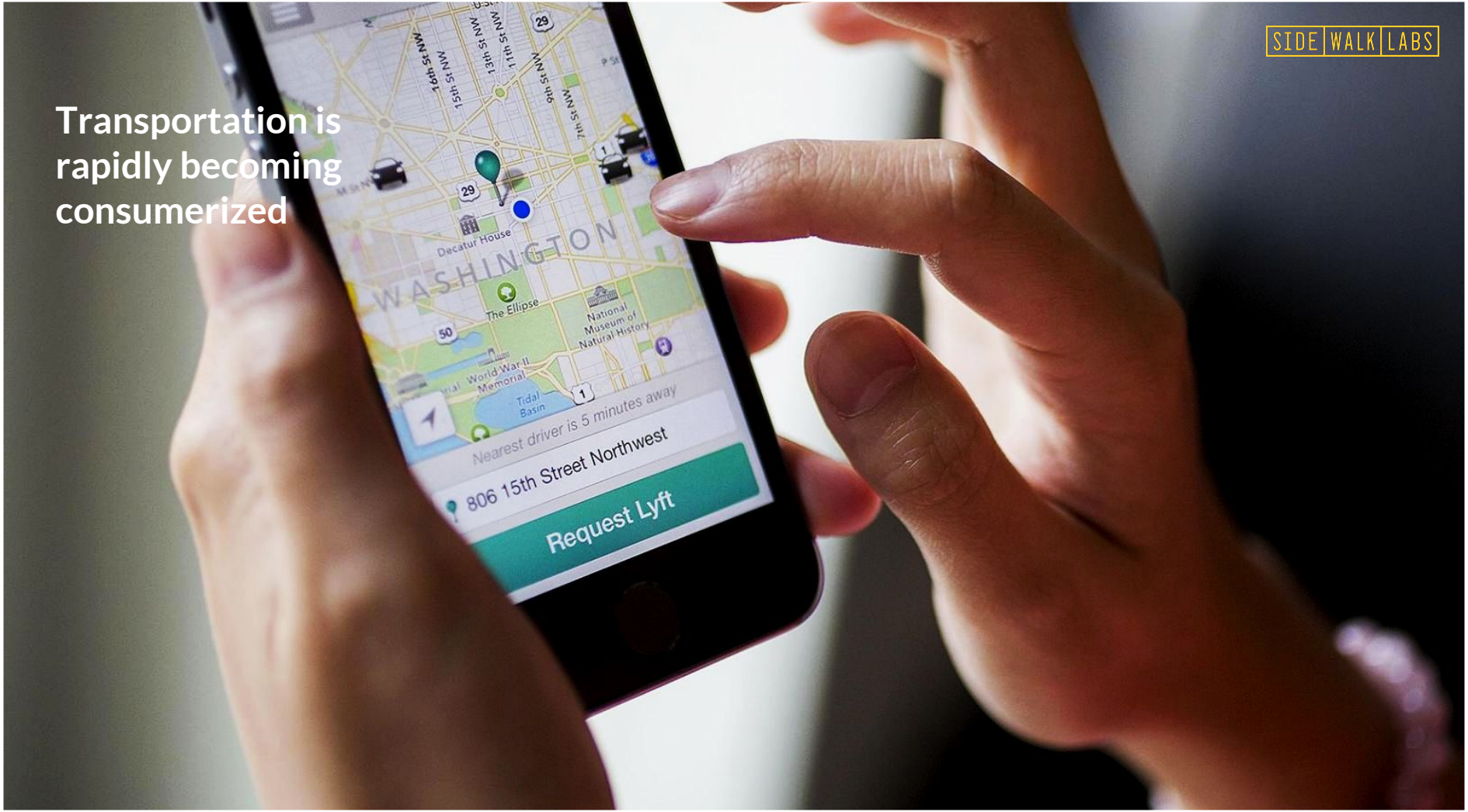
SIDEWALK LABS + Google + Intersection

Intersection, a Sidewalk Labs company, is a technology and media company committed to revolutionizing city services and improving the urban experience with beautifully designed, integrated technology solutions.

SIDEWALK LABS

Today's discussion

1	Achieving Outcomes	Using Flow and Link to achieve the City's goals.
2	Analytics Dashboard	New data sources lead to new possibilities
3	Data Management Deep Dive	Best practices on architecture, privacy and more
4	Scaling Impact	Business Model, Implementation and Project Management


Transportation is rapidly becoming consumerized
SIDEWALKLABS
16th St NW
15th St NW
13th St NW
11th St NW
9th St NW
7th St NW
29
50
1
Decatur House
WASHINGTON
The Ellipse
National Museum of Natural History
World War II Memorial
Tidal Basin
Nearest driver is 5 minutes away
806 15th Street Northwest
Request Lyft

And cities must innovate with the private sector.

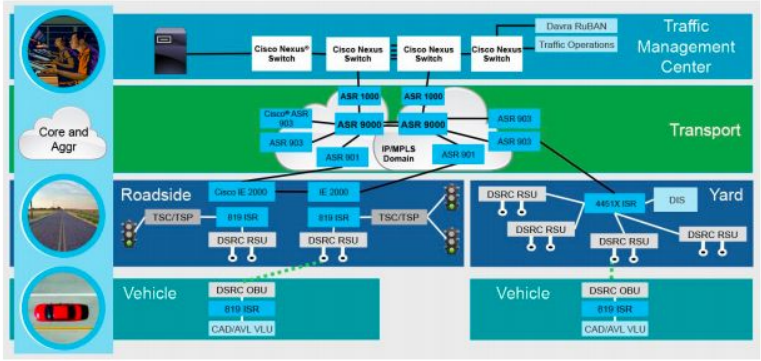
Not just via technology stacks, protocols, and hardware.

New Safety and Security Needs

As technology evolves, so do regulatory policies. Safety and security requirements are being upgraded to keep pace with changing technology capabilities. Air quality regulations are becoming stricter, too, prompting transportation officials to look for new ways to ease congestion and reduce pollution.

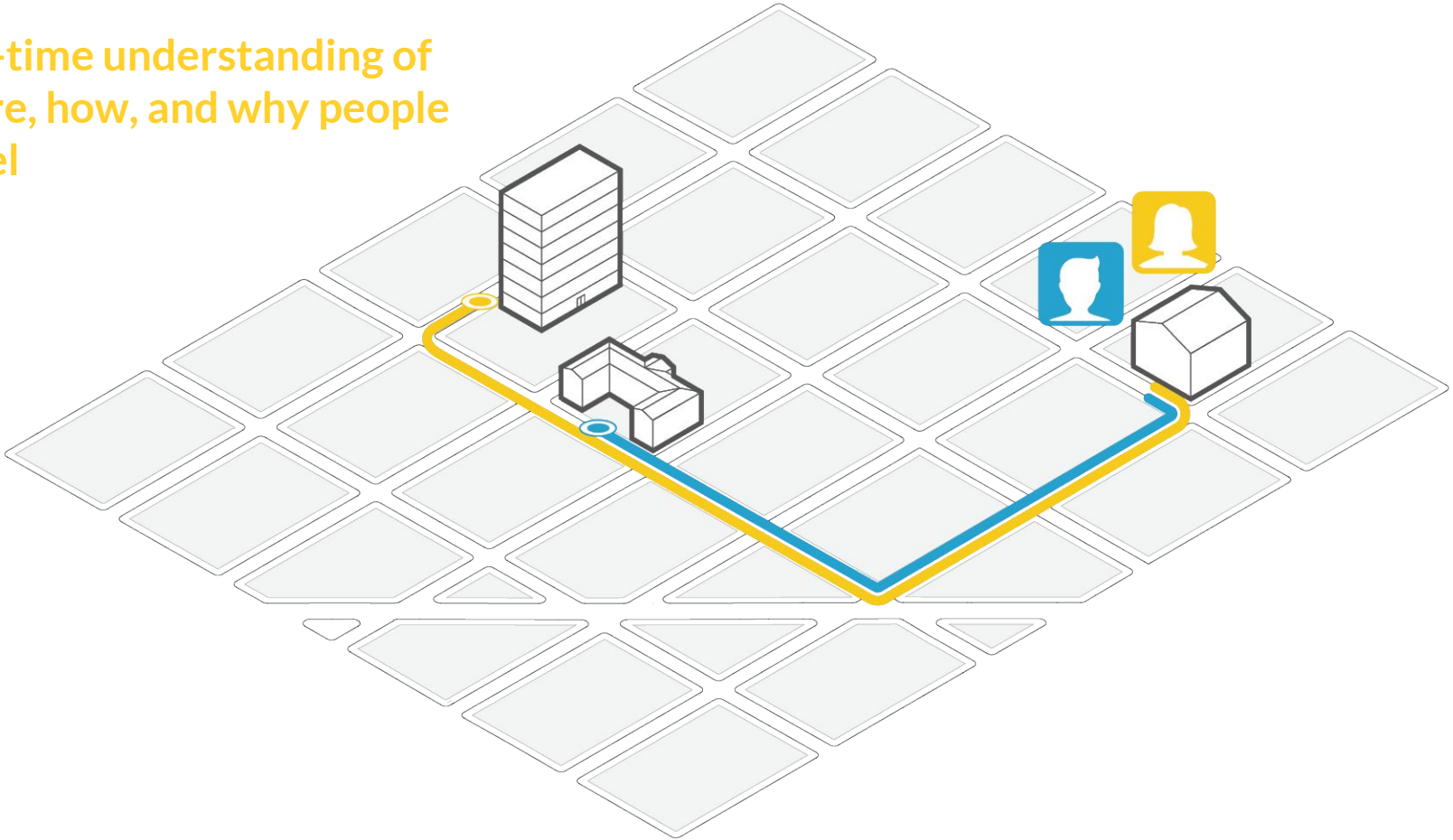
And for safety reasons, transportation and public safety organizations need to augment their existing radio and limited data networks with video and real-time data solutions. These solutions give first responders and operators the contextual awareness they need to operate safely and effectively in a variety of situations, including life-threatening incidents, as well as daily operations.

Figure 2. Key Elements of Cisco Connected Roadways Validated Solution

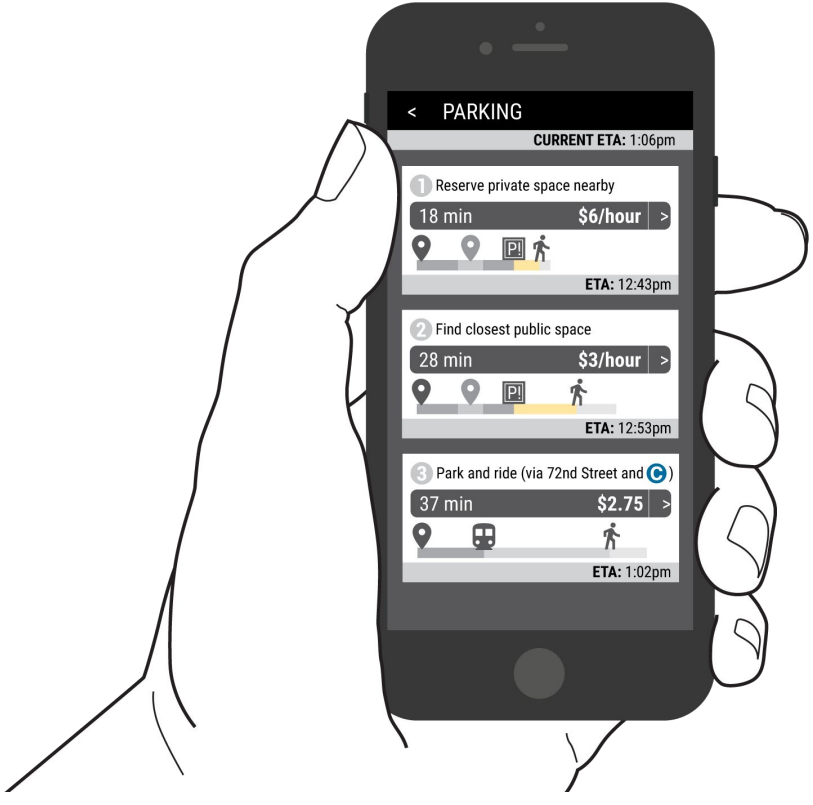


In the transition from the Complete Street to the Connected Street, the city gets new superpowers to extend access and mobility

Real-time understanding of where, how, and why people travel



Shape outcomes with personalized information in the hands of travel decision-makers



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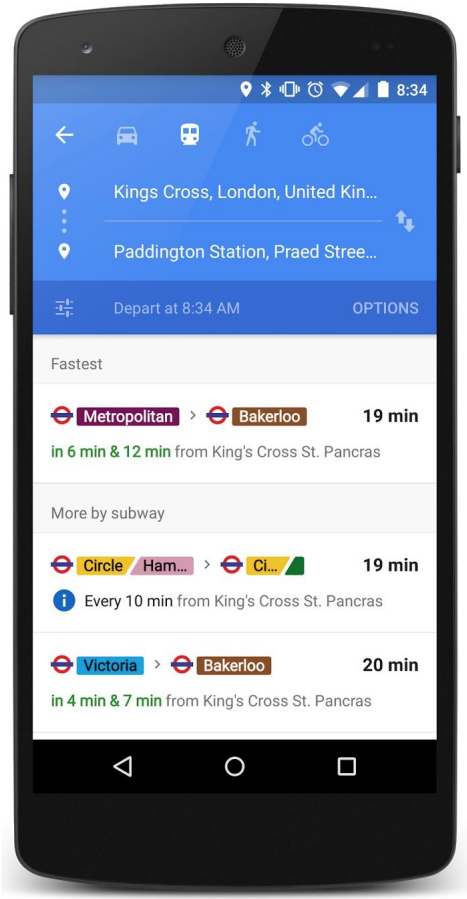
Public-private collaboration is key to enabling this future



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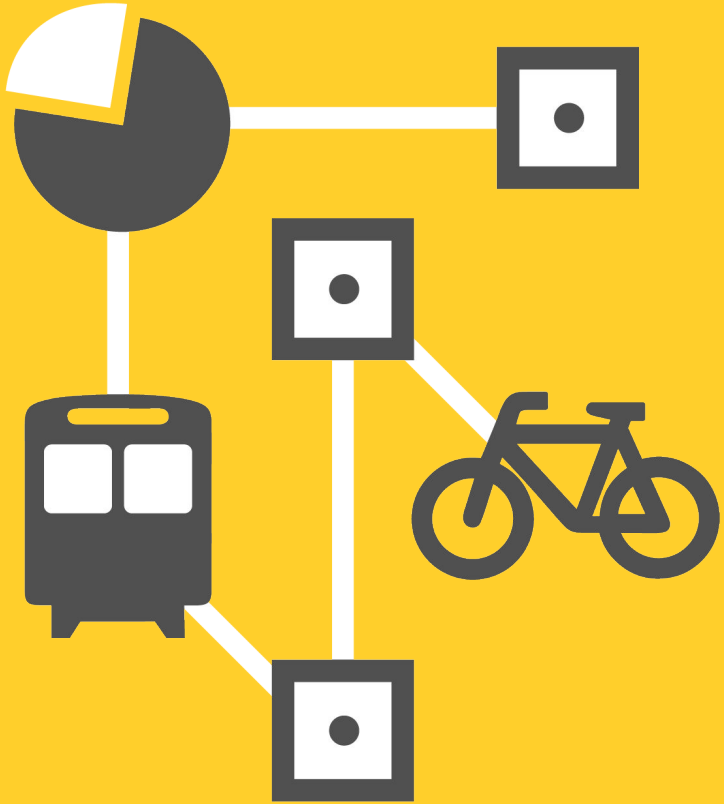
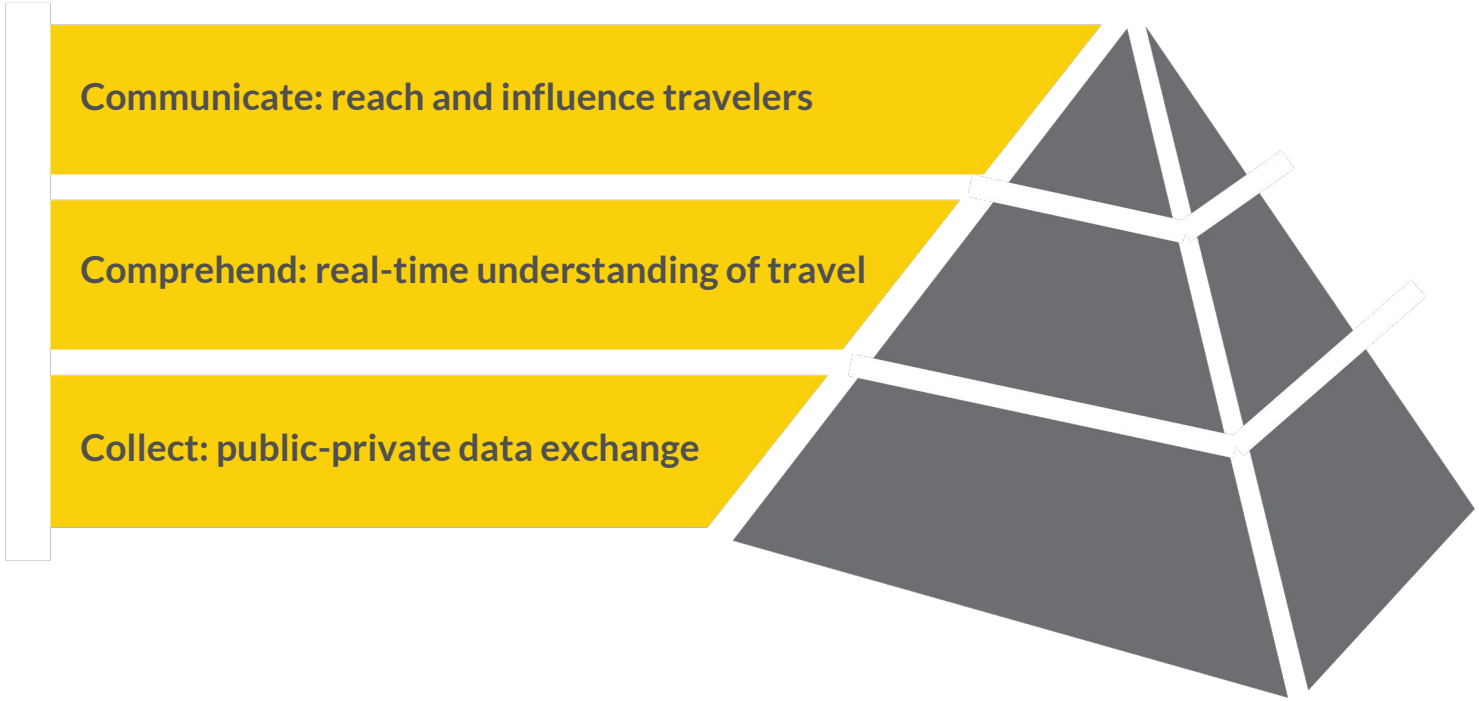
Flow



Our approach



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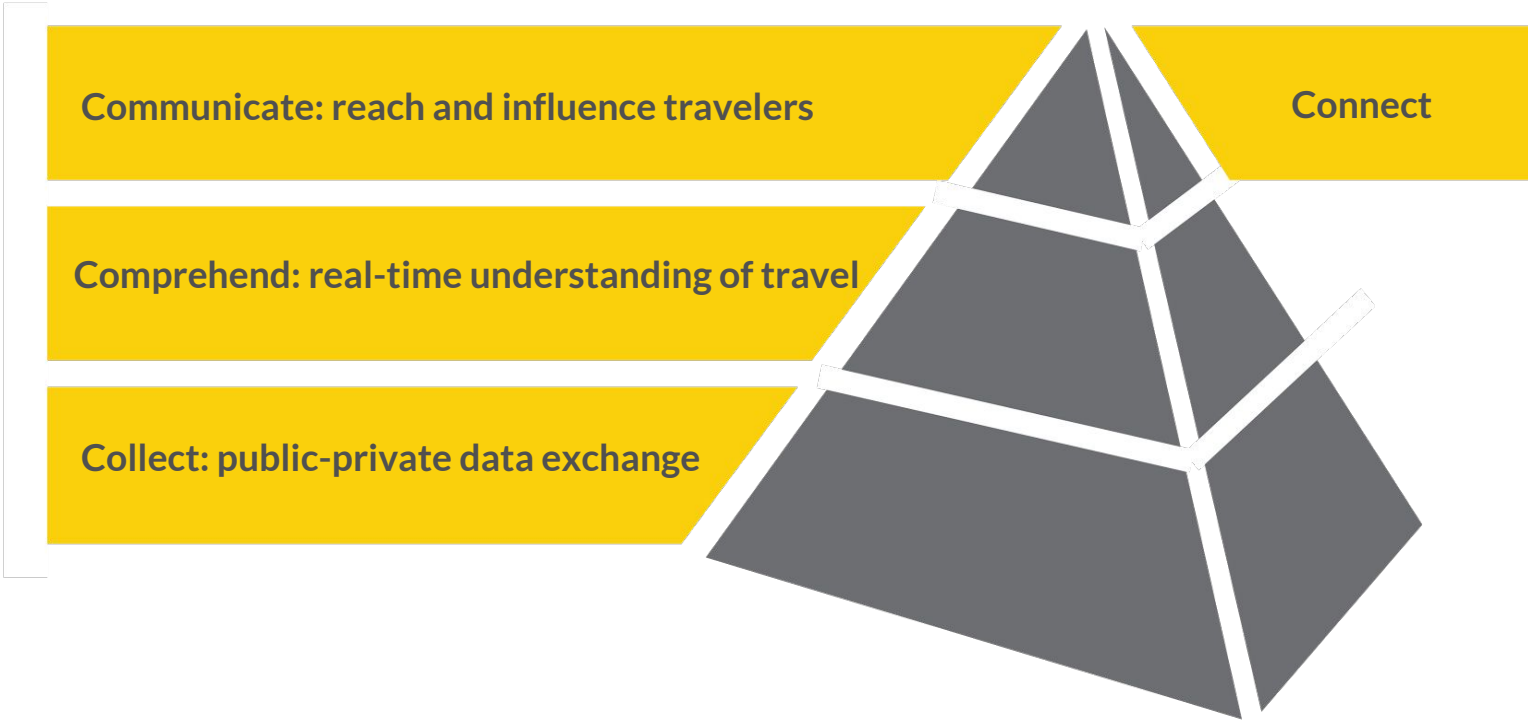
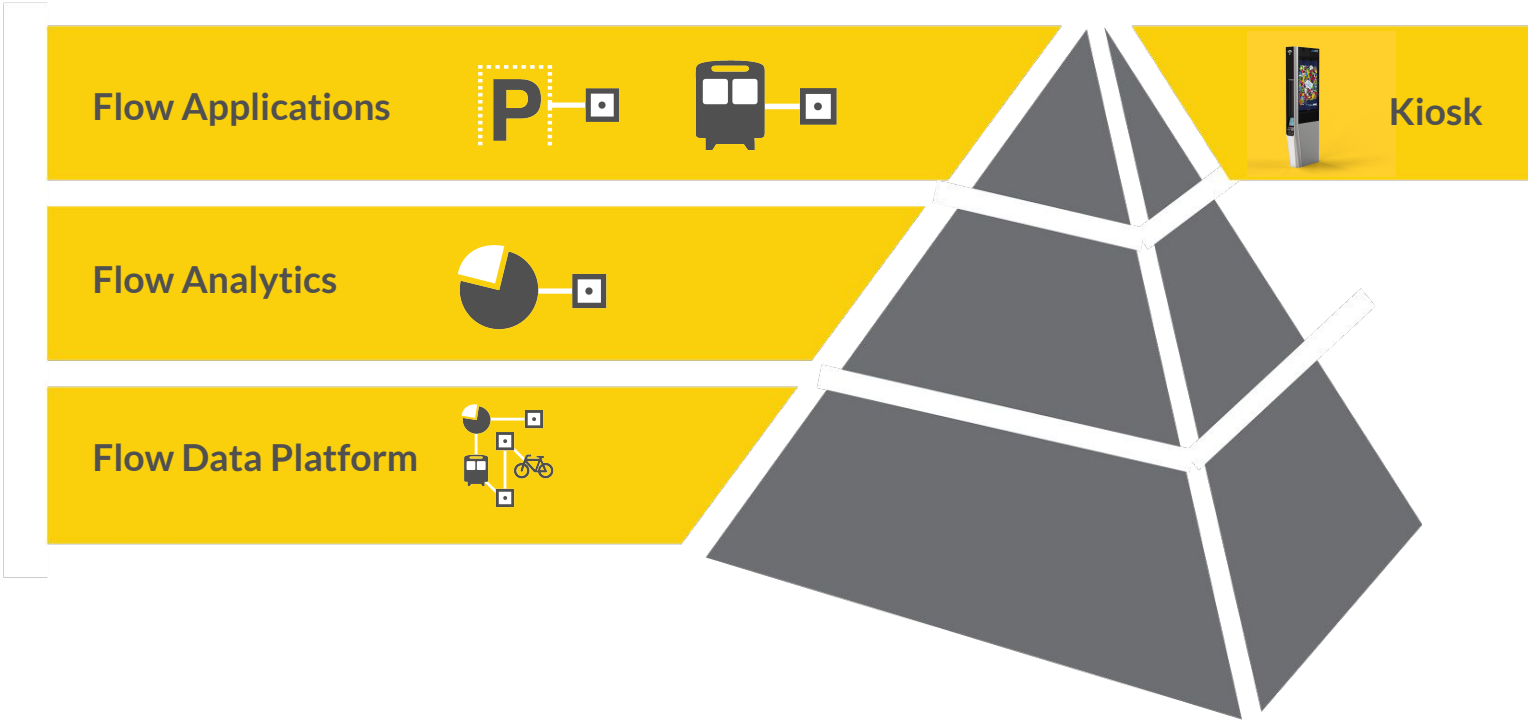
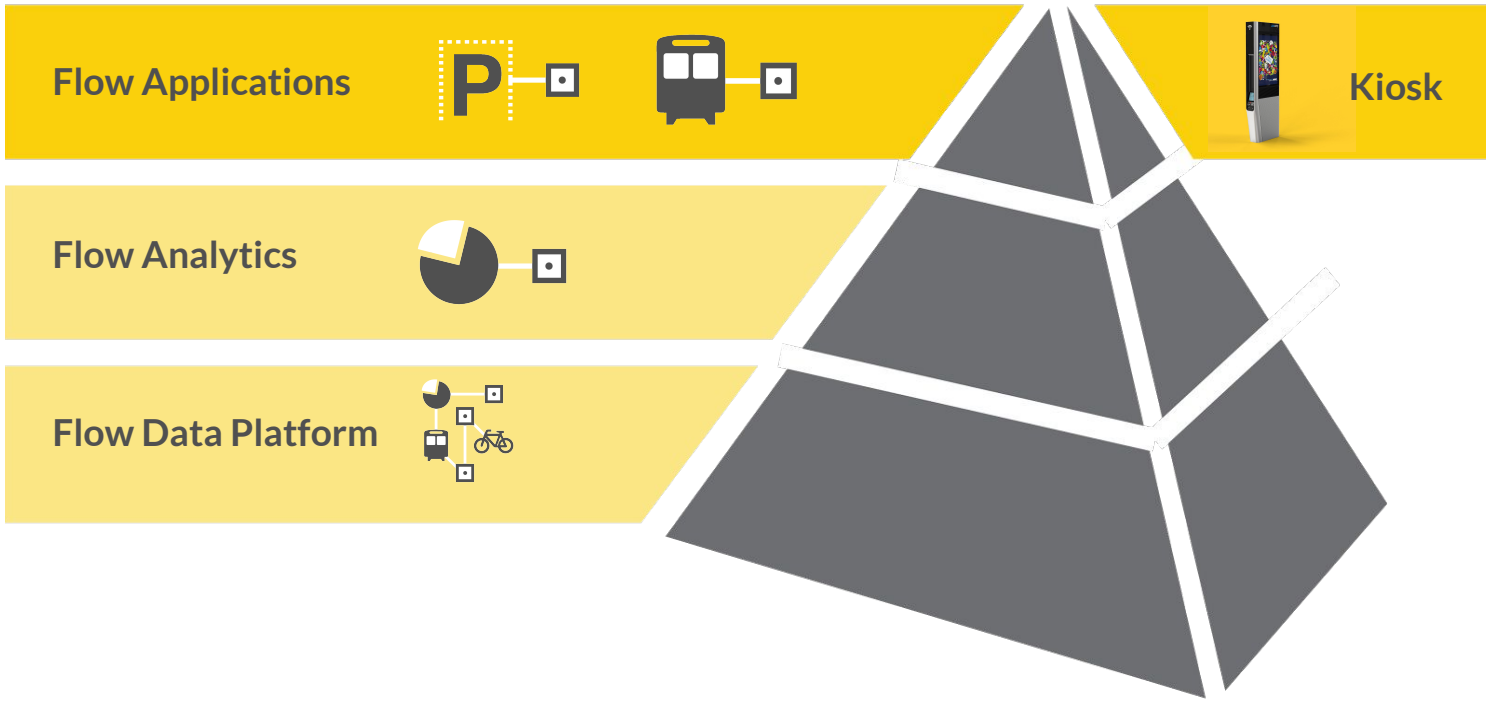
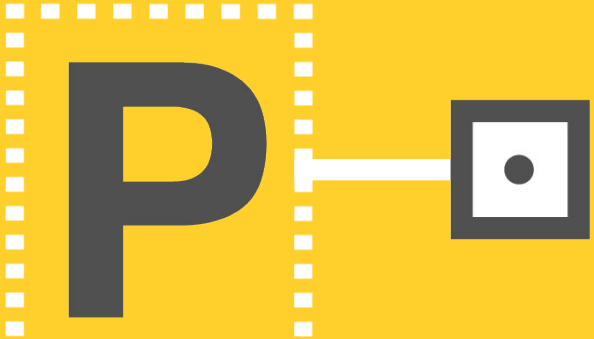


How Flow and **Link** enable this




Flow Applications
Kiosk
Flow Analytics
Flow Data Platform

Flow Parking



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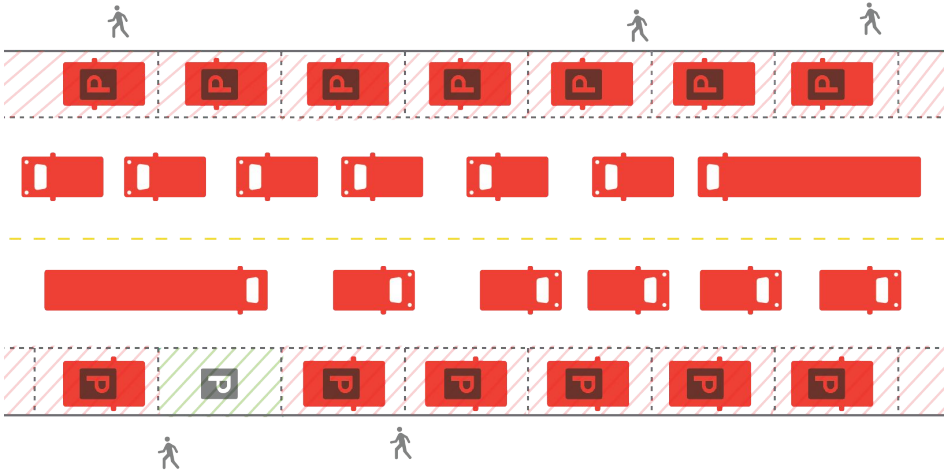
The state of the street today



Credit: San Francisco Smart Cities Challenge Application 2016

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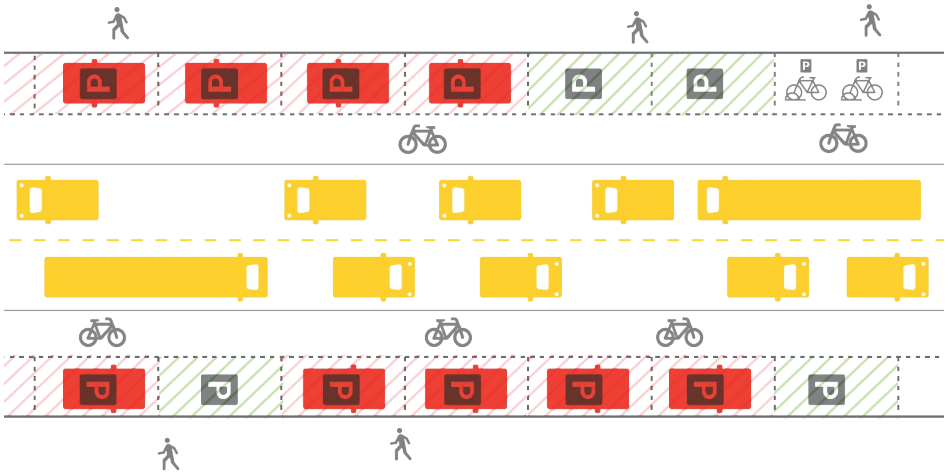
New, citizen-first approach to demand management can encourage best mode choice, and reduce circling for drivers



Credit: San Francisco Smart Cities Challenge Application 2016

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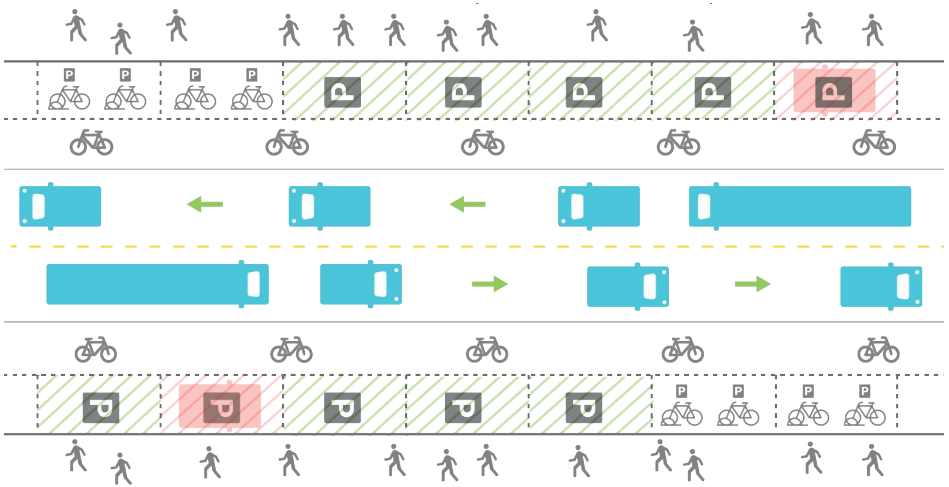
Optimized parking activates the curb for the Smart City challenge, while reducing congestion and focusing on customer experience.



Credit: San Francisco Smart Cities Challenge Application 2016

Flow Parking

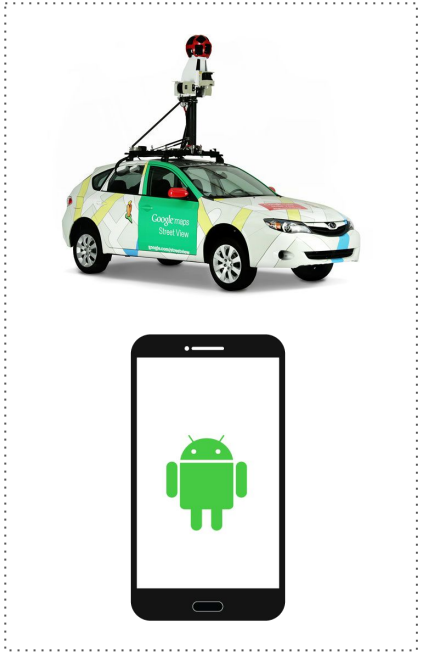
SIDEWALK LABS

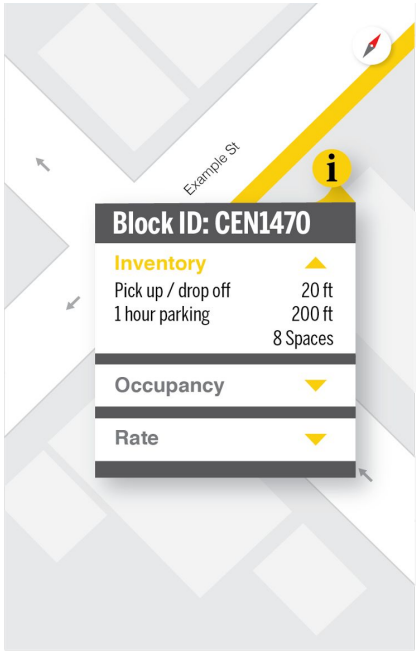
Collect: Use Google computer vision and machine learning techniques to help cities understand parking behavior

Automated inventory and regulation collection

Reliable occupancy estimates without expensive per space sensors

Integration with public/private garages





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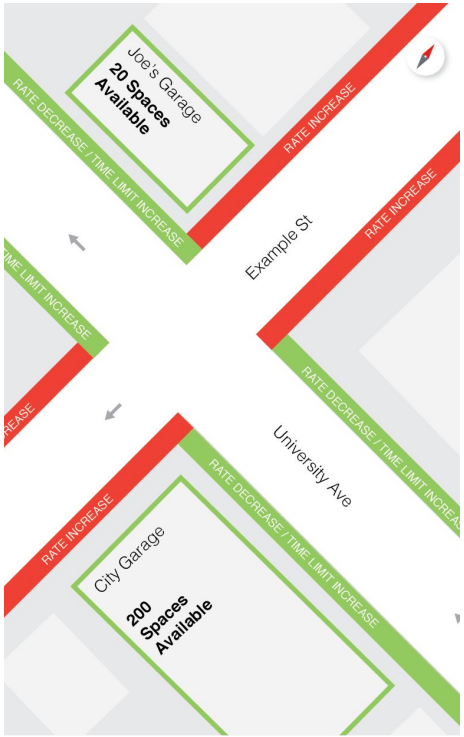
Comprehend: Potential improvements though demand management policies

Parking patterns for on-street and off-street

Recommended changes to balance demand

Suggested enforcement routes

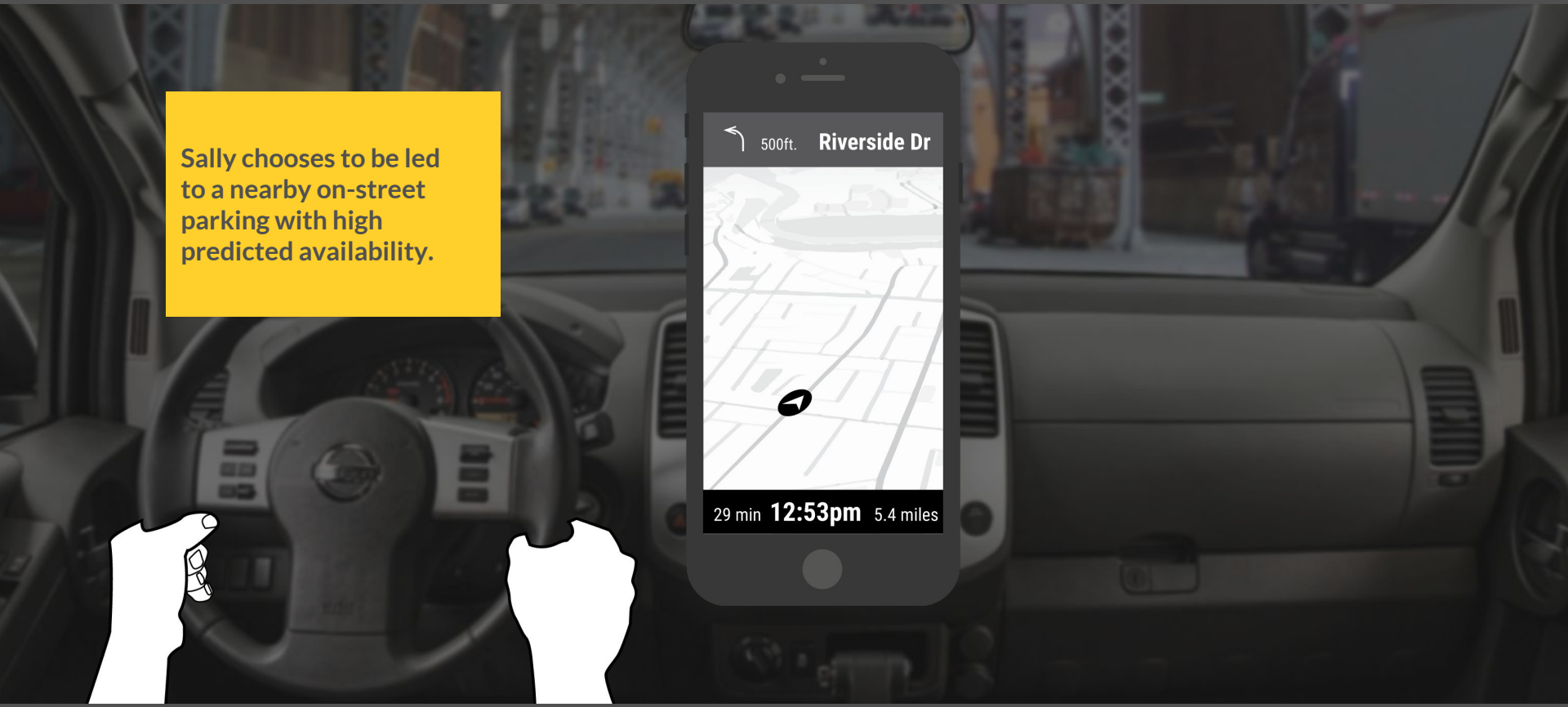
Virtual parking



SIDEWALK LABS

SIDEWALK LABS

Sally is given the choice to go straight to an off-street lot, to an underutilized on-street block face or to park and take public transit.


Sally chooses to be led to a nearby on-street parking with high predicted availability.
500ft.
Riverside Dr
29 min
12:53pm
5.4 miles

SIDEWALK LABS

SIDEWALK LABS

Compared to average driver outcomes, Sally saved 13 minutes plus gas and mileage

+

Reduced congestion for other drivers

=

Great outcome for driver, city and environment

Communicate:

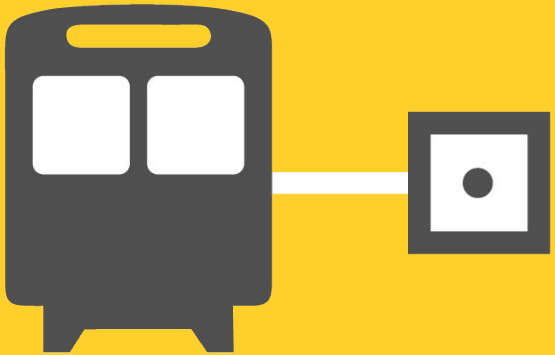
Choose the Best Mode

Navigate to All Available Parking

Combines public and private parking availability and payment in one platform

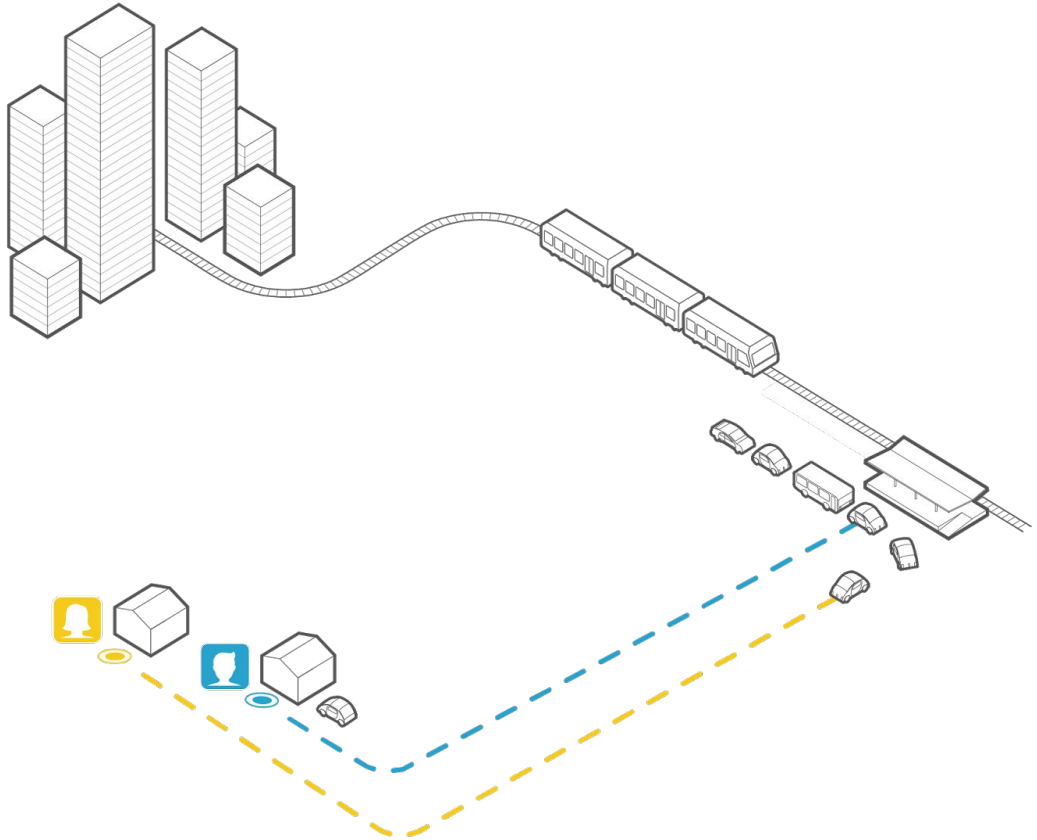
Reach users in the apps they use today

Flow Transit



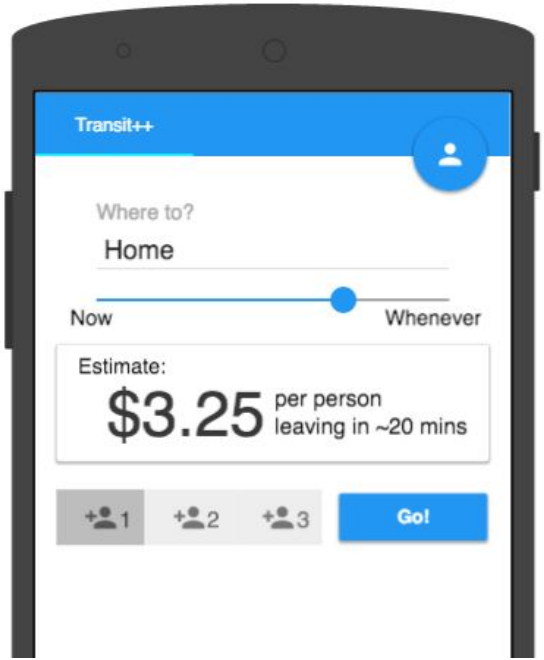
SIDEWALK LABS

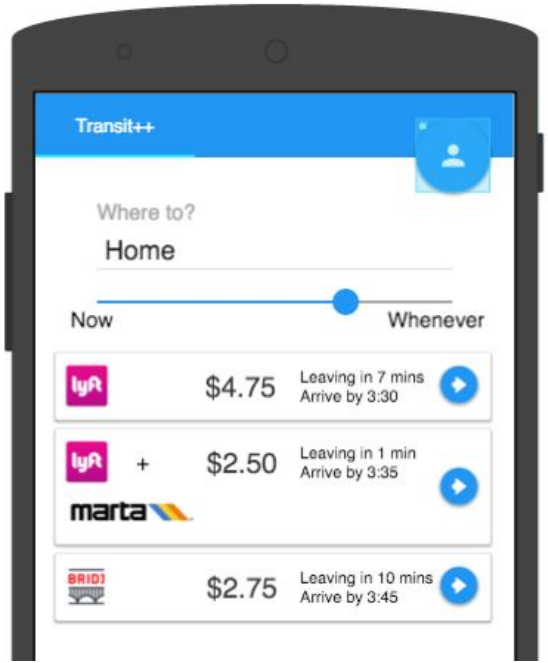
Often the people that need transit the most lack access to it



SIDEWALK LABS

We can now expand access by activating emerging shared mobility services



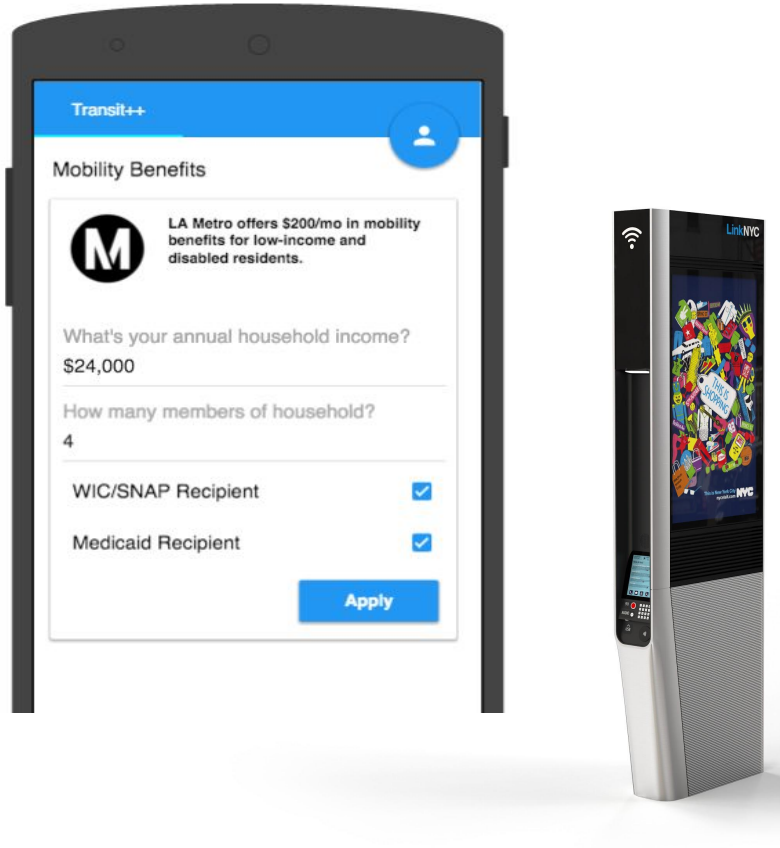


SIDEWALK LABS

But creating a sustainable, targeted marketplace for mobility is not easy

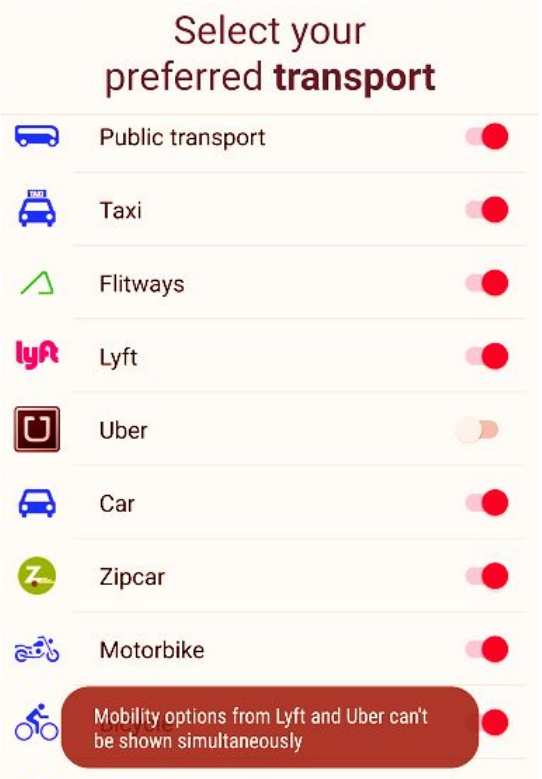
SIDEWALK LABS

Need to identify and serve those with the greatest need



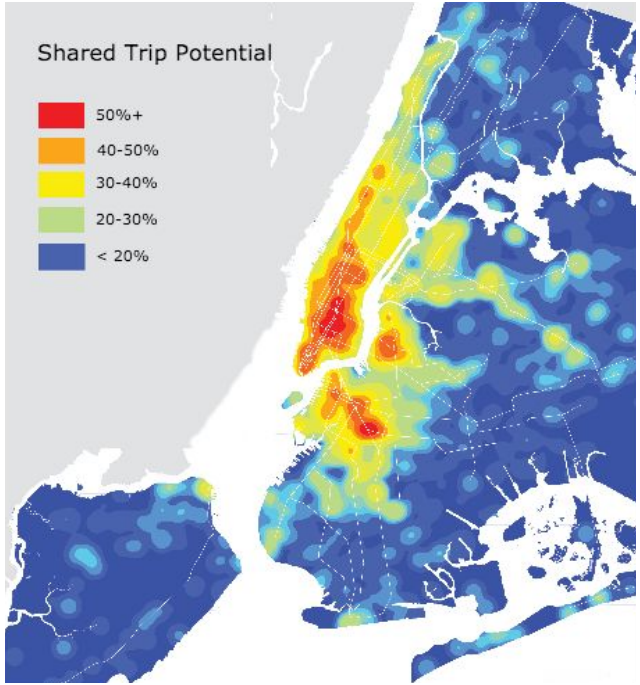
SIDEWALK LABS

Need to ensure consumer choice and a competitive and transparent marketplace



SIDEWALK LABS

Need to understand what modes of transport provide the most effective service for each rider



SIDEWALK LABS

Data-driven tools enable competitive marketplace and ongoing financial sustainability

- **Transit analysis tools** identify where shared-mobility services are cost effective
- **Marketplace with integrated payments** for coordinating transport suppliers with demand
- **Subsidy spend and subsidy allocation** modeling using census demographics and observed travel demand
- Framework for **benchmarking Title VI**- compliant services

SIDEWALK LABS

Demand

Consumer apps

(Google Maps, Waze, etc.)

Institutional buyers
(Employers, healthcare providers, developers, etc.)

Marketplace

Flow Transit Platform for Cities

Supply

Mobility service providers

Value for consumers and buyers

- Visibility into supplier landscape
- Increased coordination efficiency lowers unit costs

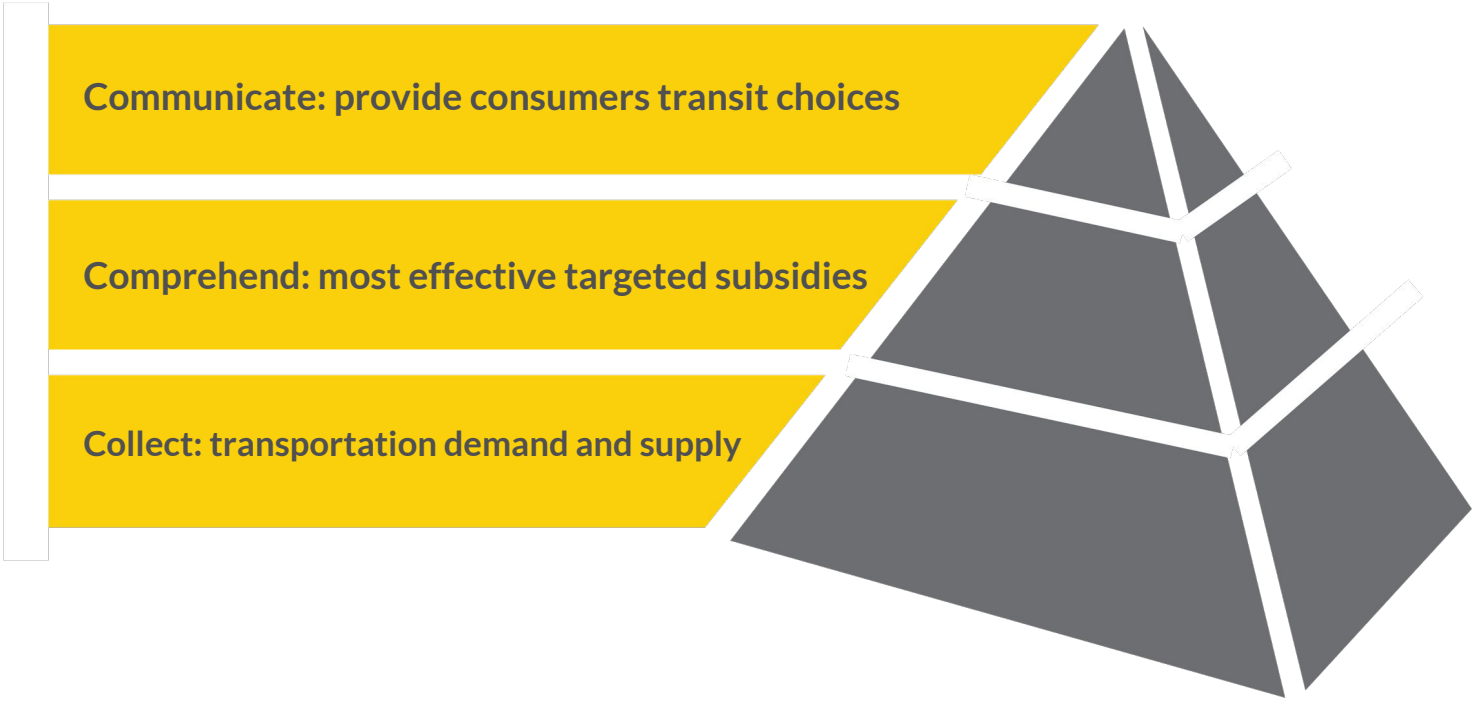
Value for cities

- Demand insight
- Performance measurement
- Subsidy/payment management
- Labor transparency/enforcement

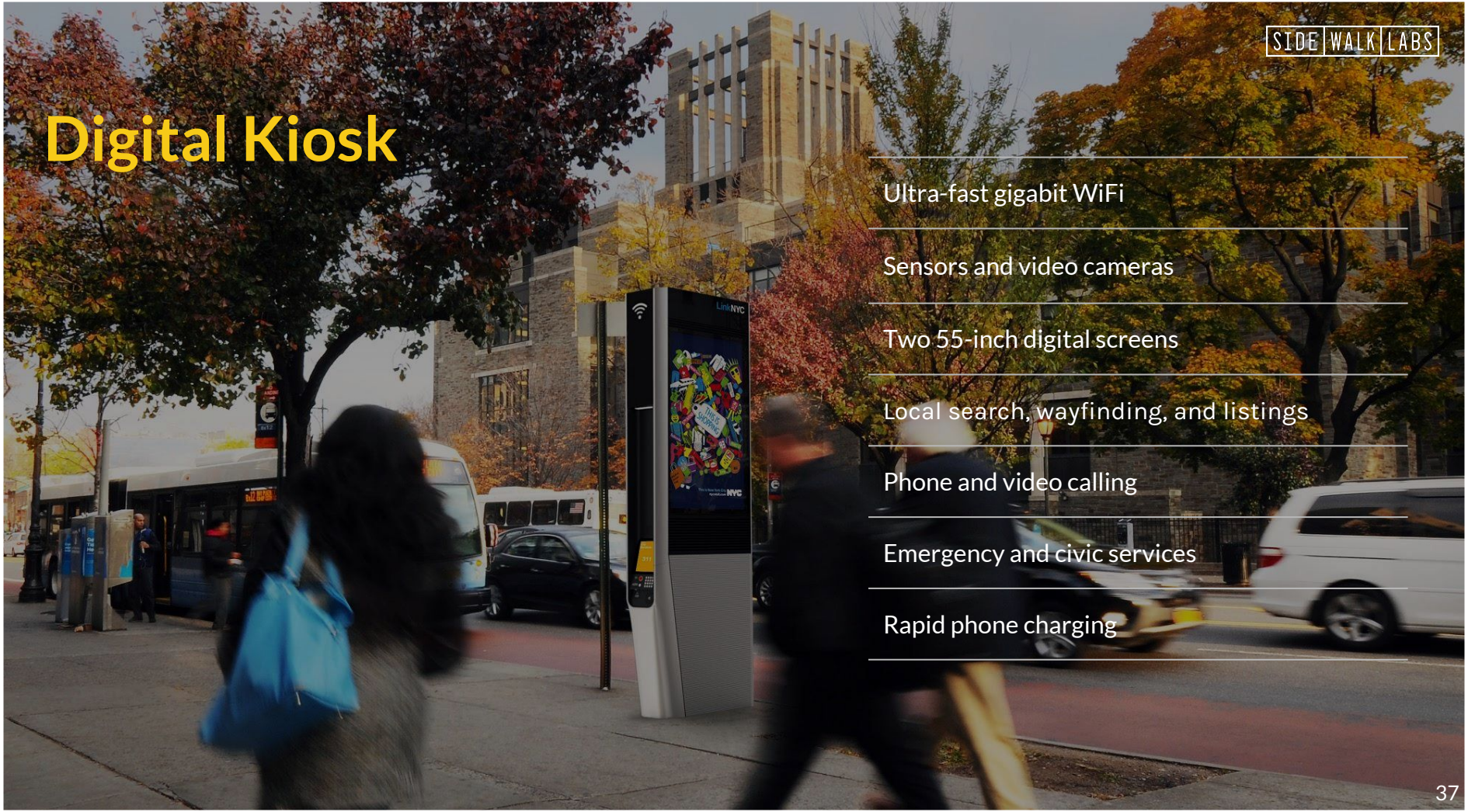
Value for mobility providers

- Access to riders
- Demand insight
- Access to subsidies

Flow Transit



Digital Kiosk



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Digital Kiosk

- Ultra-fast gigabit WiFi
- Sensors and video cameras
- Two 55-inch digital screens
- Local search, wayfinding, and listings
- Phone and video calling
- Emergency and civic services
- Rapid phone charging

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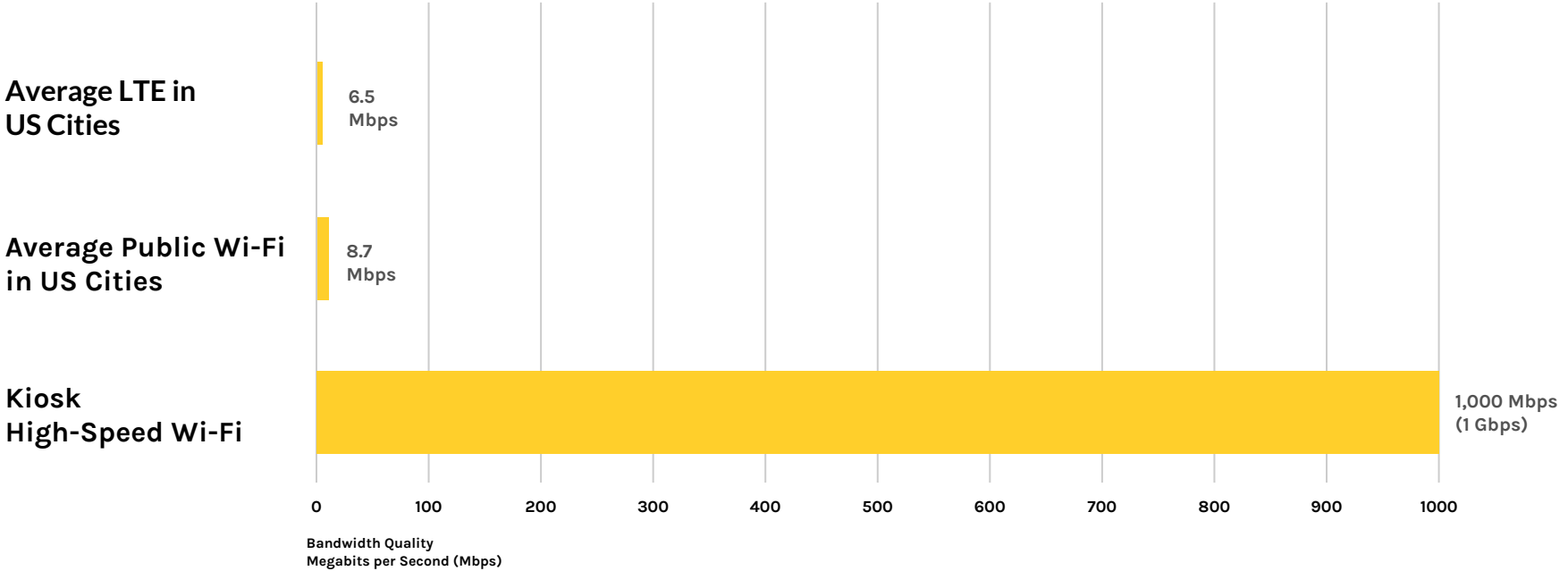
Ultra fast, Gigabit WiFi



Source: Open Signal U.S. Wi-Fi Report

Kiosk Sensor Platform

In partnership with academic and research institutions, including the US Department of Energy's Argonne National Laboratory, Intersection and Sidewalk Labs are developing a suite of Link sensors to provide real-time insight into city life.

Environmental

- Temperature
- Relative humidity
- Atmospheric pressure
- Sidewalk and street temperature

Air Pollutants

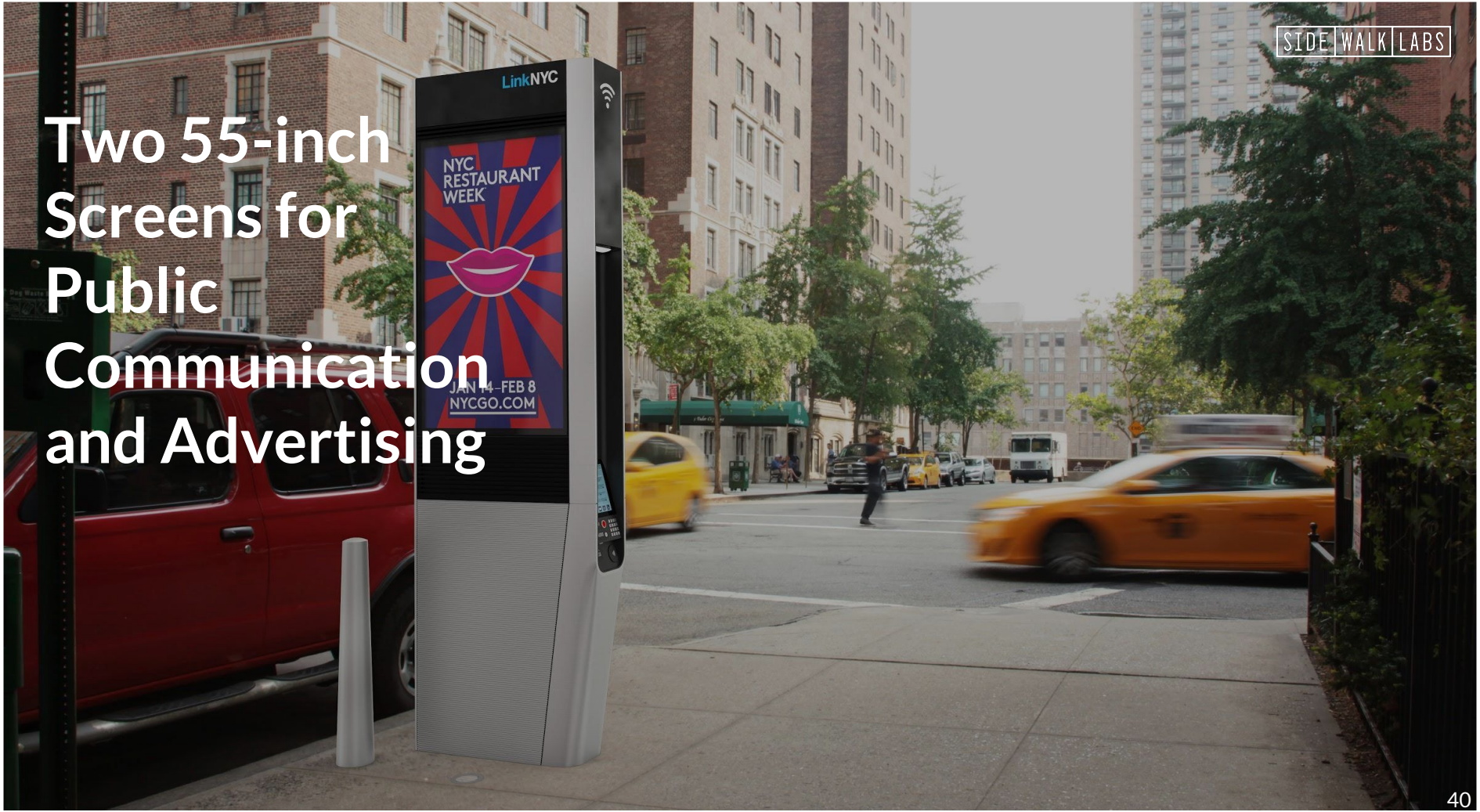
- Ethanol
- Nitrogen dioxide
- Ozone
- Hydrogen sulphide
- Total oxidizing gases
- Carbon monoxide
- Sulfur dioxide

Natural and Human Events

- Acceleration/vibration
- Magnetic fields
- Visible light
- Infrared light
- UV light
- Sound pressure

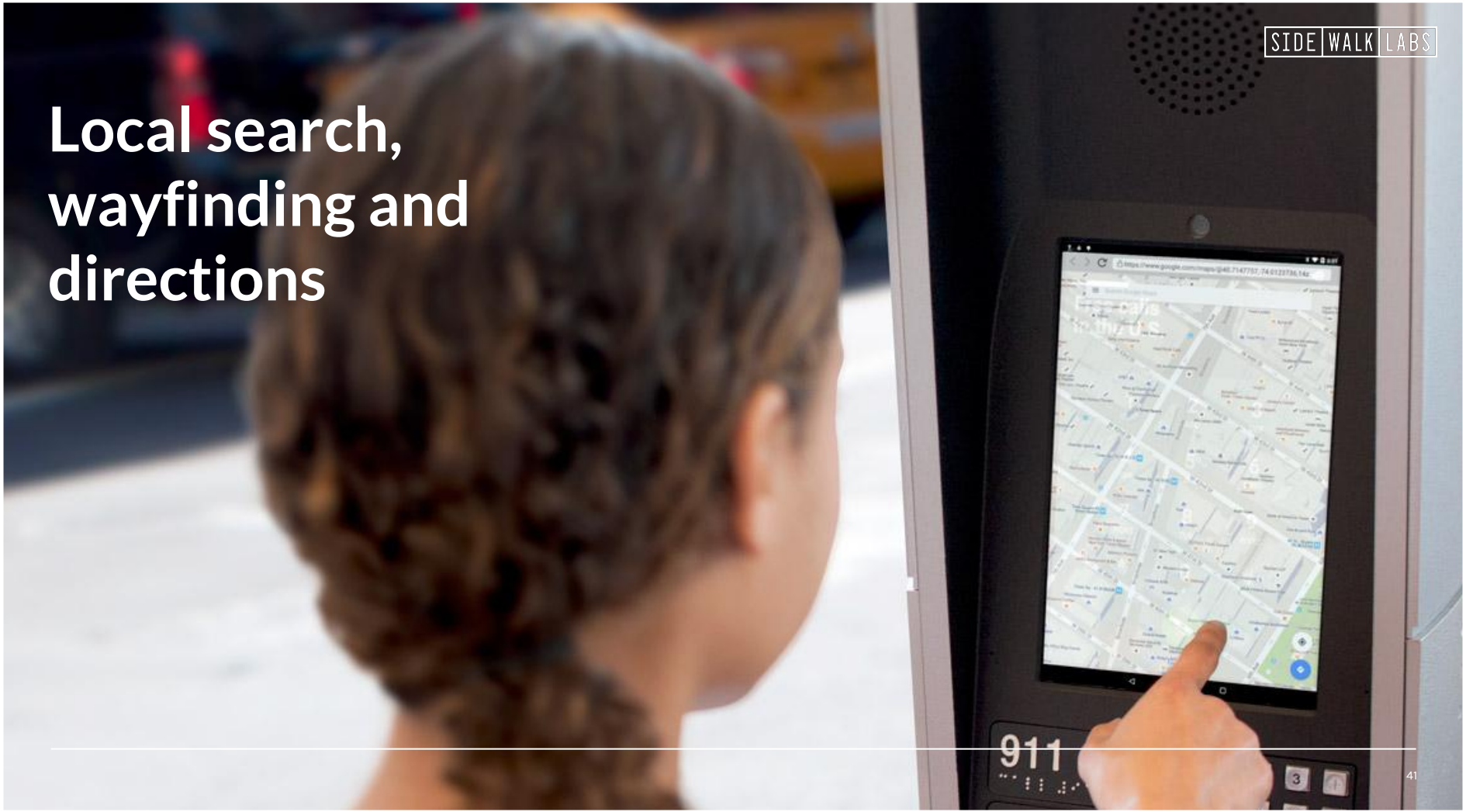
City Activity

- Anonymized wireless device sightings: Average roadway speed, travel times
- Video- -sensor: Pedestrian, bike and car traffic; Abandoned packages or objects; clogged basins/on--street standing water



Two 55-inch Screens for Public Communication and Advertising

SIDEWALK LABS


SIDEWALK LABS
Local search, wayfinding and directions
911

Phone and Video Calling

Quick USB Charging

Benefits of digital kiosk to Citizens

Equity

Connectivity for everyone who lives, works, studies, and visits the city, allowing them to save money, seamlessly connect to the cloud, and connect to entertainment, education, and jobs.

Works with Flow

Sensors and IoT connectivity for people and things. Unlock new operational efficiencies, private-sector collaborations, and insights with data.

Revenue Potential

Potential for sponsorship and digital advertising, delivering new revenues. Two 55” screens and tablet interface allow for a range of solutions; screens can be used for city messages.

Digital City Services

In addition to intuitive wayfinding and local listings, Link surfaces digital city services like 311, transportation, public services, and more, making engagement with the city easy.

People love the digital kiosk

90%

of New Yorkers believe that this is a positive initiative for New York City.

"It felt like I was staring at the future of urban internet access in my cold, gloved hand."

engadget

"NYC's New Public Wifi is Obscenely Fast."

GIZMODO

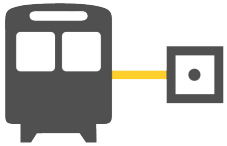
"...the goal of free, high-speed internet for everyone in New York City has jumped much closer."

theguardian

"I'm considering moving my office to the bus stop on 17th and 3rd in Manhattan."

THE WALL STREET JOURNAL.

Source: Sachs Insights



Flow Parking

Equipping the city and travelers with the best parking information to make decisions

Mobility / Climate Change

Flow Transit

Extend your transit with a Dynamic marketplace.

Opportunity / Mobility

Digital Kiosk

An on-street kiosk that extends connectivity to all citizens

Opportunity / Safety

Improve Safety

Enhance Mobility

Enhance Ladders of Opportunity

Address Climate Change

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