SFMTA
Municipal
Transportation
Agency
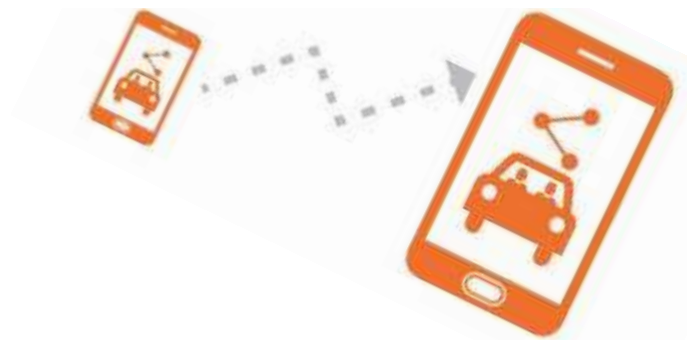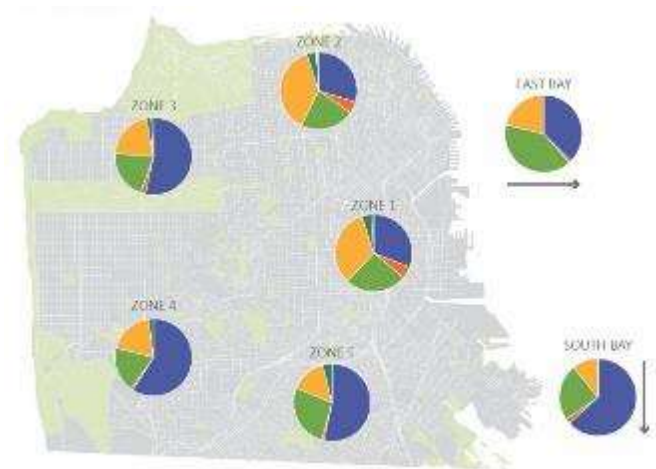
California Transit Association
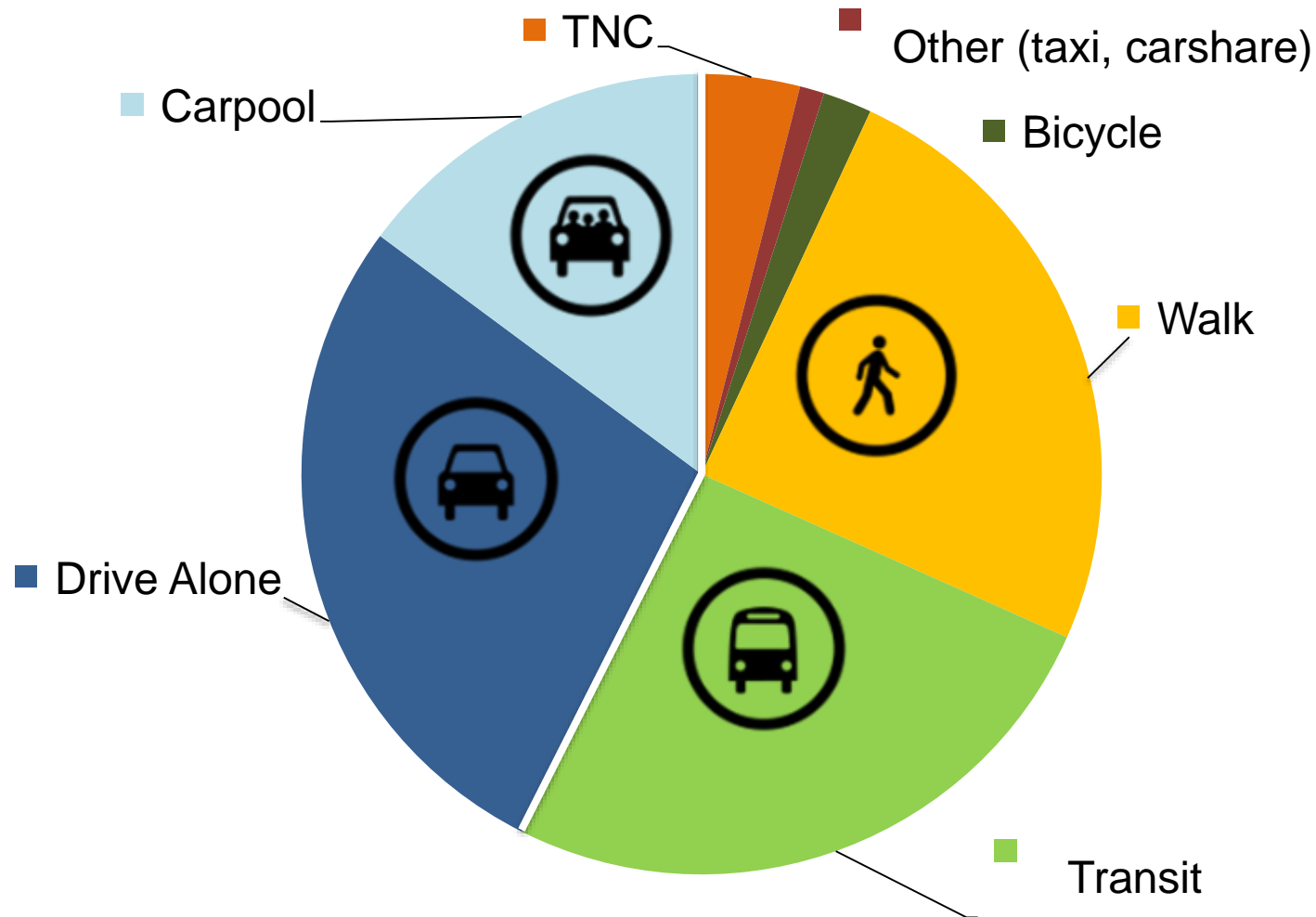52nd Annual Fall Conference & Expo

Where Have the Riders Gone?

Danielle J. Harris, Senior Transportation Planner
SFMTA Office of Innovation
November 8, 2017

Overview

- State of Transit
- Location Location Location
- Age of Information
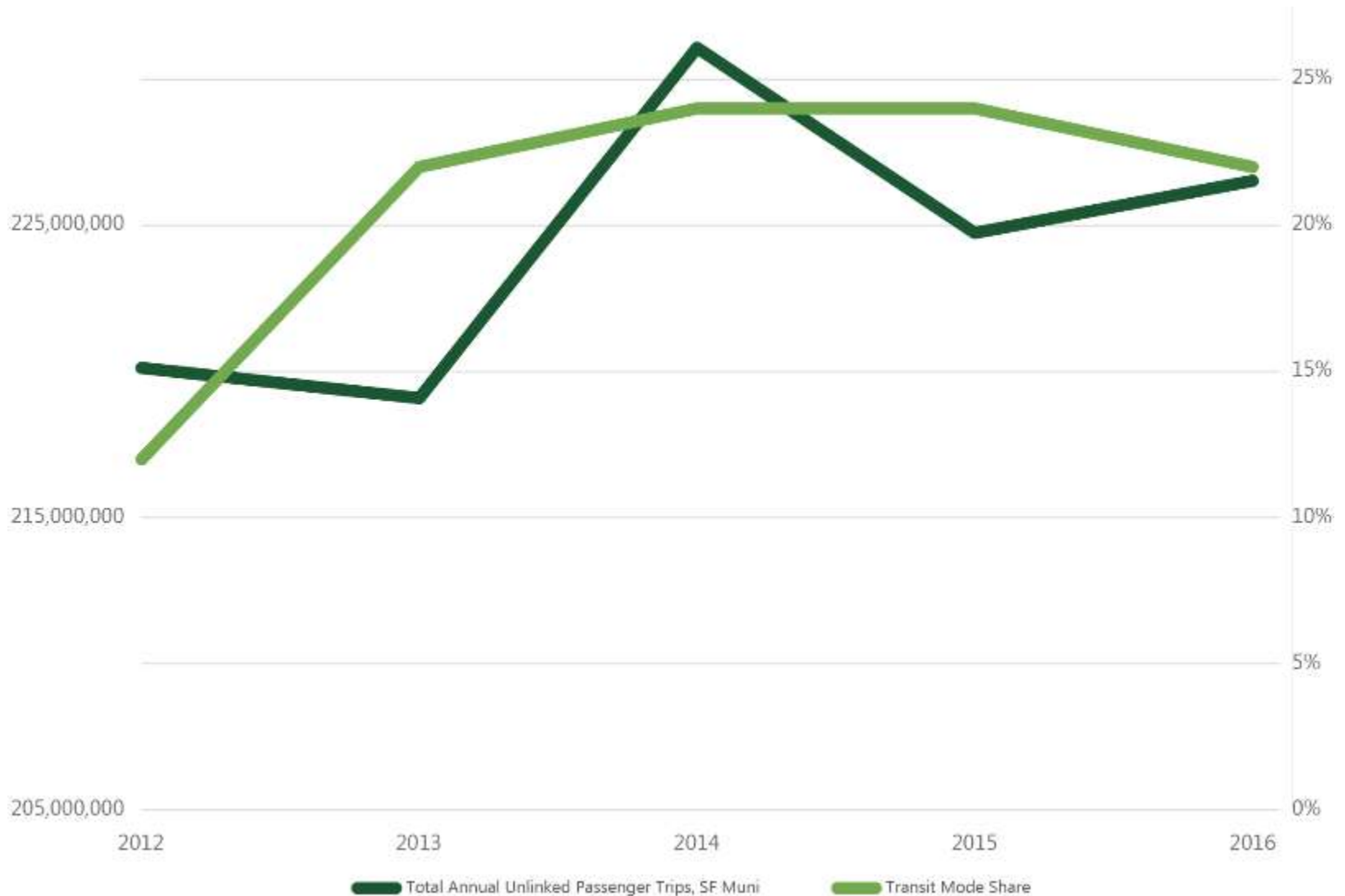- Give 'Em All You Got
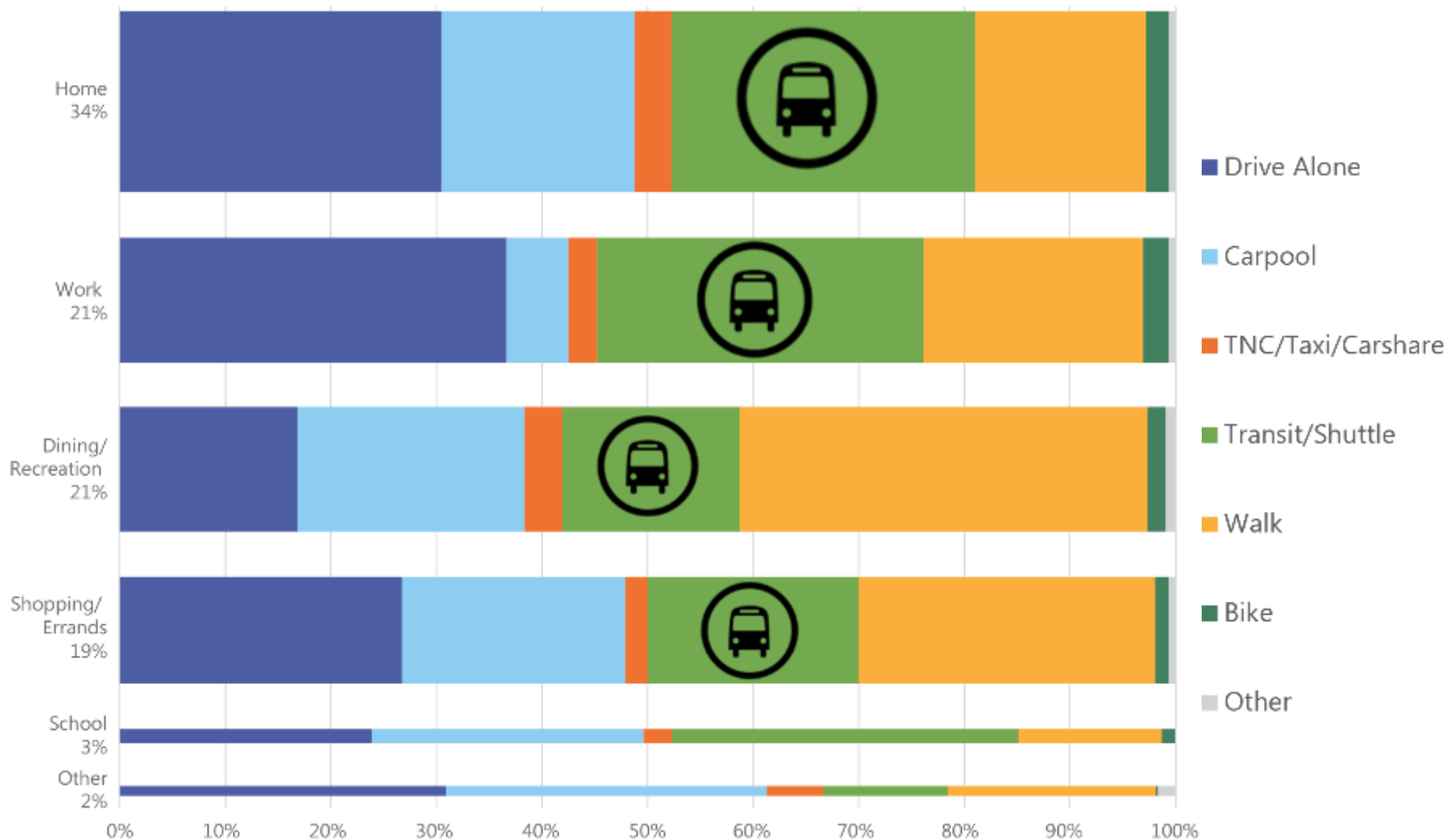- The Future is Here - MaaS

Transit Mode Share and Boardings

Mode Share by Trip Purpose

3-Year Average of Mode Share by Trip Purpose (FY 2015-2017)

Second-Choice Travel Options
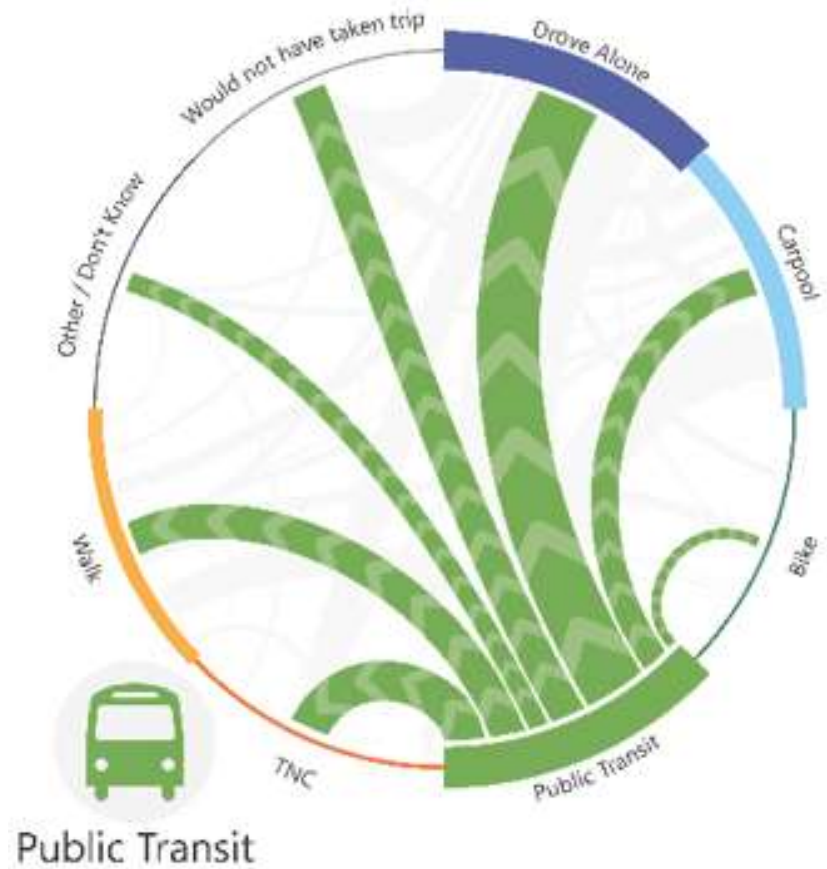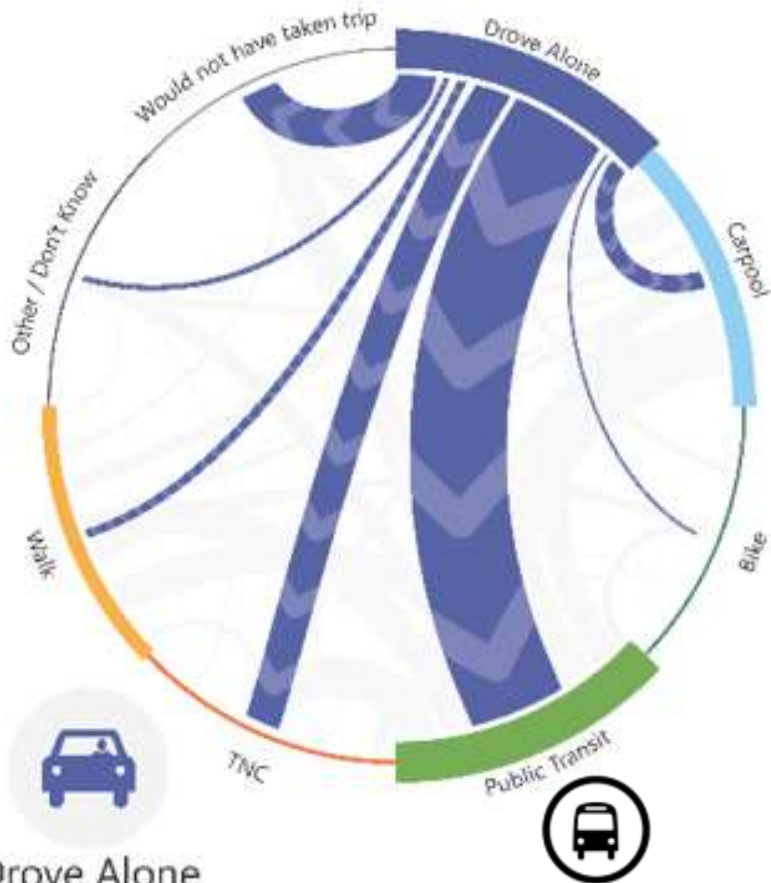
Mode Share by Location
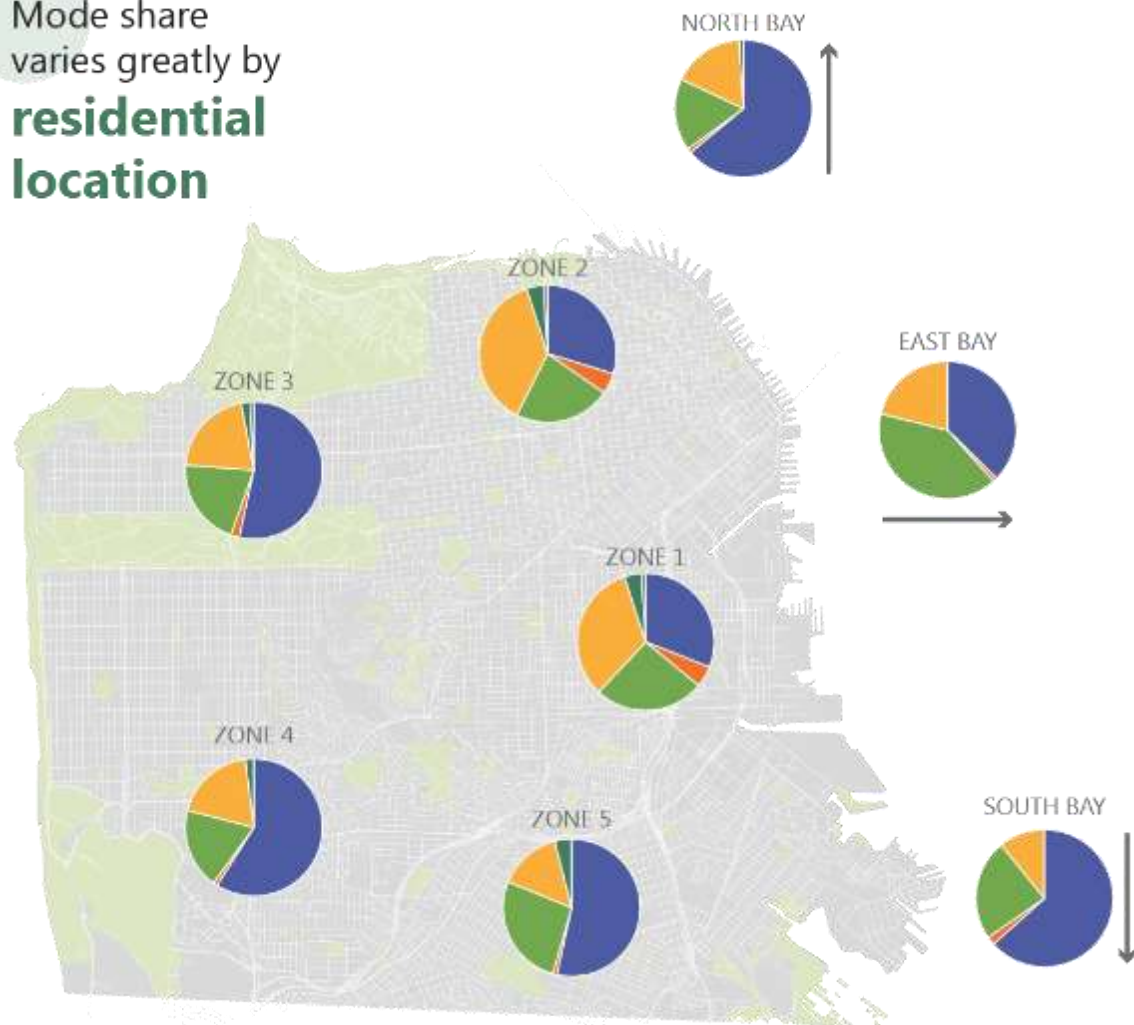
Providing Information

Retaining and Growing Ridership

Improve accuracy of real-time predictions

Keep the public continually informed

Retain customers who might otherwise use less sustainable transportation modes

Employ data analytics to improve service and be responsive to customers

Enable customers to take Muni to their destinations quickly and reliably so that it becomes their preferred choice

Address Deterrents to Ridership

Scheduled service was too infrequent — 33%
Allow customers to better time their arrivals at stop

Ride on-board Muni vehicle would take too long — 32%
Suggest faster alternatives if available & shorten waits

Muni did not arrive when predicted — 31%
Improve predictions and eliminate "ghost" buses

There was a service delay — 24%
Show service delays and recommend alternatives

Muni was too crowded — 22%
Provide crowding alerts and recommend alternatives

Transfers were required — 8%
Provide real-time transfer connection predictions

I did not feel safe or secure — 8%
Allow customers to minimize waiting time at stops

Muni did not stop for me — 6%
Provide crowding alerts and recommend alternatives

Muni was not clean — 4%

Muni was too expensive — 2%

Percentage of Survey Responses (up to 2 factors)

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Willingness To Wait For Transit

Waiting Time	During the Day	During the Evening or At Night	When Transferring
5+ min	97%	94%	94%
10+ min	74%	67%	60%
15+ min	35%	34%	22%
20+ min	14%	15%	8%
30+ min	4%	5%	2%

Finding #1
When arriving randomly at a stop without any real-time information, customers are generally willing to wait 10 – 15 minutes.

Finding #2
Wait tolerance declines significantly during the evening or at night

Finding #3
Wait tolerance is significantly less for transfers

Service Frequency

Rush Hour Service
(Generally every 15 minutes or better)

Late Evening Service
(Generally every 20 to 30 minutes)

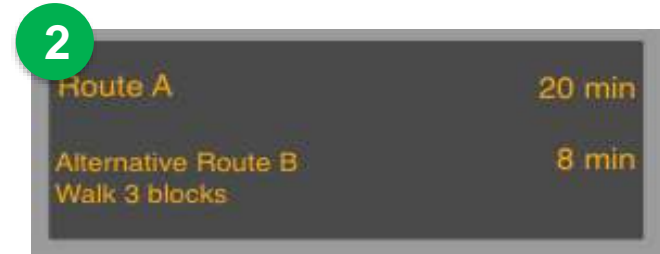

- Real-time information is especially critical when service is less frequent

A 20-minute Wait: Four Test Scenarios

1
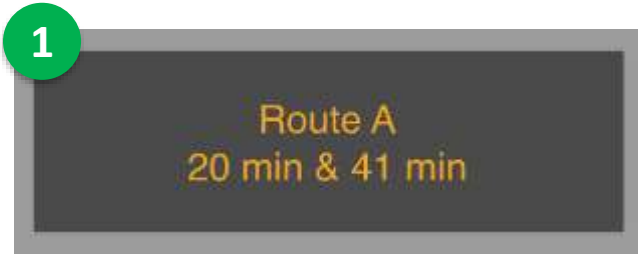
Customer arrives at shelter sign predicts a 20-minute wait

2

Countdown sign displays an earlier-arriving alternative

3

Checks smartphone before walking to stop, showing a 20-minute wait

4

Customer's smartphone app also advertises Uber and Lyft

Stated Preference Mode Choice for a 20-Minute Predicted Wait

Transit Mode Share

Scenario 1 (Base Case)
Customer arrives at stop Countdown sign predicts a 20-minute wait
- Take Original Muni Route: 23%
- Take Alternative Muni Route: 21%
- Walk: 22%

Scenario 2
Countdown sign displays an earlier-arriving alternative route 3 blocks away
- Take Original Muni Route: 6%
- Take Alternative Muni Route: 77%
- Walk: 7%

Scenario 3
Customer checks smartphone before walking to stop, which predicts a 20-minute wait
- Take Original Muni Route: 61%
- Take Alternative Muni Route: 12%
- Walk: 13%

Scenario 4
Customer's smartphone also advertises TNC services
- Take Original Muni Route: 50%
- Take Alternative Muni Route: 15%
- Walk: 8%

Legend: ■ Take Original Muni Route ■ Take Alternative Muni Route ■ Walk

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Better Transit Information Reduces Income Disparities
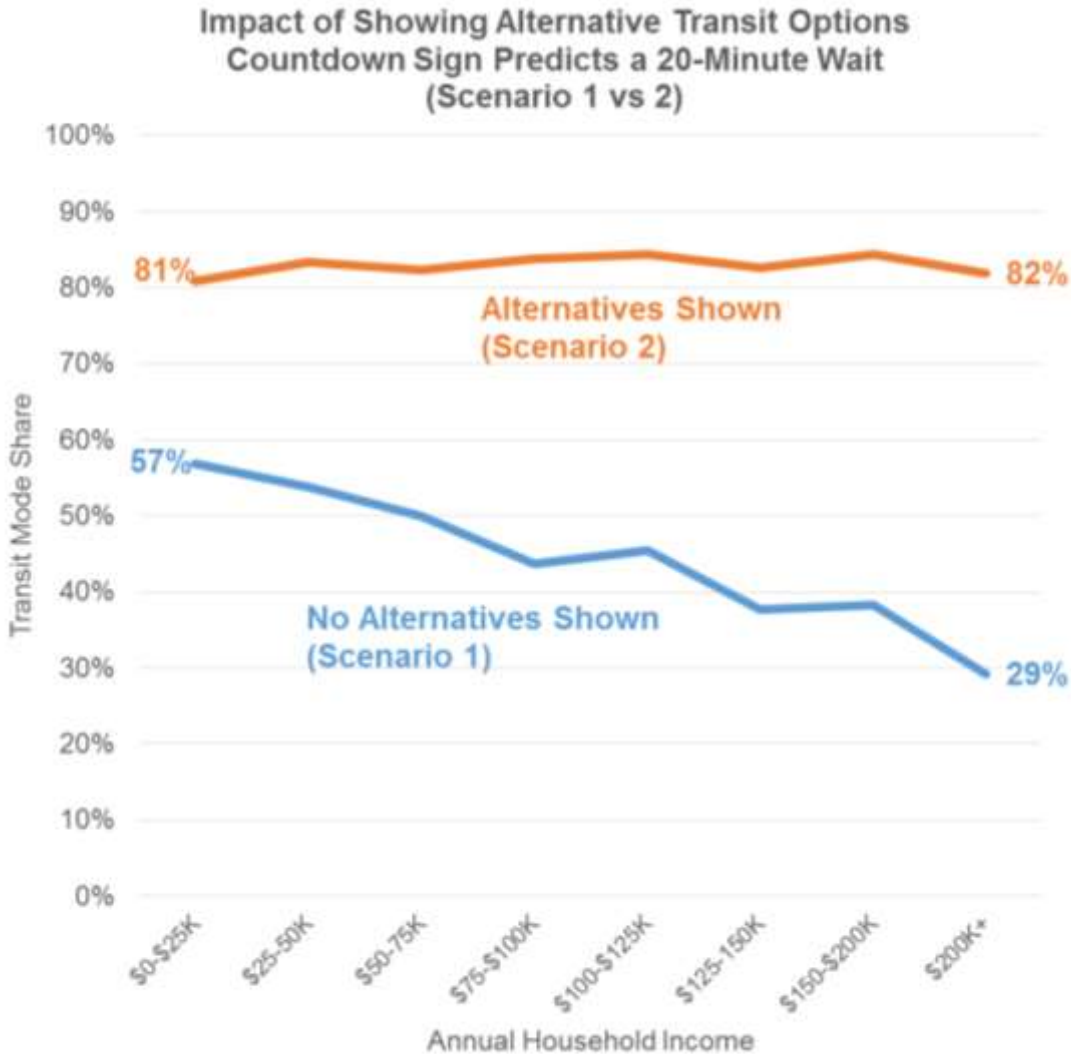
Impact of Showing Alternative Transit Options
Countdown Sign Predicts a 20-Minute Wait
(Scenario 1 vs 2)

- Survey confirm disparities in median household income by gender, ethnicity and other demographic variables

- As income rises people are less willing to wait for Muni

- The status quo can further a two-tiered transportation system based on income

- With better transit information, respondents are much more likely to ride Muni across all income brackets, regardless of demographic background

Median Household Income: Female $75-100K, Male $100-125K
People of Color: $50-75K, White: $100-125K
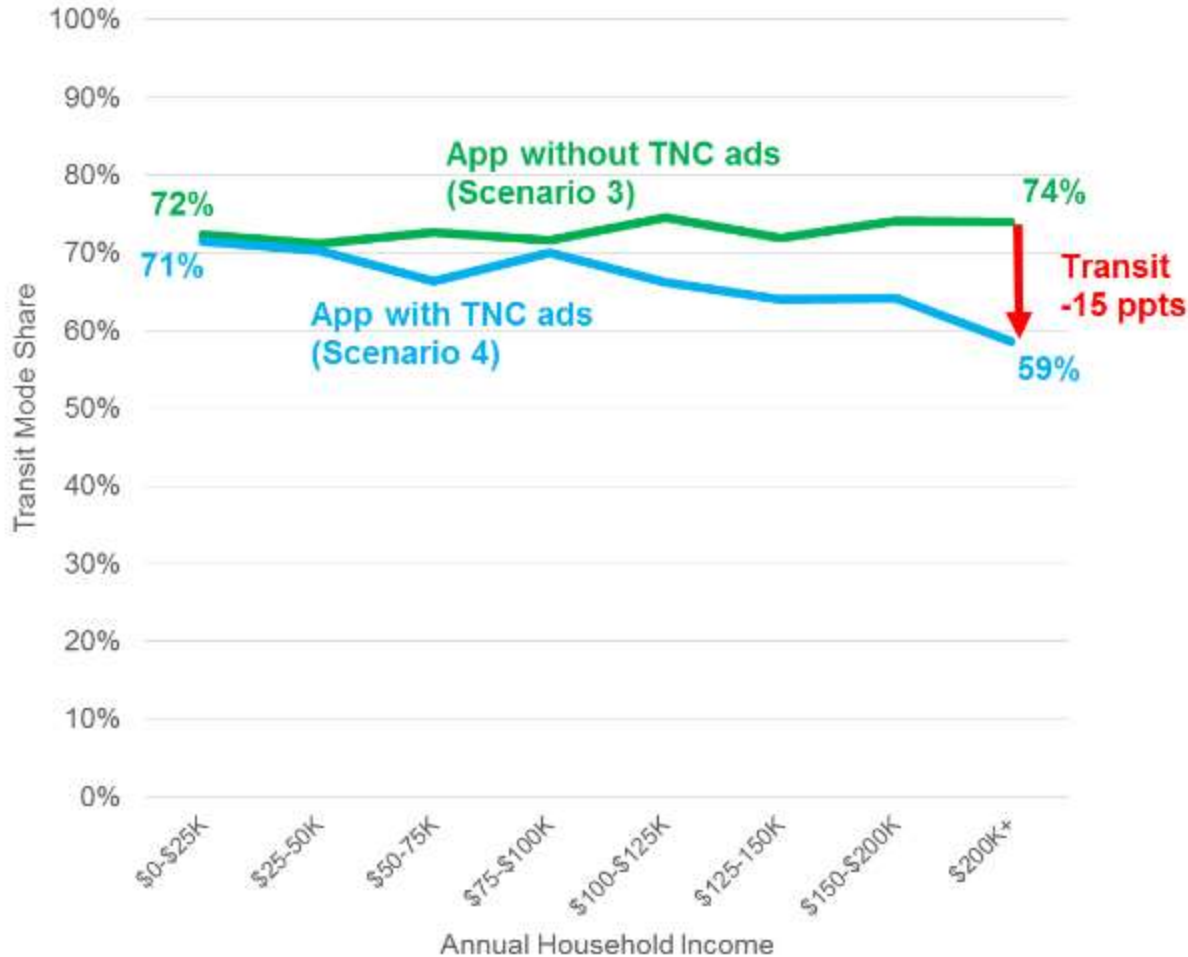
Many Apps Prioritize TNC Ads Over Transit Info
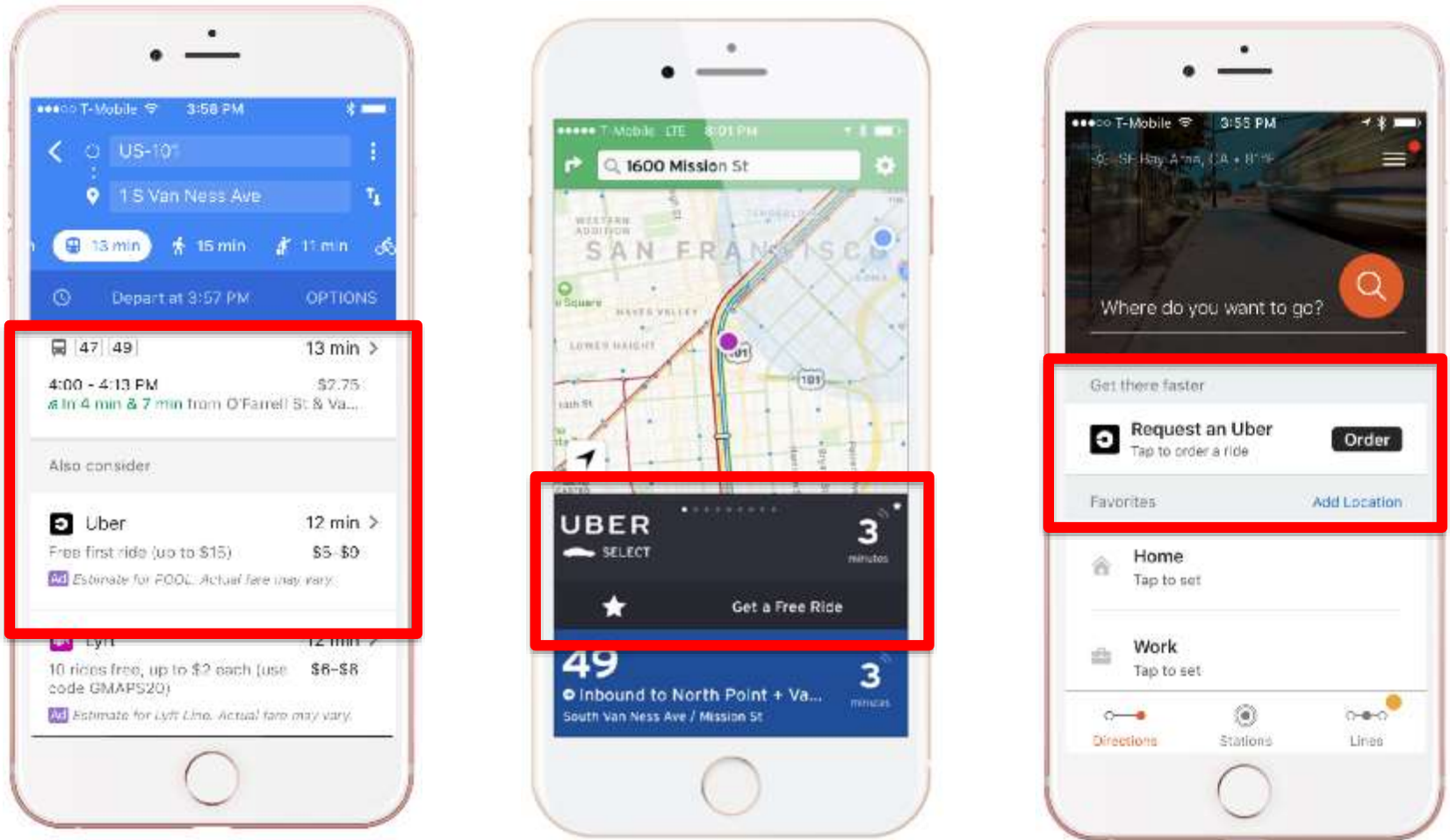
Many third-party apps (63% market share) prominently advertise TNCs
when displaying transit predictions obtained through open data

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TNC Ads On Mobile Apps Impact Transit

Impact of TNC Ads on Transit Apps
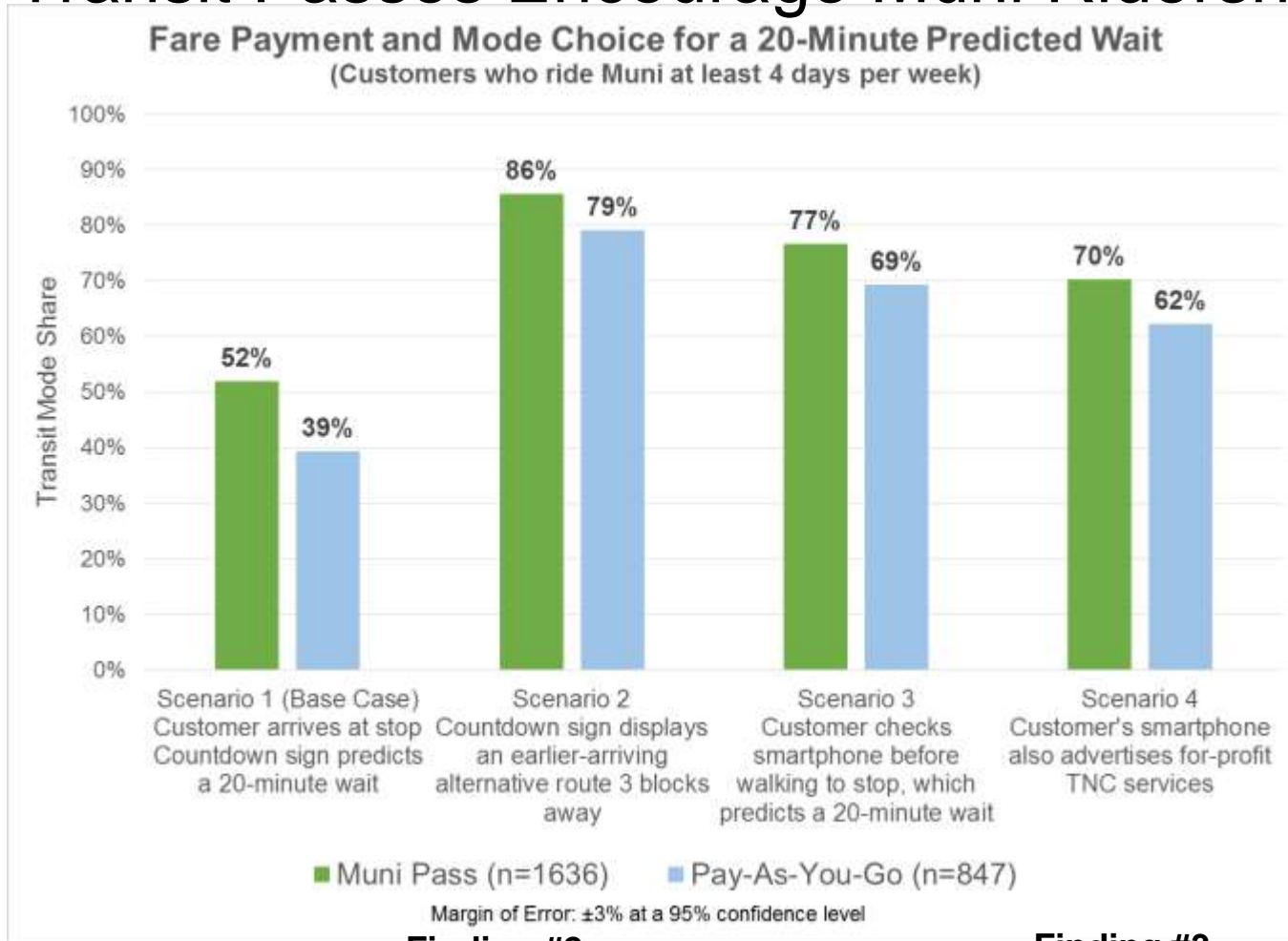**(Scenarios 3 vs 4)**

Comparing the two scenarios with and without TNC ads on a transit app:

- Ads increased TNC mode share by up to 18 ppts depending on income bracket

- The shift largely comes at the expense of transit (15 ppts) and walking (3 ppts)

Median Household Income: Female $75-100K, Male $100-125K
People of Color: $50-75K, White: $100-125K

Transit Passes Encourage Muni Ridership

Fare Payment and Mode Choice for a 20-Minute Predicted Wait
(Customers who ride Muni at least 4 days per week)

Finding #1
Of respondents riding at least four days per week where a pass could make financial sense, 34% pay-as-they-go.

Finding #2
Compared to pass users, pay-as-you-go customers are more likely to consider other transportation modes for each trip

Finding #3
Passes are currently break even at 30 single rides (on Clipper or mobile ticketing) compared to 27.5 in 2009.

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Service Increases

Customer feedback informed our biggest service changes in decades

Hours of new service:
+330,000
We've increased service on 34 routes since 2015 to reduce crowding and wait times— the most service in Muni's history!

135 NEW 60' BUSES to reduce crowding and delays on our busiest routes.

10 Express lines with expanded service hours
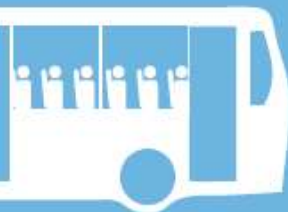
4 New routes

55 44 OWL
E   48 OWL

This year compared to last, **the Rapid Network has reduced peak period crowding** by 26%.

On-time performance up to **80%** on improved Rapid Network routes for a more efficient and predictable system.

All Door Boarding

- Launched system wide July 2012
- Reduces boarding time, better distributes customers on vehicles
- No increase in fare evasion observed

Muni Opens Its Doors for Faster, More Reliable Service
Muni customers may enter through the rear doors of any bus or streetcar using the following Proof of Payment:

Clipper® Card   Limited Use Ticket   Valid Paper Pass   Valid Transfer/Fare Receipt

Transit Signal Priority

- Transit signal priority improves Muni's on-time performance and reliability

- Rolling out TSP for all Rapid Routes (600+ intersections; up to 1,000 fleet vehicles)

- Combination of GPS based for buses and Vetag loops for rail

- Transponders also deployed on fire trucks for pre-emption
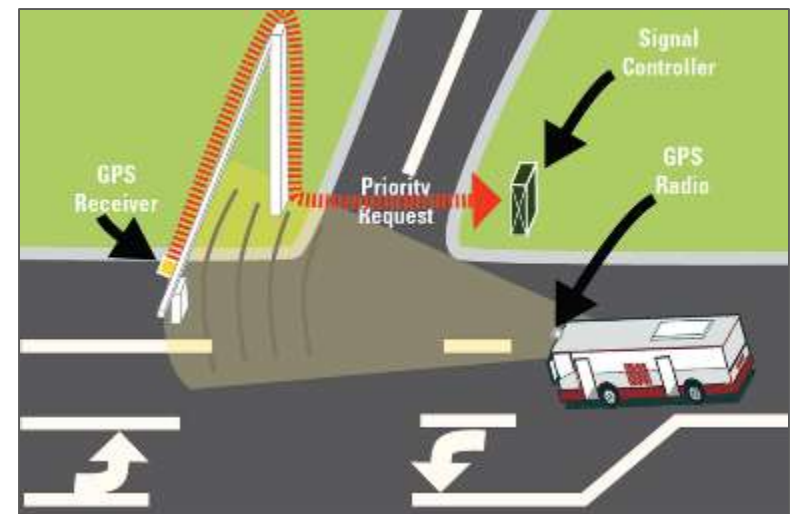
Redesigning Streets to Prioritize Transit

- **Red transit-only lanes**
  - 12 miles legislated, 5 on the ground

- **Transit Signal Priority**
  - 480 installed across city

- **Stop removal and optimization**

- **Transit and pedestrian bulbs**
  - Furthering Vision Zero city policy to improve safety

Transit Only Lane Enforcement (TOLE)

- All buses equipped with TOLE cameras

- PCOs monitor playback tapes and issue double parking tickets

- 26 miles of dedicated lanes (26 miles planned)

Transit Only Lanes in San Francisco

N	0	0.5	1	2 Miles

— Existing Transit Only Lanes
— Propsed Transit Only Lanes

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And... the people have spoken.

Guiding Principles for Emerging Mobility

- Collaboration
- Safety
- Transit
- Congestion
- Sustainability
- Equitable Access
- Accountability
- Labor
- Disabled Access
- Financial Impact

Conclusion

- Understand Land Use Challenges
- Share Information
- Make Diverse Investments
- Tell Emerging Mobility Where They Fit In

Thank You

Danielle J. Harris, Senior Transportation Planner

SFMTA Office of Innovation