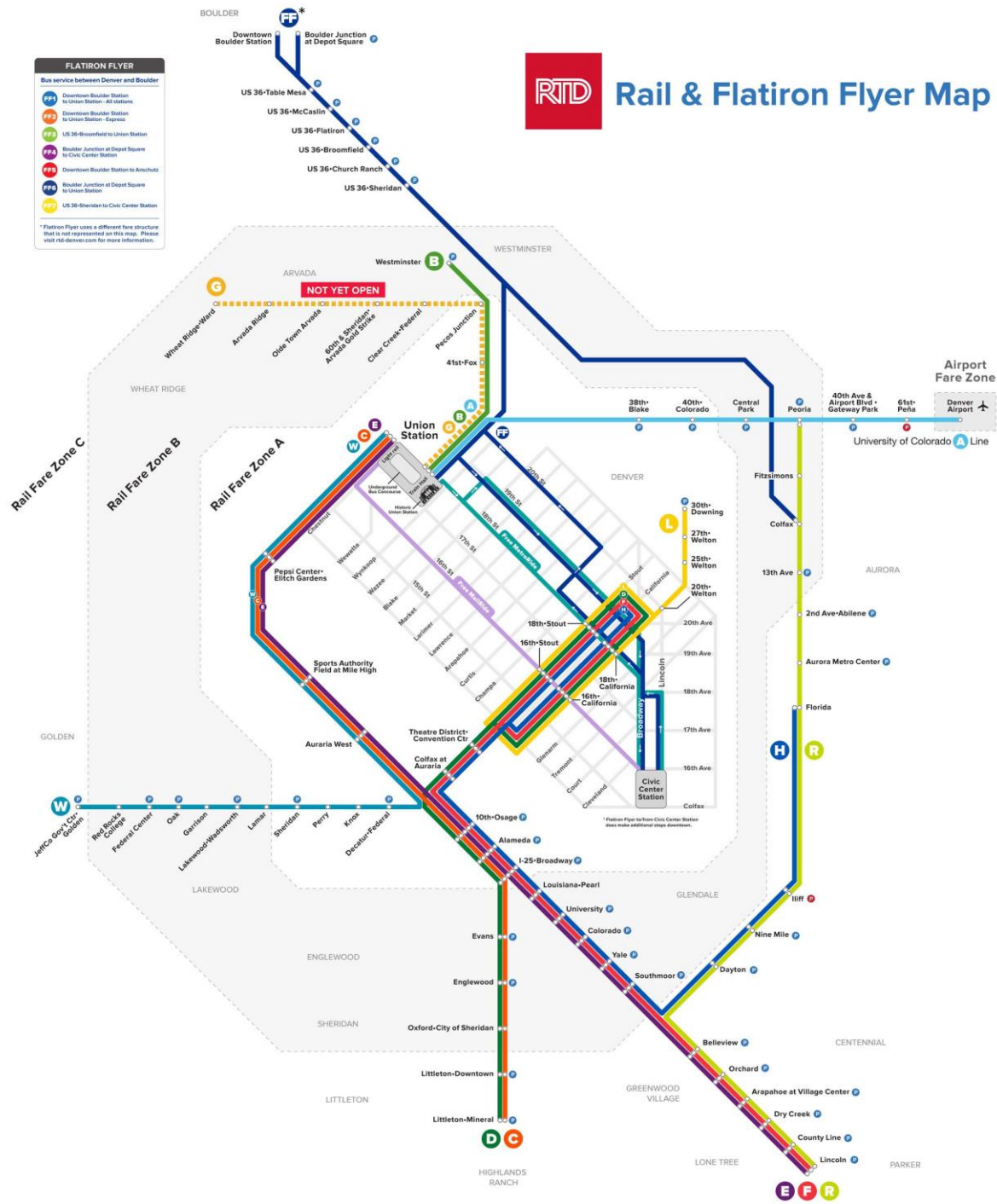


# **First and Last Mile Innovations**

Paul DesRocher  
Regional Transportation District  
Denver, CO



2018 Rail Conference

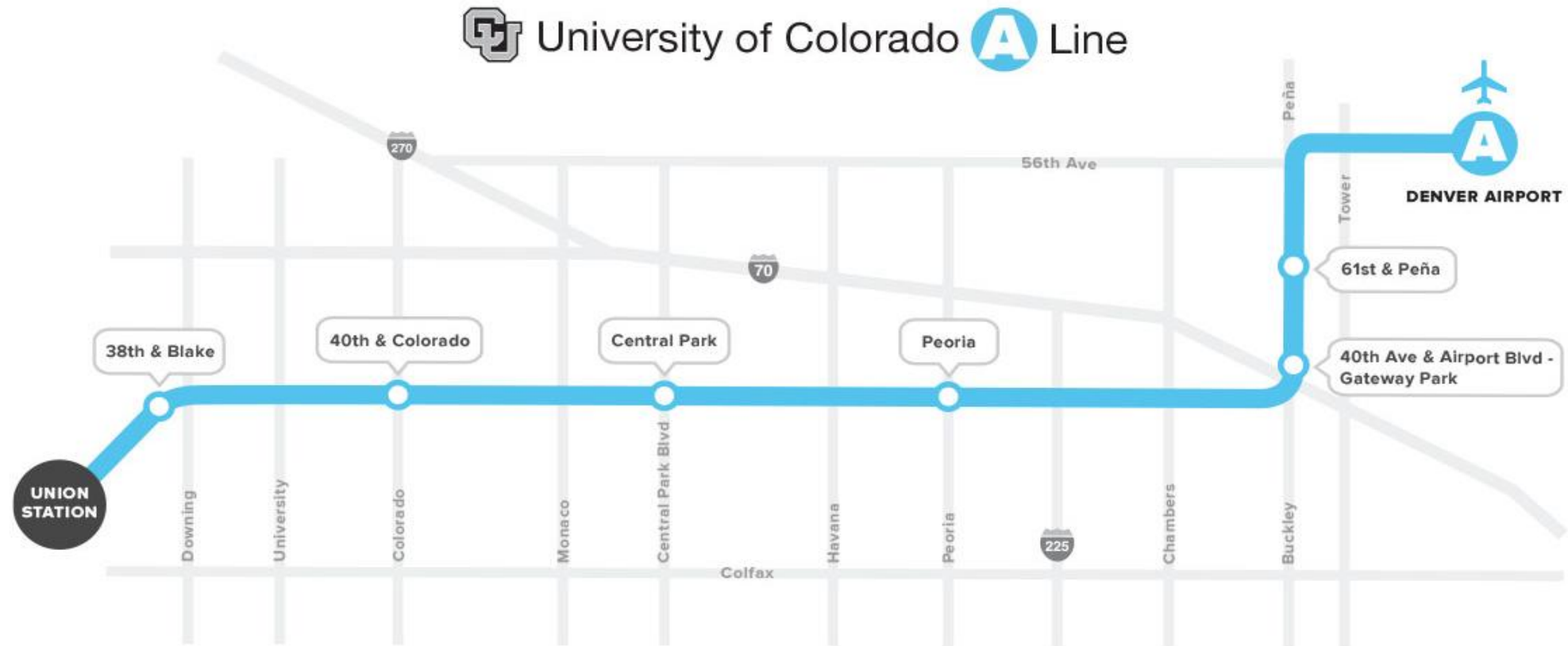


# Denver Metro Rail/BRT System

# First and Last Mile (FLM) in the Marketplace



# Public Transit Main Lines





# Station Contexts



# Station Contexts



# Why should we care about the FLM issue?

Transit ridership increased between 2010 and 2015; per capita boardings decreased.



**5% increase**  
in annual boardings  
(4.8 million more boardings)

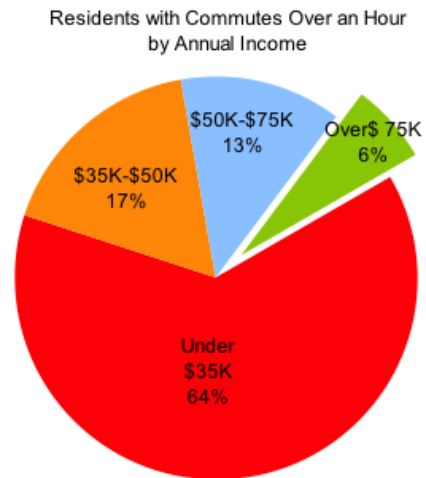


**4% decrease**  
in annual boardings per capita  
(1.6 fewer boardings per person)

- Light rail ridership has **increased 30%**, bus ridership has been steady.
- Regional transit mode share was **consistent at 4%**.
- Ridership on the E/F/H Lines has **increased 18%**.

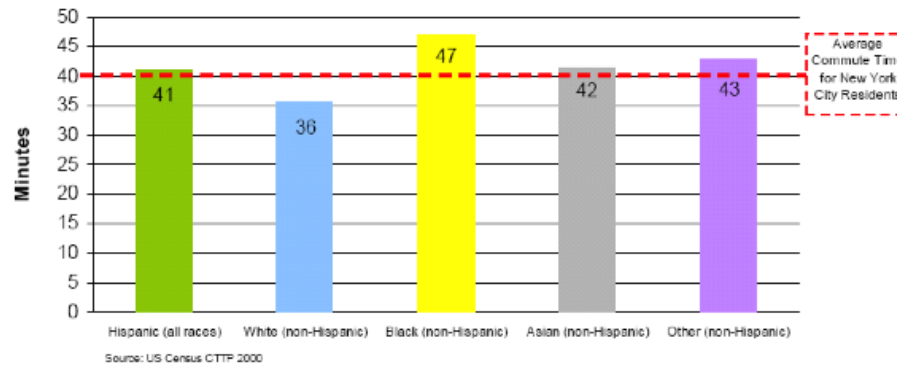


# Why should we care about the FLM issue?



Race and income disparities in New York City commute times

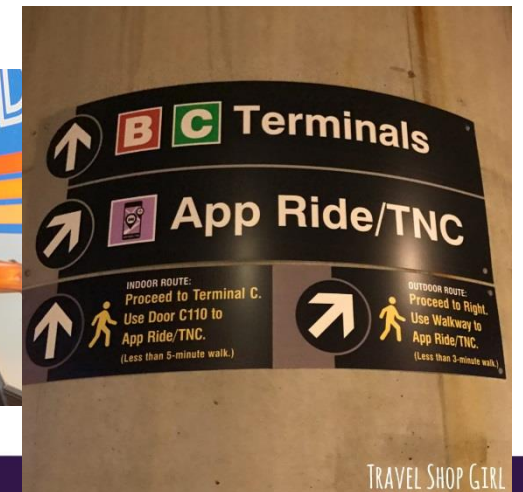
Commute Time of New York City Residents





# First and Last Mile Strategic Plan

define strategies and policies that improve multimodal transportation and connectivity to RTD services and facilities with the ultimate goal of **making RTD more accessible to more people.**



# Station Typologies

| Typology             | Examples  | Land use Density | Employment density | Residential density | Accessibility/ Service levels |
|----------------------|---|------------------|--------------------|---------------------|-------------------------------|
| Urban                | Downtown Arvada/Belmar/Longmont, areas of Broadway, Federal and Colfax in Denver, DU campus, Anschutz campus, Denver neighborhoods  | High             | High               | High                | High                          |
| Suburban Mixed       | Northglenn Marketplace Mall, US 36 and Sheridan Park-n-Ride area, Broomfield Plaza, Colorado Marketplace Shopping Center (Thornton) | Medium           | High               | Medium              | Medium                        |
| Suburban Residential | Residential areas of Lone Tree, Highlands Ranch, Northglenn, Thornton, Aurora, Littleton, Parker, Lakewood, Brighton, etc.          | Low              | Low                | Medium              | Low/Med                       |



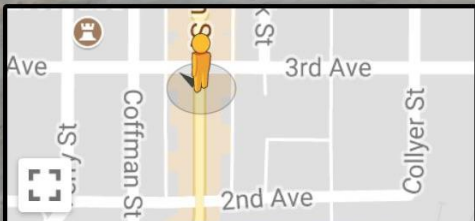
249 Main St  
Longmont, Colorado

Google, Inc.

Street View - Jun 2017

# Urban

- High land use density
- Mix of high employment and residential
- Many destinations
- Good levels of transit access
- Relatively high multimodal share
- Good scope of first and last mile solutions



Google

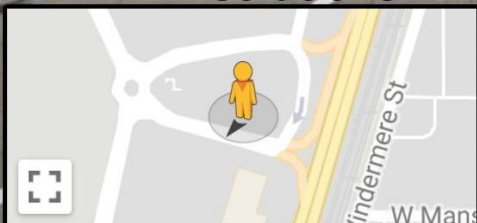
Google





# Suburban Mixed

- Medium land use density
- Mix of office parks, shopping malls, event spaces and industrial areas
- Medium-high employment
- Numerous destinations
- Medium levels of transit access
- Relatively high SOV share
- Good scope of first and last mile solutions





# Suburban Residential

- Low density
  - Residential
  - Few destinations
  - Low/Med levels of transit access
  - High SOV share
- 
- Low scope of first and last mile solutions



Two (2) types of overlays include:

1. **Prioritization overlay:** The function of this overlay is to help prioritize locations that may require FLM solutions more than others.
  - Historically vulnerable populations
  - High accessibility needs
2. **Recommendation overlay:** The function of the recommendation overlays is to help tailor the recommendations at specific locations with certain attributes.
  - High shift/visitor variability
  - High visitor trips
  - High propensity to change
  - Parking utilization







- **Low income/transit dependent communities**
- **Mode specific** (i.e. a variety of BRT, rail and local bus)
- **Service level** (i.e. ridership, frequency, parking availability, stations with high ridership vs stations with relatively low ridership and/or stations within Call-n-Ride service areas)
- **Stations with potential to change, or changes in the near future** (i.e. stations within jurisdictions that have completed groundwork or are supportive of first and last mile solutions)
- **Jurisdictional/geographical distribution** (i.e. stations selected in diverse political boundaries)
- **Access** (i.e. ease of access by various modes)
- **Density** (i.e. a variety of different land use densities)





# Project Schedule

Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec

Project Management and Stakeholder/Public Outreach

Existing Cond./Problem ID

First/Last Mile Station Typologies

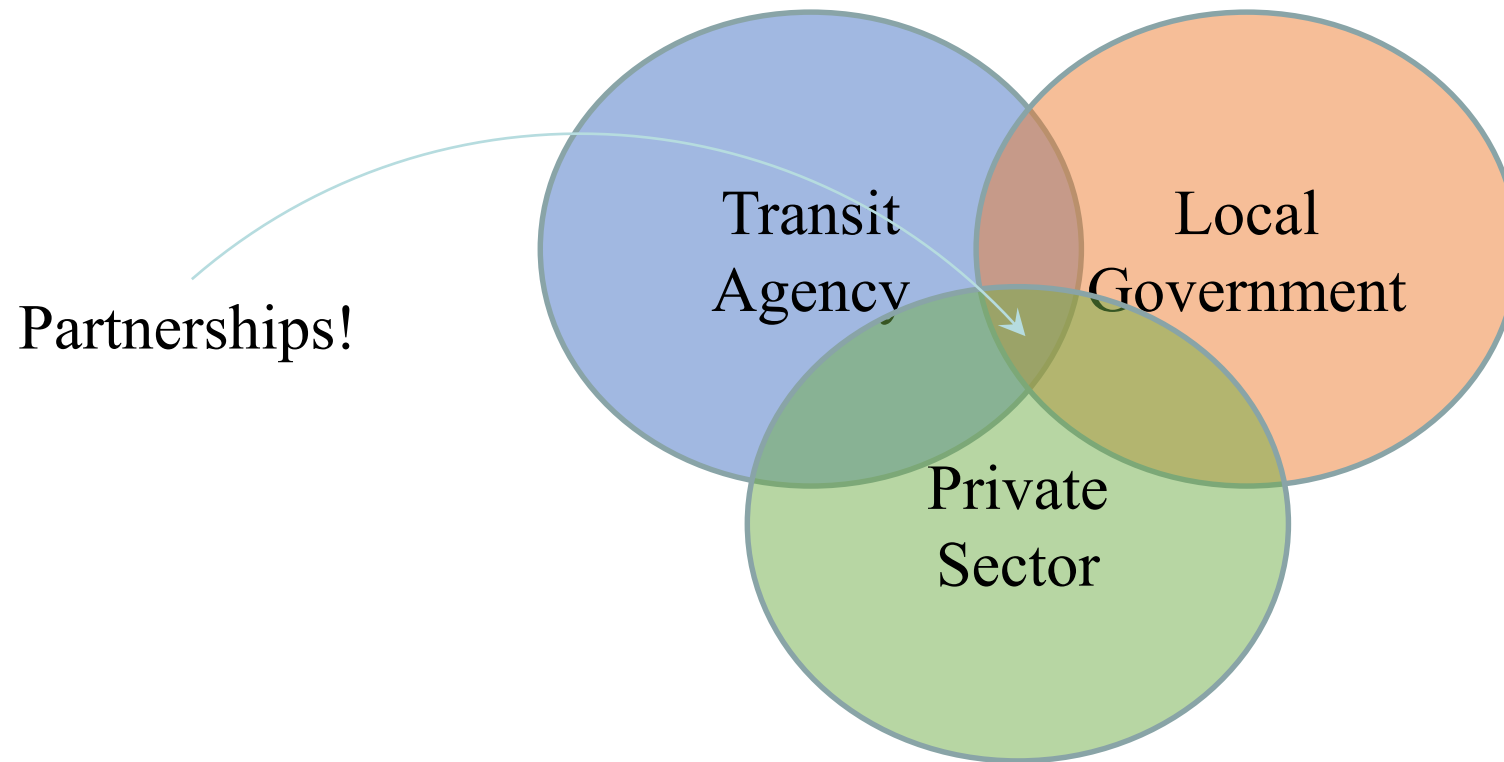
Selection of Rep. Stations

Toolbox of Solutions

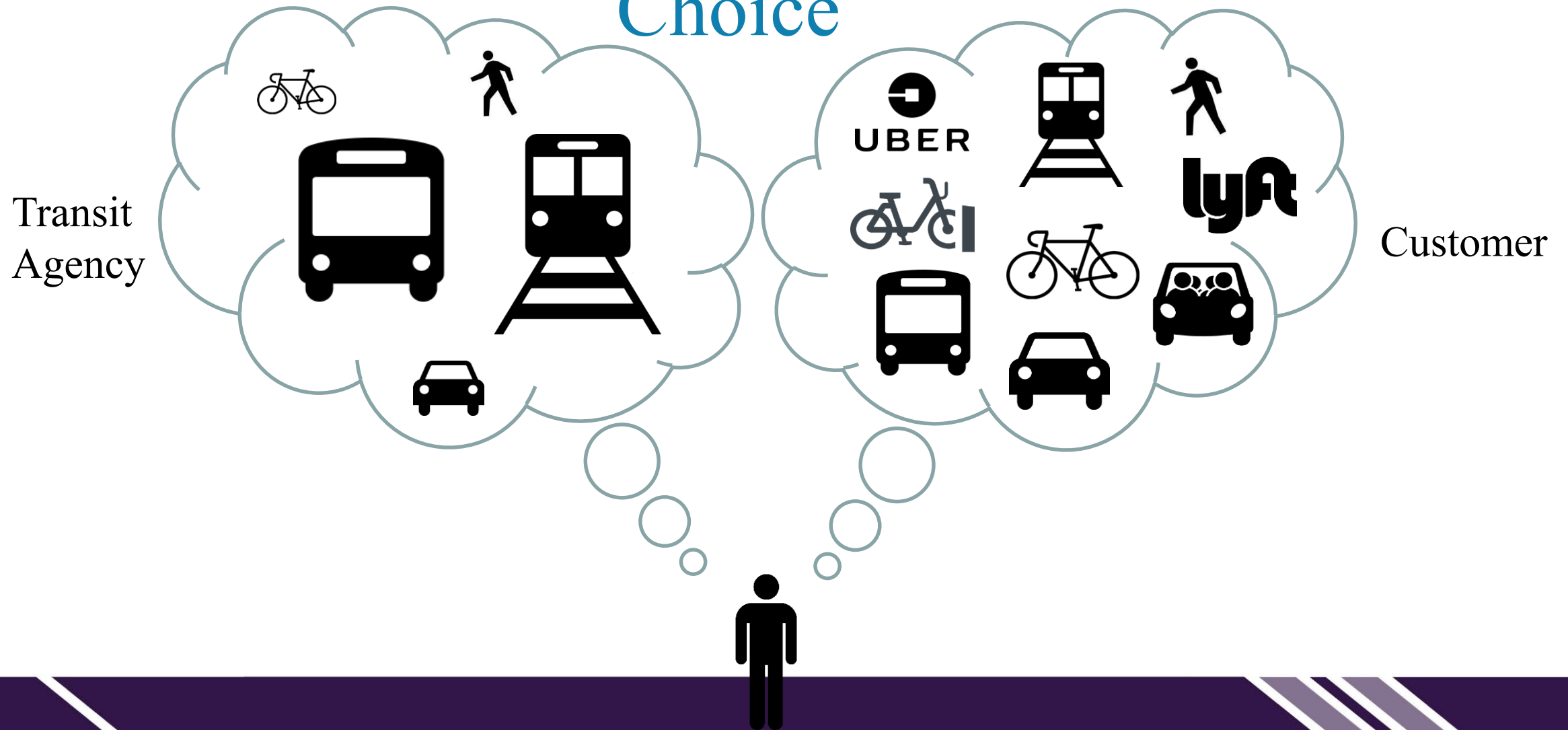
Station/Typology Recommendations

Final Report / Pilot Projects

# First and Last Mile - Implementation



# Transit Agency Considerations vs Customer Choice



# Are we providing what our customers really want?

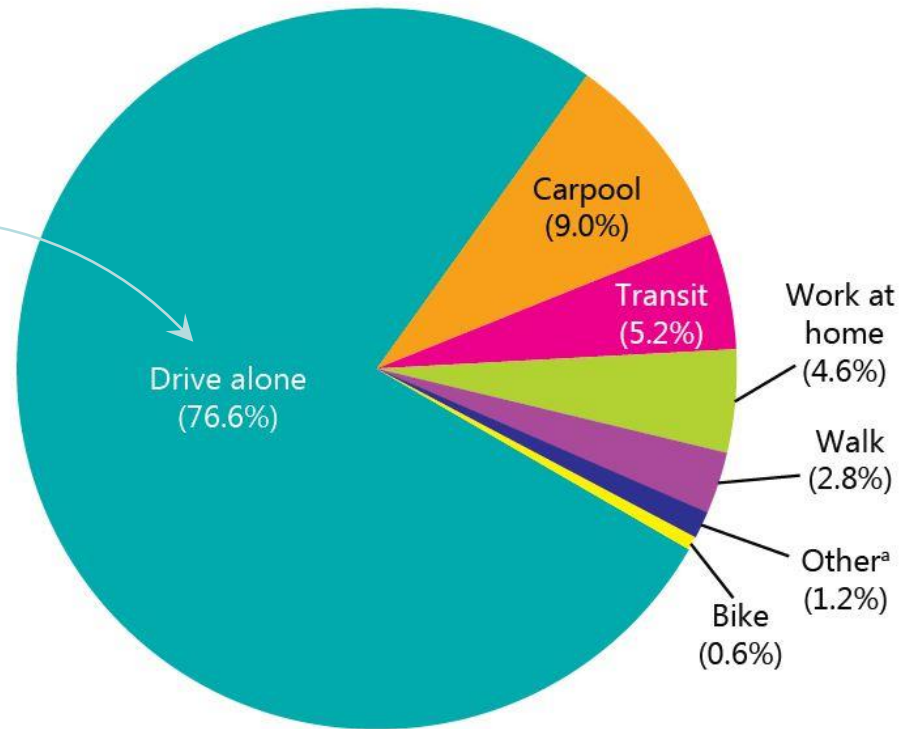
*“Cheap(er) gas prices, driver’s license availability, “new mobility”, etc. give all-purpose riders **more choices and less tolerance** to poor transit customer experiences.”*

*“The future of public transit hinges on shifting from a supply model to a demand model and embracing emerging modes to better serve, satisfy and grow ridership.”*



# “New” Mobility + “Old” Mobility

Opportunity!



# Smartphones as Mobility Devices



# The Amazon Effect



Tools & Home Improvement

Q

Gifts for Valentine's Day

Departments ▾Your Amazon.comToday's DealsGift CardsRegistrySellHelpENHello, Sign inAccount & Lists ▾OrdersTry Prime ▾Cart

Tools & Home ImprovementBest SellersDeals & SavingsGift IdeasPower & Hand ToolsLighting & Ceiling FansKitchen & Bath FixturesSmart HomeShop by RoomLaunchpad

\$10 & Under with FREE shipping

[Back to results](#)



Roll over image to zoom in

Nite Ize

### Nite Ize SpotLit Clip-On LED Light with Carabiner, Weather Resistant

★★★★★ ▾ 4,463 customer reviews | 98 answered questions

Price: **\$6.98** ✓prime  
FREE Shipping on orders over \$25—or get FREE Two-Day Shipping with Amazon Prime

**In Stock.**  
Want it Wednesday, Feb. 14? Order within **22 hrs 26 mins** and choose **One-Day Shipping** at checkout. [Details](#)  
Ships from and sold by Amazon.com. Gift-wrap available.

Color: **White**



- **CLIP ON LIGHT** - Have a Nite Ize SpotLit LED clip on light handy whenever you need a mini-beacon to light your way through the dark. A quick and easy attachment and bright, long-lasting light make it a staple for everything from daily life to overnight adventures.
- **GREAT FOR DOGS** - Lightweight and water resistant clip light makes for a perfect, all-weather dog collar charm or dog collar light for when your pup is playing out in the dark.
- **MULTI-USE** - Nite Ize SpotLit LED clip on light provides an ambient glow bright enough to read, find your keys or keyhole, locate tent lines and camping gear, attach to your person for visibility, or use as a dog collar charm or dog collar light.
- **LONG-LASTING + DURABLE** - This water resistant clip light features a secure stainless

Share    

Qty: 1 ▾

☐ **Subscribe & Save**

Save up to **5%** on auto-deliveries starting **Mar 14**. Skip or cancel anytime.

Auto-delivered: **Monthly** ▾

☐ Yes, I want **FREE Two-Day Shipping** with Amazon Prime

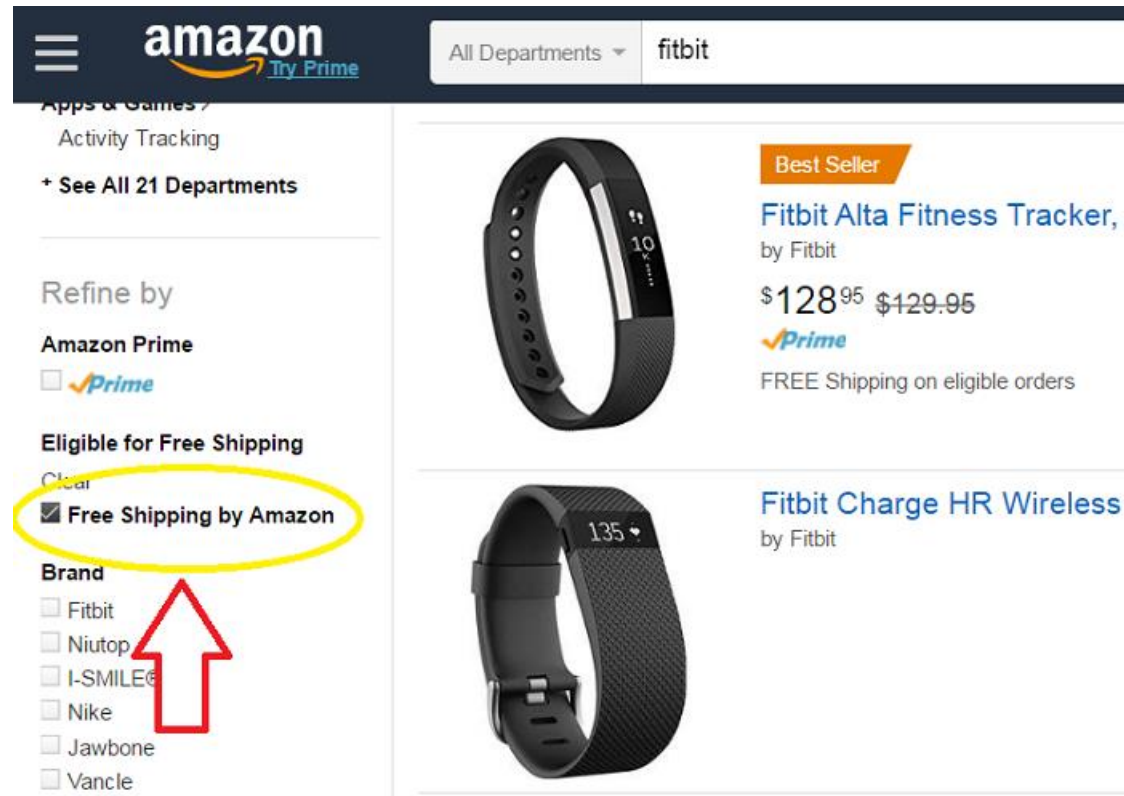
Add to Cart

Turn on 1-Click ordering for this browser

**Ship to:**  
denver, 80201 ▾

Add to List

# Cost to Organization vs. Cost to User



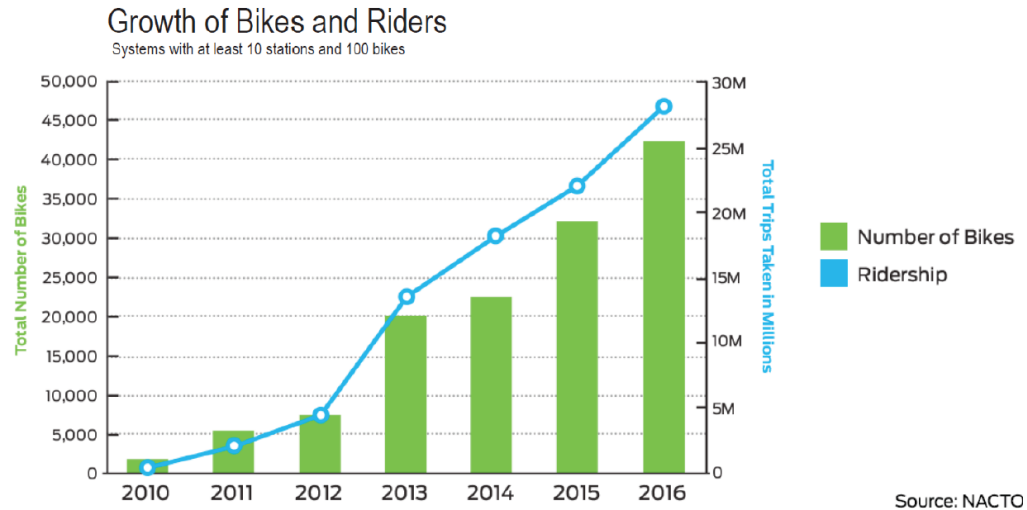


# Interoperability



# Bikes and Transit

## US Bike Share Growth [2010-2016]



Total Bike Share Trips

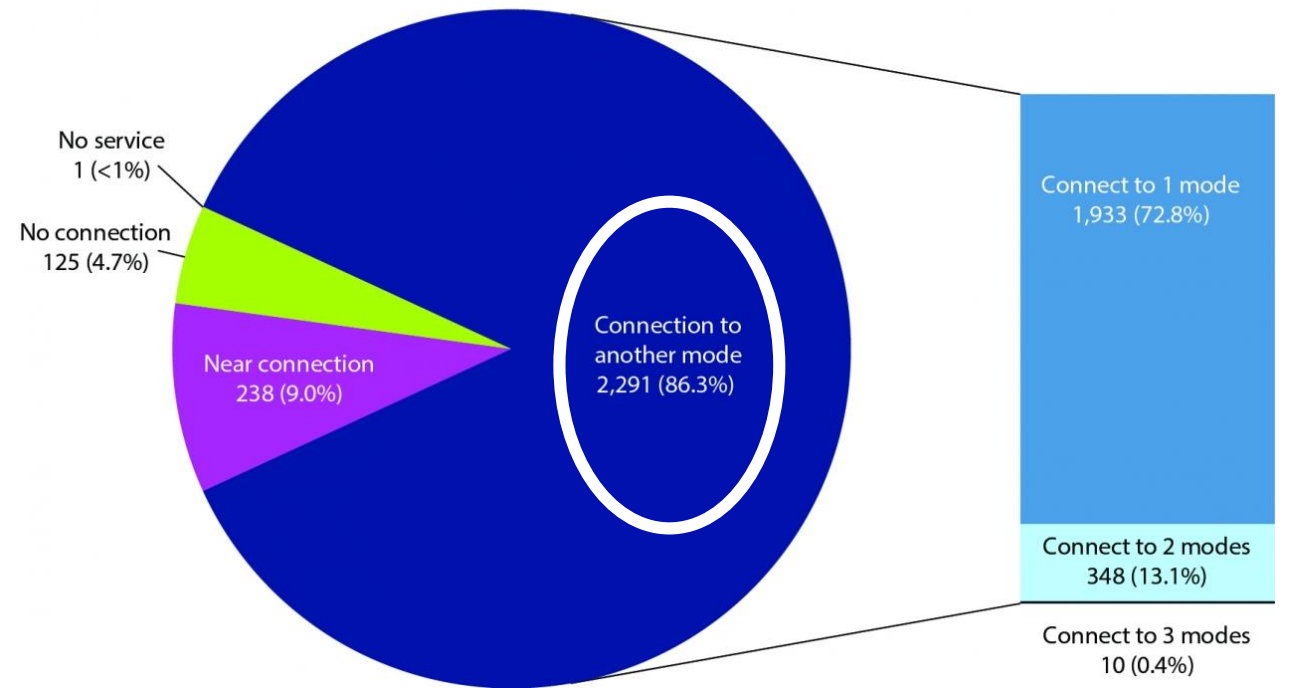
88 million

2016 Bike Share Trips

28 million

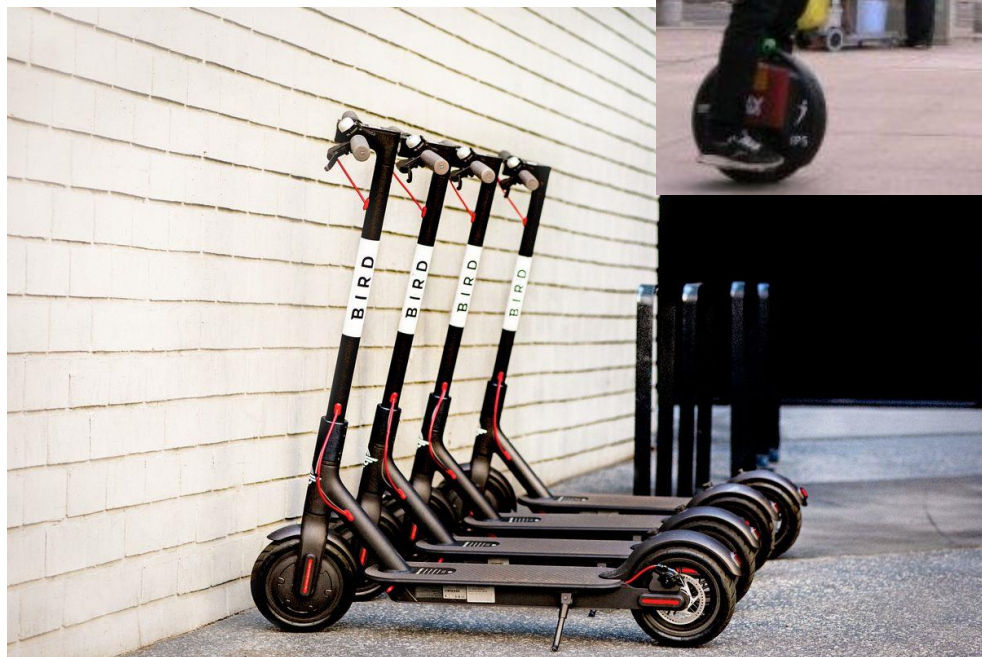
Graphic: King County Metro

FIGURE 1. Bike-Share Connectivity to Scheduled Public Transportation











**Coming July/Aug  
2018...**



## **BICYCLE & TRANSIT INTEGRATION**

**A TRANSIT AGENCY PRACTICUM FOR BUILDING BICYCLE  
CONNECTIONS & EQUITABLE MOBILITY**

# Thank You!

**Paul DesRocher**

Manager, Planning Coordination

Regional Transportation District

[paul.desrocher@rtd-denver.com](mailto:paul.desrocher@rtd-denver.com)

303-299-2584

