



## Appendix C. Community Engagement: Ethnography and Digital Engagement

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## Engagement Process Overview

In order for the team to map the future of mobility throughout the Denver region with insight grounded in a deep understanding of end-users, the team went out into the community and talked to people who are using the transportation system every day. They gathered input to better understand the community's needs, day-to-day routines, struggles, delights, and what would make an impactful difference in their lives. By 'walking a mile in their shoes,' the team garnered insights about how people think, what they value, and how this project can help them meet their goals.

Through the Mobility Blueprint project, the team, in partnership with CRL Associates, approached community engagement in a unique and multifaceted way. Tactics included:

- Community ethnography interviews
- Digital quizzes
- Metro Ambassadors
- Educational events and speakers series
- Local and global thought leader involvement
- Workshops

This outreach connected with more than 2,500 people throughout the Denver Metro region, counting quiz responses and event attendees. The actual number is undoubtedly larger based on the social media and Metro Ambassador touch-points throughout the project.

## Community Ethnography Interviews







The team conducted 150-minute paired ethnographic interviews (two friends or family members) with 20 people from across Denver, Englewood, Boulder, Thornton, Erie, Westminster, Littleton, Aurora and Parker. Demographics were intentionally varied: ages (31-74), household income (\$40k-\$140k+), and ethnicity (Asian, Black, White, Hispanic) to name a few. Participants were recruited through a market research agency in order to eliminate bias and ensure diverse representation across a broad cross-section of the counties and residents in the Denver metro area.

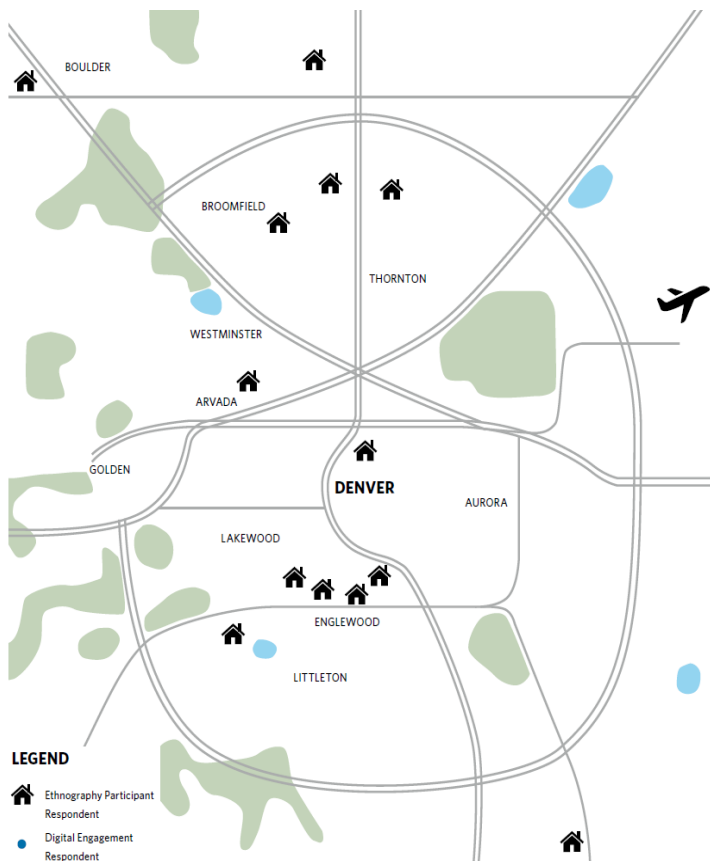
The breadth of participants helped shed light on the unique needs and ambitions of those who use public transit and roadway infrastructure every day. Sitting around a participant's kitchen table and openly discussing their families, work, quality of life, and even health and wellness, allows a deep understanding of not only what they do to get around or what they use, but why and how that might be improved or reimaged to reach an ideal state of functionality, purpose, and efficiency. This provides a clear perspective of how accessibility impacts their day-to-day life.

## Introducing Mile High Travelers

Taking raw information from our community engagements, the team was able to distill and craft five unique personas, later described as the Mile High Travelers, of community members based on the people with whom we engaged. Our team used persona profiles to describe more about mindsets and attitudes, lifestyles, worldviews, values, motivations, needs, behaviors, and activities. Personas help the team design for specific archetypes of real users rather than the demographically or statistically “average” person. They allow a glimpse into the daily lives of those for whom we are designing, which will ultimately translate into solutions based upon how they might use transportation infrastructure in the future.

The following personas are first shown based on the results of the ethnography interviews and how they transformed to the final Mile High Travelers (Maria, Carl, Dan, Tonya, and Jordan) that are presented in the Blueprint report. Note that these are not based on real people.

 <hr/> <p>31 TO 74</p>	 <hr/> <p>CAUCASIAN BLACK ASIAN HISPANIC</p>
 <hr/> <p>50% MALE 50% FEMALE</p>	 <hr/> <p>&lt;15 MIN TO &gt;60 MIN</p>
 <hr/> <p>90% OWN (2) HYBRID (1) ELECTRIC</p>	 <hr/> <p>\$40K TO \$150K+</p>



## Ethnography Persona: Conscientious Activists

### Savvy, Adventure-Seeking, Action-Oriented

*Access is integral to my lifestyle. I'm just going with the flow and figuring out my options. I use my commute as an opportunity for other things: recreation, people-watching, or just enjoying the sunshine. I actively choose modes of transit other than my car.*

#### About

Whether a life-long Denverite or a new resident, I embrace all this city (and the world) has to offer. I spend a lot of time researching new things, like my upcoming trip to Israel, or buying an electric car. I'm also involved in my community—helping to organize food donations from King Soopers and fighting to make sidewalks mandatory for all new developments in the area. For most people, getting from point A to B is about the destination, but for me, it's also about the journey. I walk to the grocery store because it is close enough, and I can get in my steps. Or, I jog alongside my daughter as she bikes to school. I like to be outside, exploring, taking care of my mental and physical wellbeing. My latest goal: to walk the whole High Line Canal Trail (in 5 mile segments).

#### Motivations

- Wellness
- Environmental impact
- Convenience
- Safety

#### Frustration

- Lack of pedestrian/cyclist safety
- Number of connections for short distance
- Negative perception of bus (safety)

#### Needs

- Smart public transit routes/stops/frequency
- Higher pedestrian safety
- More sustainable options
- Safe transit

The following Mile High Traveler was developed for this persona.

### Mile High Traveler: DAN

Dan is a 75 year old semi-retired professor who is married and lives in a South Denver neighborhood.

#### Daily Travel

Home > University > Grocery Store > Coffee > Home

Occasionally drives the same route in bad weather, but prefers to bike.

- “I used to be very active in my community, but I'm feeling more limited now that it doesn't feel as safe or easy to bike or walk to where I want to go.”

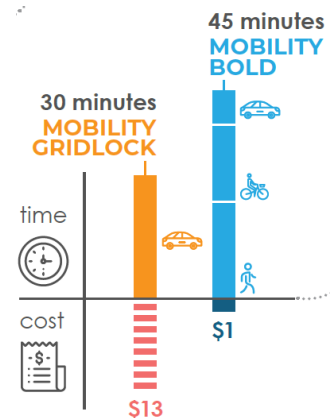


### Benefits

More traffic on arterials, less neighborhood traffic equals safer streets. On-street parking is being repurposed for bike lanes and wide sidewalks.

- “I feel safe and comfortable walking and biking around my community. There are new pedestrian detection systems in place at intersections in our neighborhood and new separated bike lanes that allow me to not only bike to the university, but also to my library and coffee shop.”
- “I spend a lot less time driving and more time walking and biking for my neighborhood trips. Not only am I spending less money on transportation, my health is better and I feel great.”

Details regarding the time and cost estimates are provided in Appendix E, Scenario Comparison: Qualitative and Quantitative Evaluation.



### Ethnography Persona: Freedom Seeker

#### Optimistic, Thankful, Passion-Driven

*Access, for me, is about being less reliant on other people and services. When access is limited, it prevents me from doing all the things I want and need to do. It's important that I maintain my independence, no matter what limitation I am facing today or will face in the future.*

#### About

My life is a bit unpredictable at the moment. I'm facing some circumstances (deteriorating health due to MS, a come and go arthritic condition, or unemployment while supporting a special needs child, for example) that really impact my outlook on mobility. I always try to see the silver lining, but sometimes life gets the best of me when someone questions my need for an accessible parking space or I think about trying to get around once my legs stop working. Sometimes it takes me a bit longer to get from A to B, which is why I default to on-demand options like my own car or Uber or the convenience of next day delivery. I am constantly thinking about the future—how my kids will get around (since they don't have a desire to get a license) and when I'll get my driverless car. More importantly, I am extremely positive and have many passions that define who I am and what I am contributing to the world—my church family, staying fit, and showing the world to my kids.

#### Motivations

- Ease
- Convenience
- Safety

#### Frustration

- Light rail opening delays
- Lack of pedestrian safety
- Number of connections for short distance
- Potholes
- Lack of timely response to growth

#### Needs

- Safe transit
- Accessible services
- Help figuring out how to do certain things
- Reliability

The following Mile High Traveler was developed for this persona.

### **Mile High Traveler: CARL**

Carl is middle-aged, married with a teen-aged son. His biggest concern is a recent health issue that is beginning to limit his mobility and forcing him to walk with a cane.

#### **Daily Commute**

Green Valley Ranch > Airport > Sons Sports Practice/Games > Restaurant > Home

- “My wife commutes to Thornton for work each day. Traffic congestion just keeps getting worse and I find it negatively affects her mood when she comes home from work.”

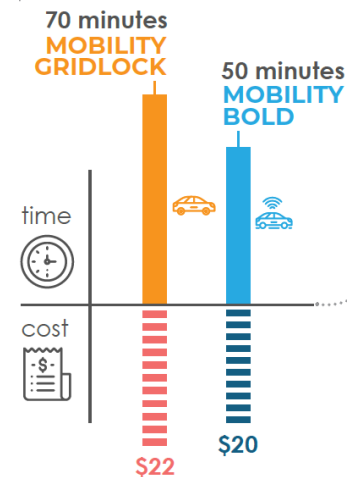


#### **Benefits**

With connected vehicles, my wife and I feel like we can relax a bit even when commuting. Remote parking with a driverless shuttle is changing the landscape. The pilot project at Denver International Airport provides me with first class service at a reduced monthly parking rate.

- “My son is in a new ‘child-safe’ on-demand shared ride service that he takes with his lacrosse teammates and I can track on my smartphone.”
- “I’m a car geek, so everything about smart cars is intriguing, including the mobility options that may open up for me as my physical disability gets worse.”

Details regarding the time and cost estimates are provided in Appendix E, Scenario Comparison: Qualitative and Quantitative Evaluation.



### **Ethnography Persona: Choosy and in Control**

#### **Grounded, Opinionated, Adaptable**

*I drive everywhere, but fortunately almost everything we need is nearby. It’s important for me to have easy access to things, and quite frankly, I take it for granted. I love the idea of public transit, but the reality just doesn’t match the convenience of driving my own car.*

#### **About**

I have a pretty positive outlook on life. Things aren’t perfect, but I consider myself lucky to have my health, stability, and passions that keep me busy. My family is pretty active (skiing, snowshoeing, and hiking) and we’ve found secret ways and places to enjoy those things without sitting in too much traffic. Every once in a while I think about taking public transit to get to work—I know it would alleviate some stress, give me some time back in my day, and make a dent in reducing Denver’s CO2 emissions—but the options near me are very limited and I’m often out running several errands at once. Having access to things definitely figured into where I decided to live, but mostly in terms of availability of amenities and services—not how I get there.

**Motivations**

- Convenience
- Time
- Freedom

**Frustration**

- Traffic to the mountains (winter and summer)
- Light rail opening delays
- Click to document # of people for HOV pass
- Poor coordination of construction with traffic
- Increased HOV #

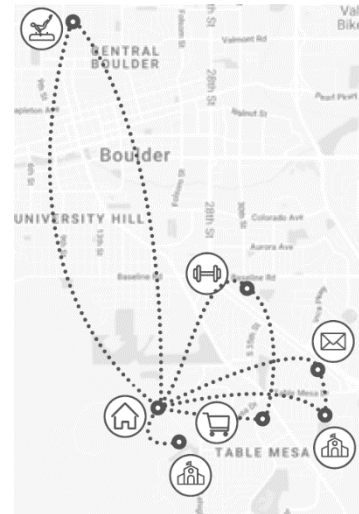
**Needs**

- Clear, honest communication
- Convenience with uncompromised sustainability
- Extended public transit network

The following Mile High Traveler was developed for this persona.

**Mile High Traveler: TONYA**

Tonya is a 34-year-old Colorado native, who lives in Boulder and is married with two young children.



**Daily Travel**

Boulder > Two School Drop-offs > Errands > Gym > Home > Pick-up Kids > After School Activities > Home

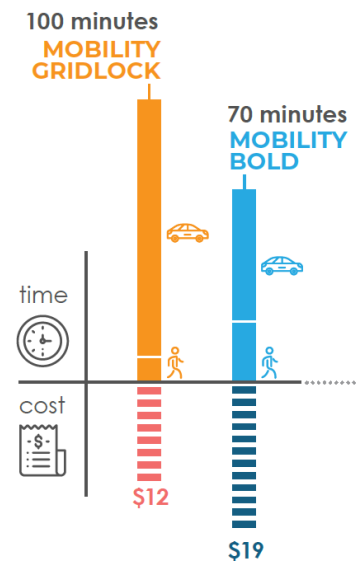
- “I am dependent on my car to get me around my community, but I’m always looking for ways to help make my life easier. I’ve started ordering my groceries online for pick up, which helps a bit. Traffic is a mess, and it’s unreliable how long it might take us to get home.”

**Benefits**

Mountain highway roadway technology alerts for winter conditions to minimize weekend travel delays. My husband is trying new mobility options that allow him to work during his commute to the Federal Center. I love that this allows him to be home in time for dinner with the family.

- “My life is busy and active, but I have found ways to make the week flow more smoothly. I signed up for drone delivery grocery service from my local supermarket and it’s great! That’s one less errand I have to do.”

Details regarding the time and cost estimates are provided in Appendix E, Scenario Comparison: Qualitative and Quantitative Evaluation.





## Ethnography Persona: Happy to be Hands-Free Riders

### *Mindful, Driven, Balanced*

*I've made a very conscious decision to take public transit to work—to the point it has impacted where I live, how I spend my time, and my overall mood. By not sitting in traffic, I have less stress, can get more done, and have a better relationship with my partner.*

#### About

I'm pretty young compared to my neighbors, but I am looking to settle down a bit and get into a routine. Within the last few years, I moved further away from downtown to have more space, invest in my first home, and start a family. Living in the suburbs definitely dictates the need for a car on the weekends to run errands, but during the week I make good use of the public transit system. The express bus has given me new found freedom to get work done or connect with my partner during the commute. The worst part about living out here, though, is the experience of being a pedestrian. There are a few trails in my community, but walking or jogging beyond that...I fear for my life. That's probably the one thing I miss most about where I used to live—being able to get around on foot safely and easily.

#### Motivations

- Reducing stress
- Time efficiency
- Cost

#### Frustration

- Feeling unsafe on MallRide
- Bus frequency
- Increases HOV #
- Lack of pedestrian safety
- Light rail opening delays

#### Needs

- Smart public transit routes/stops/frequency
- Convenient ways to get discounted passes
- Higher pedestrian safety

The following Mile High Traveler was developed for this persona.

### Mile High Traveler: JORDAN

Jordan is a 29-year-old who recently moved to Denver from the Bay Area. Central Denver is not affordable for him, so he bought a home in Parker, which also provides him a yard for his dog.

#### Daily Travel

Parker > Downtown Denver > Restaurant > Home

- “I live far from downtown, and my bus route with Light Rail Transit is not flexible, so it's hard for me to stay connected with friends during the week. Overall, the effort and stress that it takes me to live here is more than I expected.”

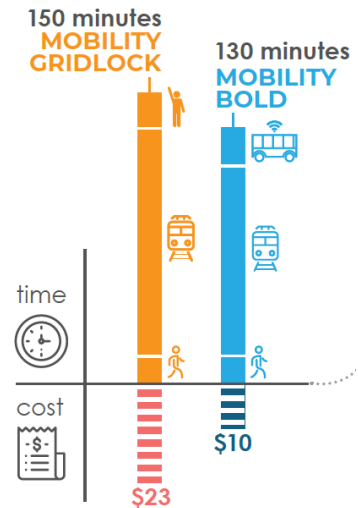


### Benefits

I like being productive and getting work done during my commute. Better first/last mile services to and from the new RTD station in Lone Tree. Microtransit around Park Meadows is convenient for exploring the area after work and connecting with friends.

- “The tech company I work for is creating some innovative new solutions to mobility challenged communities. I’ve been using the new mobility app to get to work — sometimes by shared ride, sometimes by transit.”

Details regarding the time and cost estimates are provided in Appendix E, Scenario Comparison: Qualitative and Quantitative Evaluation.



### Ethnography Persona: Dedicated Realist

#### *Realist, Attuned, Defeated*

*Transportation is a big part of my life, whether I like it or not. Life has thrown a few curve-balls at me, which necessitates me taking public transit anywhere and everywhere. So, when seemingly small changes are made to my route, it actually has a huge impact on my life.*

#### About

I’ll admit, I’m a bit down on my luck these days. But, I’ve taken great strides to remove myself from bad situations or bad circles of people. Now, I’m focused on improving my health, getting my landscape business running, and making sure my daughters are well off when I leave this world. Having lived in Denver my whole life, I’ve seen a lot of change and am excited about the investment in public transit recently. Taking the light rail saves me so much time. Yet, somehow it still takes me 75 minutes to get to my sister’s house (which isn’t that far away). I have to take the light rail, a bus, and then walk 2.5 miles. The good thing is that the service is fairly reliable—even if the routes only run every 30 minutes.

#### Motivations

- Cost
- Time

#### Frustration

- Reductions in service
- Route changes
- Bus frequency
- Public transit dead zones

#### Needs

- Fill in the gaps
- Clear communication
- Affordable options
- Decision makers use the system for a week

The following Mile High Traveler was developed for this persona.

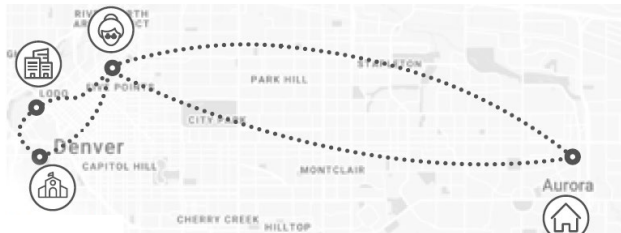
### **Mile High Traveler: MARIA**

Maria is a 22-yr-old mother who lives in Aurora. She is a student at Metro State University who also works part time at a restaurant in downtown Denver. Her pride and joy is her 4-year old son Gabriel, who is taken care of by Maria’s mother each day.

#### **Daily Travel**

Aurora > Five Points > Metro State > Downtown Denver > Five Points > Home

- “Getting back and forth between my home, school, job and mother’s home takes a long time each day. My car is becoming a money pit, always needing repairs I can’t afford.”

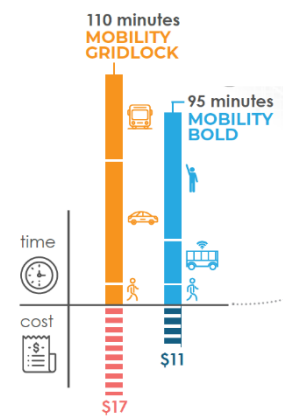


#### **Benefits**

The microtransit service is great for getting around downtown with more direct options which saves me time. The time savings in my commute allows me to work an extra hour at the restaurant or spend more time with my son.

- “Sometimes my mom takes my son Gabriel downtown to ride the driverless microshuttle as an afternoon adventure. He loves it!”
- “The Mobility as a Service program is more affordable than I thought and it has given me the flexibility to live my life!”

Details regarding the time and cost estimates are provided in Appendix E, Scenario Comparison: Qualitative and Quantitative Evaluation.



### **Quality of Life for Denver Region Residents**

*How does access relate to quality of life factors like health, work, recreation, safety, financial stability, and education?*

In order to design the future of transportation in Denver, it’s important to have a firm grasp on how transportation fits into the lives of residents. What is the relationship between transportation and one’s job or home location? How do residents decide what mode of transportation they will take? How does transportation relate to a resident’s desired lifestyle? Transportation is only one piece of the puzzle and is connected to virtually every other aspect of life. Quite frankly, transportation is something people rarely think about beyond the frustration that comes from being stuck in traffic, however with that being said, mobility is fundamental to quality of life. A life well lived includes access to education, cultural events, meaningful work, and affordable healthcare. Transportation serves as the fundamental predecessor to being able to access these things. Moreover, mobility represents freedom and control, the ability to navigate wherever, whenever.

During the ethnographic interviews, we gathered information about how people define quality of life and its relationship to transportation. We also asked participants to rank various factors that influence quality of life in order of importance. By understanding the priorities of residents, we can design a future that enables the quality of life people desire.

## Appendix C. Community Engagement: Ethnography and Digital Engagement

Almost across the board, access (or transportation depending on how you define it) fell in the middle in terms of priorities for quality of life, whereas things like health, safety, and financial wellbeing were ranked as top quality of life factors. Having good access is an enabler of higher quality of life—not the driver.

The team asked residents to rank the above quality of life factors in order of importance to them. Here's the aggregated list, most to least important.

- Health
- Safety
- Financial Wellbeing
- Young People's Wellbeing
- Recreation and Leisure
- Education
- Physical Environment
- Work and Productivity
- Access
- Support and Belonging
- Religion and Spirituality
- Culture and Community Identity
- Diversity and Equity
- Heritage

## Digital Outreach

### Quiz 1: What Mile High Traveler are you?

Upon completion of the ethnography phase, the team launched the first digital outreach quiz titled, “What Mile High Traveler are you?” on April 4, 2018. The purpose of the quiz was to find comparisons and gaps between ethnography results and what the broader public feels about quality of life priorities and technological advancement. Result comes back with a “Mile High Traveler,” which aligned with the Personas identified in the ethnography research.

The quiz was a total of 10 questions.

1. What matters most to your quality of life? (Pick top 3 and bottom 3)

**What matters most to your quality of life?**  
DRAG & DROP FROM THE LEFT

Access ?	Support and Belonging ?	Health ?	Opportunities for Youth/Kids ?	Education ?	<p style="text-align: center;"><b>Your Top 3:</b></p> <div style="text-align: center; height: 100px;">  </div>
Culture and Identity ?	Diversity ?	Financial Stability ?	The Environment ?	Heritage ?	
Recreation and Leisure ?	Work and Productivity ?	Safety ?			

2. Choose your top priority from your top 3
3. Choose your top priority from your bottom 3.
4. I would rather...
  - a. Be the driver or be the passenger
  - b. Save time or save money
  - c. Buy online and get it in a day or go to the store and get it now
5. When my neighborhood needs improvements:
  - a. I fix it myself
  - b. I call someone to help
  - c. I rally my fellow neighbors
  - d. I do nothing
6. When traveling around the city, I would prefer to: (choose 2)
  - a. Be the driver
  - b. Get work done

- c. Listen to music or read
  - d. Get exercise
  - e. Play on my mobile device
7. When new technology comes out:
- a. I buy it right away
  - b. I upgrade when it is time
  - c. I buy when my stuff breaks
  - d. It's no concern of mine
8. In 10 years, I will move around the city by: (Choose 3)
- a. Gas vehicle
  - b. Hybrid or electric vehicle
  - c. Bike or scooter
  - d. Driverless vehicle
  - e. Walking
  - f. Ride/care sharing
  - g. Public transit
9. I can navigate the local train and bus network:
- a. Never tried/not really
  - b. With a little help
  - c. Sort of
  - d. Pretty well
  - e. Like a pro
10. My transportation choices are based on: (Rank choices in order)
- a. Time
  - b. Available options
  - c. Sustainability/environmental impact
  - d. Cost
  - e. Physical accessibility
  - f. Comfort and safety
  - g. Reliability

Based on their responses, they were given one of six of the animal characters below that matched with the ethnography personas.

The quiz was promoted through RTD, DRCOG and CDOT outlets, as well as the Metro Ambassadors. The second digital outreach piece will be developed shortly after to test a variety of project scenarios that will be identified by the technical team.



### Quiz 1 Results Highlights

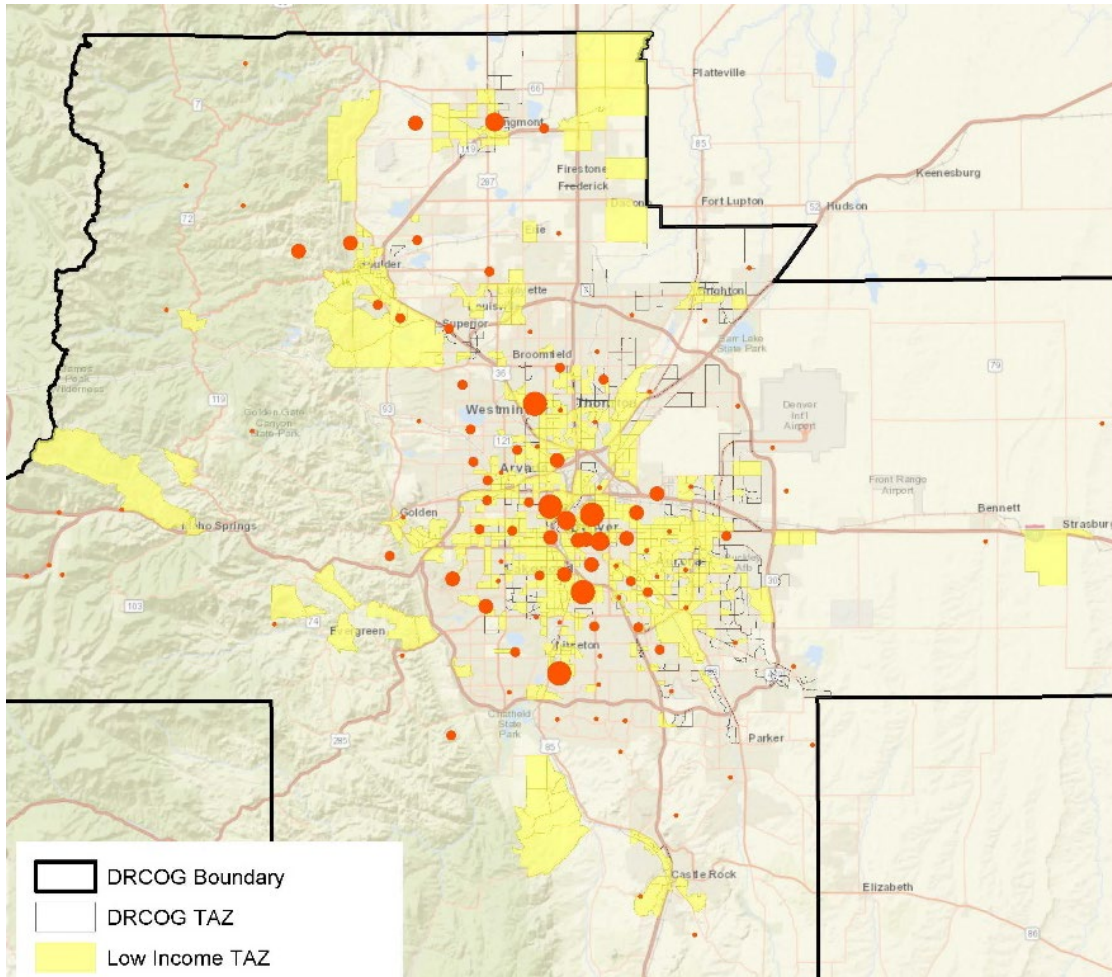
More than 1,150 people responded to Quiz 1 and the results allowed us to confirm the personas that were created from the ethnography interviews and were adjusted according to the results. Below are highlights from quiz 1.

- Most of the survey respondents are not only tech savvy, but they are ready and have an appetite for technology advancement
- Perception of transportation control is mixed. When asked whether they would prefer to 'Be the driver' or 'be the passenger' the total number of responses is equal for both.

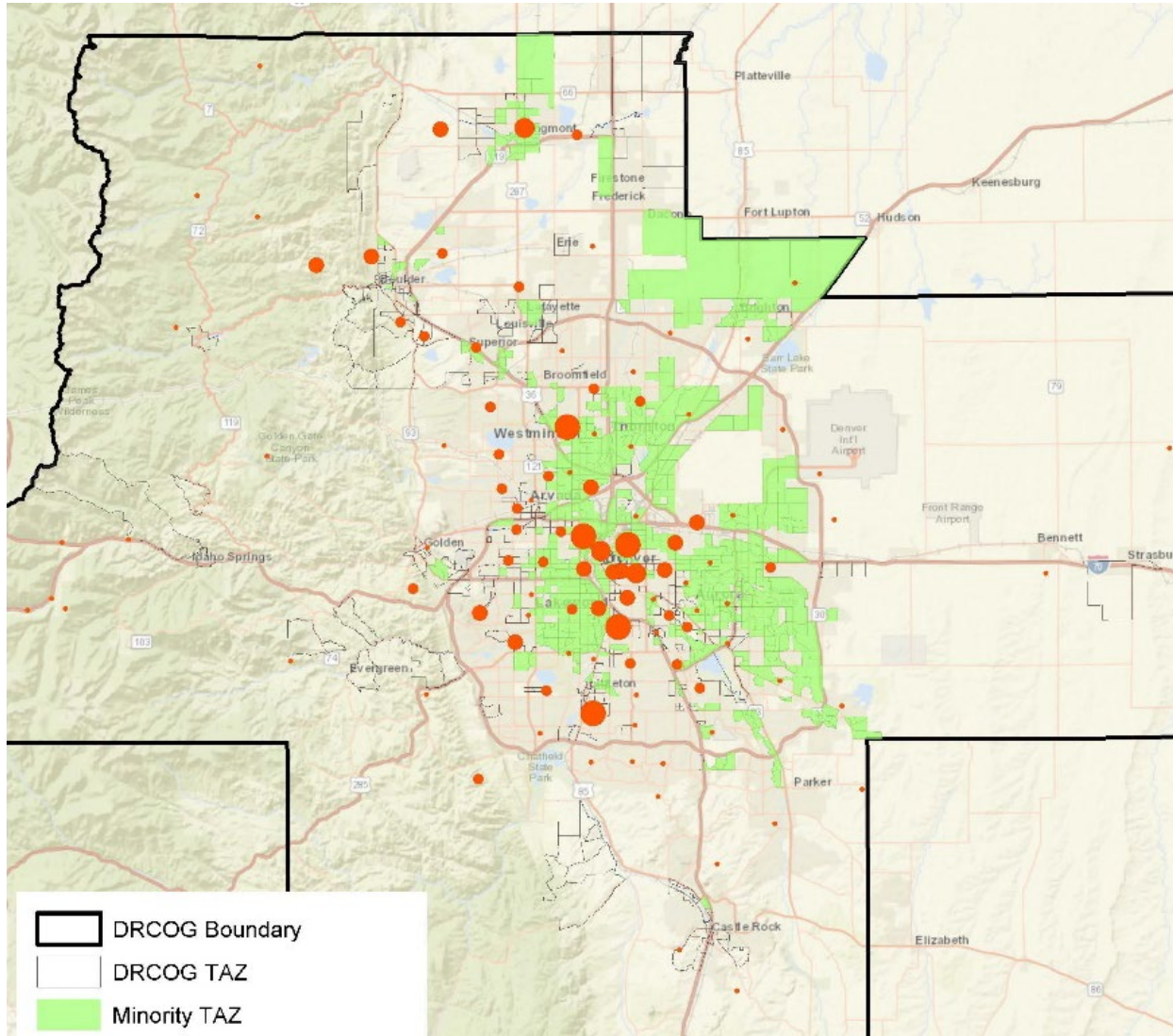
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- The majority would rather save time over saving money
- More than half can navigate the RTD system “like a pro” and “pretty well”
- 3/4 of the respondents chose “Time” as what matters most when choosing their transportation options

Map showing responders from low income areas - Per Capita less than \$15,000 in 2009 dollars (based on DRCOG Environmental Justice map)

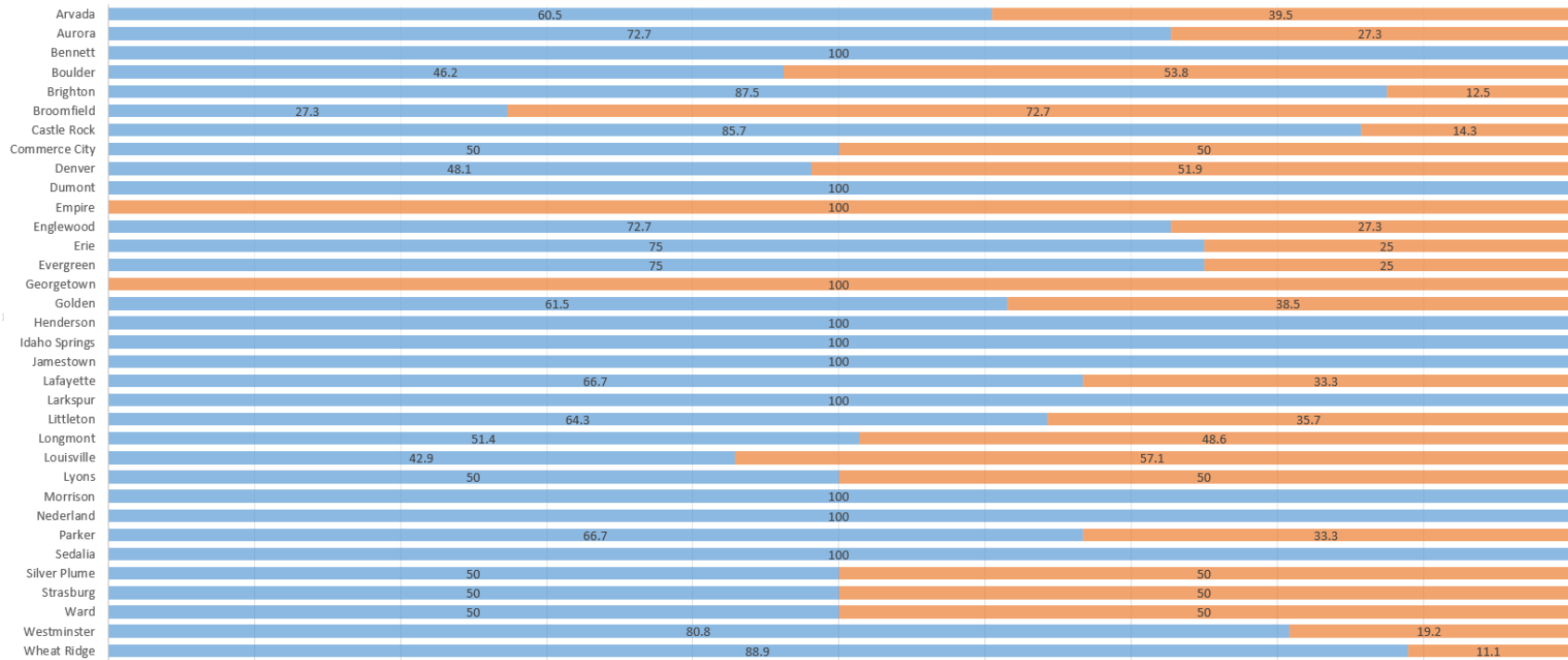


Map showing responders located in minority population areas greater than 28% (based on DRCOG Environmental Justice map)





Appendix C. Community Engagement: Ethnography and Digital Engagement









Results broken out by location—would you rather: ■ Be the driver ■ Be the passenger

## Quiz 2: Help build our Mile High Transportation Future

The second quiz titled “Help build our Mile High Transportation Future” launched on October 10, 2018. The quiz had viewers select their top three themes that are most important in their transportation. Based on the top three they selected, the second part of the quiz had them prioritize their top two actions based on the theme they selected.

What's important in your transportation?

Tap to select your **TOP 3**. Press & hold to learn more.

 <hr style="border: 0.5px solid #00a651;"/> <p style="color: #00a651; font-weight: bold; margin: 0;">SAFETY &amp; SECURITY</p> <hr style="border: 0.5px solid #00a651;"/>	 <hr style="border: 0.5px solid #00a651;"/> <p style="color: #00a651; font-weight: bold; margin: 0;">FUNDING &amp; PARTNERSHIPS</p> <hr style="border: 0.5px solid #00a651;"/>
 <hr style="border: 0.5px solid #00a651;"/> <p style="color: #00a651; font-weight: bold; margin: 0;">MOBILITY OPTIONS</p> <hr style="border: 0.5px solid #00a651;"/>	 <hr style="border: 0.5px solid #00a651;"/> <p style="color: #00a651; font-weight: bold; margin: 0;">ACCESS &amp; LIVEABILITY</p> <hr style="border: 0.5px solid #00a651;"/>
 <hr style="border: 0.5px solid #00a651;"/> <p style="color: #00a651; font-weight: bold; margin: 0;">FUTURE GROWTH</p> <hr style="border: 0.5px solid #00a651;"/>	 <hr style="border: 0.5px solid #00a651;"/> <p style="color: #00a651; font-weight: bold; margin: 0;">TRAVEL EFFICIENCY</p> <hr style="border: 0.5px solid #00a651;"/>

Below are the themes with each coinciding action and its cost/benefit that appeared when selected.

Strategy	Learn More	Weight
<b>Safety &amp; Security</b>		
Personal Safety	Enhance personal safety and security.	Cost: 100 Benefit: 150
Innovation Preparation	Prepare our region for safe use of new innovations, like connected and autonomous vehicles.	Cost: 100 Benefit: 100
Congestion Reduction	Coordinate transportation management systems to reduce congestion.	Cost: 100 Benefit: 100
Data Protection	Protect my personal information from harm.	Cost: 50 Benefit: 100
<b>Mobility Options</b>		
Responsible Technology	Promote responsible use of new transportation technology, like connected, autonomous and shared vehicles.	Cost: 50 Benefit: 100
Variety	Encourage a wide variety of transportation options for all neighborhoods in our region (including pedestrian, bike, transit, rideshare).	Cost: 100 Benefit: 150
Technology Testing	Require thorough testing before new commuter and delivery methods like drones and automated vehicles are commonly available.	Cost: 50 Benefit: 50
Traffic Efficiency	Test and use connected vehicle technologies to reduce congestion and improve traffic efficiency on highways connecting our cities to our mountains.	Cost: 100 Benefit: 100
Affordable Options	Create more low-cost accessible options for all people to travel from their homes to anywhere in their communities.	Cost: 150 Benefit: 150
<b>Funding &amp; Partnerships</b>		
Coordinated Efforts	Coordinate and align local and regional policies, programs and projects.	Cost: 50 Benefit: 100
Flexible Funding	Create funding options that are flexible to support new transportation programs and innovative new technologies.	Cost: 50 Benefit: 150
Fair Pricing	Price fairly to achieve community transportation objectives including efficiency and equity.	Cost: 100 Benefit: 100
Technology Friendly	Create a technology-friendly region that promotes economic development.	Cost: 50 Benefit: 150
<b>Access &amp; Livability</b>		
Human-Centered	Put people first. New transportation technologies should prioritize a human-centered approach.	Cost: 100 Benefit: 150
Assessible Network	Focus on an affordable, scalable and accessible public transit network.	Cost: 100 Benefit: 150
Easy to Use	Enable a smoothly coordinated and easy to use transportation system for our region.	Cost: 100 Benefit: 150
Connected Communities	Create connected, diverse and resilient communities.	Cost: 100 Benefit: 100
<b>Future Growth</b>		
Smart City	Test and create a smart city future for our region (connected infrastructure like roads, street signals, pollution detection and emergency response).	Cost: 150 Benefit: 150
Shift to Electric	Invest in shifting buses, trains and commercial vehicles from gas-powered to electric, for environmental benefits.	Cost: 100 Benefit: 100
Evolving Technologies	Ensure public infrastructure investments can accommodate new evolving technologies.	Cost: 50 Benefit: 100

Strategy	Learn More	Weight
Shared Infrastructure	Evolve our streets and sidewalks to allow for safer and more effective shared use of pedestrians, bikes and vehicles.	Cost: 150 Benefit: 150
<b>Travel Efficiency</b>		
Reward Choices	Reduce congestion by creating rewards (like restaurant promotions) for those who travel at off-peak times and share travel modes.	Cost: 50 Benefit: 50
Address Gaps	Prioritize connecting gaps in sidewalks, trails, bike lanes, roads and bus routes for more reliable travel quality in all communities.	Cost: 150 Benefit: 150
Improve Flow	Improve traffic flow in our cities and suburbs by adding more smart traffic signals.	Cost: 150 Benefit: 150
Cutting Edge	Test new transportation ideas to keep the Denver region on the cutting edge of new technology.	Cost: 100 Benefit: 100

Finally, based on their selections, they were presented with their “mobility future” which included:

- **MOBILITY BOLD:** By taking a chance on bold programs that work to break down traditional silos, build new partnerships, and prioritize impactful and innovative applications of emerging technologies, the Denver region begins to reshape its mobility systems.
- **MOBILITY FORWARD:** Moving forward with innovative program development, interagency coordination, and pilot testing and implementation, the Denver region adapts to emerging mobility technologies, maintaining community visions and improving mobility for all.
- **CURRENT PATH IS FINE:** The Denver metro area does not change its efforts or investments to prepare for emerging mobility systems and technologies. The private sector is left largely alone to implement new services and facilities, which continue to develop and be adopted at an exponential pace.

## Quiz 2 Result Highlights

Quiz 2 had more than 150 responders. Though not nearly as many responders from the first quiz, the results were helpful in supporting the Blueprint report. Based on their selection, below were the prioritized themes ranked in order of most common responses.

1. Travel efficiency (26%)
2. Access and livability (24%)
3. Mobility options (22%)
4. Safety and security (17%)
5. Future growth (8%)
6. Funding and partnerships (3%)

The majority of responders (88%) resulted with a Mobility Bold future.

## Metro Ambassadors

A group of more than 40 members of transportation advocacy groups, nonprofit organizations and social service organizations that served outreach and engagement ambassadors. They reviewed and provided

feedback on the study assessments and articles, as well as participated in several workshops and Blueprint development sessions. Members included representatives from the following entities.

- 9 to 5 Colorado
- AARP Colorado State Office
- Adams County
- Arapahoe County Local Coordinating Council
- Boulder Chamber
- Boulder County
- Boulder East TMA
- Broomfield County Local Coordinating Council
- City & County of Denver
- City of Arvada
- City of Aurora
- City of Lakewood
- City of Lone Tree
- City of Louisville
- City of Thornton
- Commuting Solutions
- Conservation Colorado
- COPIRG
- Denver Chamber of Commerce
- Denver South TMA
- Douglas County Local Coordinating Council
- Downtown Denver Partnership
- DRCOG
- DRMAC
- Inter-Neighborhood Cooperation
- Jefferson County Economic Development
- Jefferson County Local Coordinating Council
- Mile High Connects
- Smart Commute Metro North/NATA
- State of Colorado
- Tri-County Health
- Tri-County Health Department

## Educational Events and Speakers Series

In addition to HDR's community outreach efforts, educational events were coordinated through University of Colorado—Denver's School of Public Affairs. The purpose of these efforts was to plan and execute a series of events complementing and enhancing the existing influencer-level engagement being done by HDR and CRL with audiences who are not already well-connected to Mobility Choice-type work. A special focus was intended to be on target groups, such as economically disadvantaged, rural/exurban, minorities, disability community, youth/students, seniors, health care, and real estate development/brokerage. Activities included informational interviews, presentations and public engagement events at conferences or meetings, and public presentations by visiting or local Mobility Choice technical experts.

## Global Thought Leaders

The team worked in-person with local and global thought leaders throughout the project to tap into the minds of experts to further understand best practices around the world and what is to expect with emerging technologies. Below is a list of the local and global thought leaders who provided insights and input to the Mobility Choice Blueprint.

- Chris Armstrong, Panasonic Corporation of North America
- Kathleen Baireuther, Ford Smart Mobility
- Dave Britton, Uber
- Marshall Brown, Marshall Brown Projects
- Adam Cohen, Transportation Sustainability Research Center, UC Berkeley
- Nicole Dalmy, Chariot
- Matthew Daus, Windels Marx Lane & Mittendorf, LLP
- Ashley Hand, CityFi
- Joe Iacobucci, Sam Schwartz & Associates
- Lauren Isaac, EasyMile

- Richard Threlfall, KPMG
- John Tolva, CityFi
- Jon Walker, Lyft
- Dr. Johanna Zmud, Texas A&M Transportation Institute

## Workshops

A series of three workshops were held for stakeholders, the public, and Metro Ambassadors to gather feedback during various milestones of the project. Below is a screenshot of these workshops.

### Workshop #1—March 2, 2018

Attendees convened in three small groups for:

- Mobility
- Community
- Technology

The groups discussed national and regional drivers and trends regarding each factor, as well as other forces that are influencing regional trends.



### Mobility

Participants wrote responses to questions on sticky-notices and placed them under each respective question on the Transect.

### Suburban Zone and the General Urban Zone (T3 and T4)

Participants felt the largest opportunity for emerging technology to address transportation issues in these transects was in the following:

- Self-routing buses
- Taxing and pricing AVs/CVs appropriately to reduce congestion and deadheading
- Storing/staging AVs/CVs in this area
- Conducting and documenting pilot studies in this area

### Urban Center and Urban Core Zones (T5 and T6)

Participants commented on addressing curb space and roadway space issues. Ideas included:

- Curb lane management techniques
- Pricing schemes to reduce congestion, including occupancy pricing, dynamic roadway pricing, TNC fees to benefit transit, and taxing private ownership of AVs.

### Community

Participants answered different questions about the community in three focus areas.

### **Activity 1**

Participants discussed the question, in what ways will technology affect different segments of our Metro Denver population?

### **Activity 2**

Next, participants discussed the question, “In what way can new mobility offerings enhance place-making in the Denver metro area? Sticky notes were placed in each transect, as well as ideas related to all transects.

### **Activity 3**

These additional questions were discussed:

- In what way does our current mobility infrastructure create economic biases for our citizens?
- How can we create attractive yet denser urban centers with the use of mobility technology?
- What (and where?) are the greatest risks for environmental damage with the adoption of new mobility technologies?

### **Summary of Themes**

Themes that emerged from the discussions included:

- Importance of safety
- Opportunity to increase access for those currently limited, including elderly, handicapped and children
- Economic disparities
- Rural vs urban
- Impact of high convenience on health and wellness
- Urban form and materiality; environment and livability

### **Technology**

Participants provided input on the viability of various forms of technology. They identified potential hurdles and anticipated timelines for adoption of technologies. The groups considered technologies in the abstract with respect to implementation timelines, agency priorities, and possible relevant technologies.

### **Activity 1**

Participants first answered the question: What three technologies are the most viable for deployment in the Denver region?

Participants then listed the technologies according to:

- Barriers to implementation (low, medium, high)
- Timeline for adoption (short-term: <1 yr; medium-term: 2-7 yrs; long-term: 7+ yrs)

As existing technologies, Smart Signals, Curb/Travel Pricing, and Traffic Management were perceived as having lower barriers to implementation (especially Smart Signals), with shorter adoption timeframes. In other words, existing systems can be optimized with technologies that are currently available today.

Smart Signals was a common technology placed in the low barriers/short-term box. This theme was repeated in Activity 2, where agency investment interest was high. Perhaps this can be an “entry” technology for the more advanced systems on the horizon.

## **Activity 2**

After a brief description and discussion of five technologies that are currently or soon will be used around the world, participants were asked to consider three questions about the technologies from the standpoint of their respective agency:

- Most viable technology
- Most likely to receive agency investment
- Most difficult to implement

Participants were given one vote (sticky dot) for each question and asked to choose the best technology option for each question. Technologies that are enhancements to existing infrastructure or systems were perceived as most viable for investment--smart street lights and smart mobility hubs. Although smart street lights was reported as one of the most viable technologies, it received zero votes for agency investment interest.

## **Workshop #2—April 20, 2018**

Attendees included those from the initial workshop, as well as Metro Ambassadors. The purpose of the workshop was to refine the vision of the study and review the baseline scenario. Below are topics that were covered and themes that came out of the discussions.



## **Topics**

- Trends and drivers
- Vision statement and objectives
- Thought leaders
- Baseline scenario
- Community assessment
  - Ethnography synthesis
  - Public outreach comparison/summary
- Transportation agency assessment

## **Themes**

- Driverless and smart cities



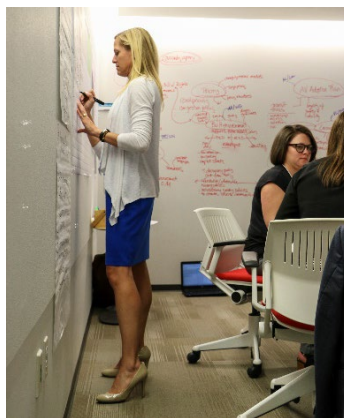
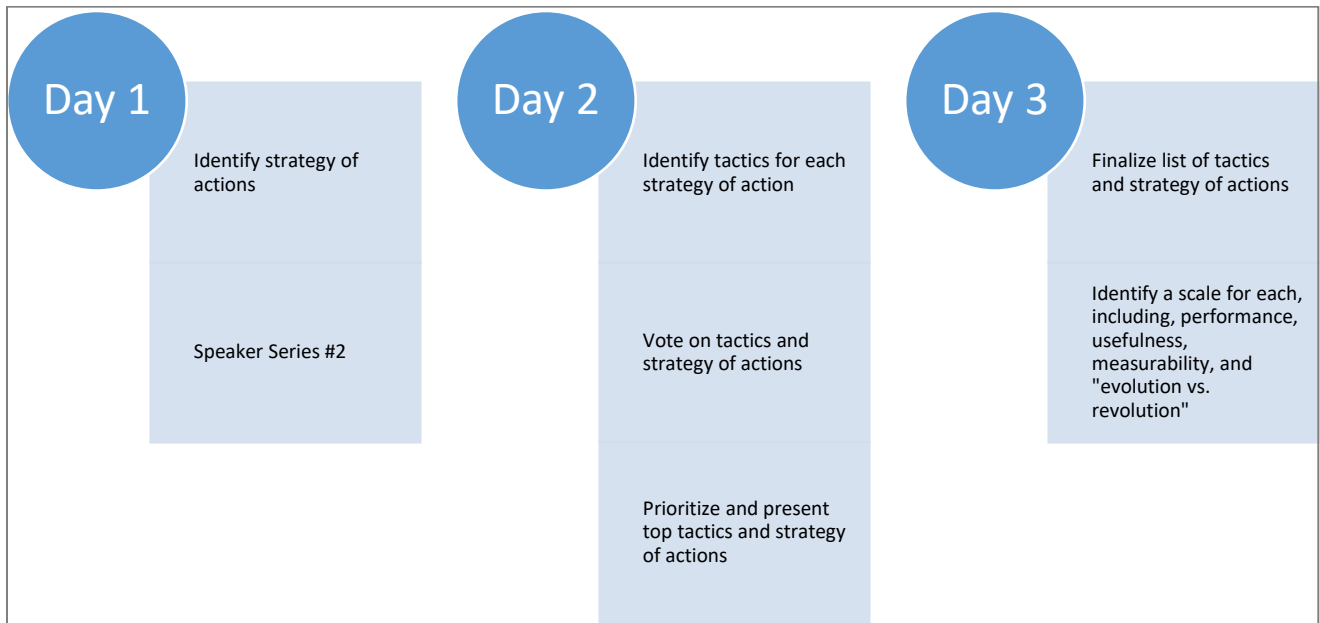
## Appendix C. Community Engagement: Ethnography and Digital Engagement

- How to utilize existing programs
- Challenges that will be faced, including economic development, infrastructure and public safety
- How public transit, ride sharing and automobile companies will work together and be integrated in the future
- Use of QUALCOMM and opportunities to collect data
- Changing behavior
- Being prepared for and influencing the future of technology
- Must be inclusive with outreach to include low-income, elderly and ADA communities

The group broke out into two small working groups to take part in collaboration and technology gap exercises.

## Workshop #3—May 22-23, 2018

The Mobility Choice Blueprint workshop three took place from May 22 to May 24 in the HDR Denver office. The purpose of the workshop was to identify strategy of actions and tactics based on the goals of the project. Attendees included six global thought leaders and local technical experts, project team (HDR and KPMG), Metro Ambassadors, project management team, and members from the community.



### Day 1

- Participant Orientation
  - Opening Remarks—Sponsoring Organizations
  - Participant Introductions
  - Program Overview & Background
  - Charrette Schedule Review
- Group Breakouts—Brainstorming of Actions (Policies, Projects, Ideas)

	Group A	Group B
Lead	Jason Longsdorf	Kaia Nesbitt
Community	Beth Zacherle	Tara Bettale
Technology	Justin Robbins	Jason McGlashan
Finance	Thierry Prate	Meagan Hazzout Vishwast Lai
Global Thought Leaders	John Tolva Matt Daus Johanna Zmud	Ashley Hand Adam Cohen
Young Professionals	Meredith Askham Andrea Kelchlin Cristina Beermann (scribe)	Whitney Grant Drew Parker (scribe)

- Report Out to Whole Group
- Speaker Series #2—Facebook Live:
  - [https://www.youtube.com/watch?v= WA7ghq2ZEM&feature=youtu.be](https://www.youtube.com/watch?v=WA7ghq2ZEM&feature=youtu.be)
  - Ashley Hand, City FI—Transportation Happiness, Mobility Bill of Rights
  - Adam Cohen, Mobility Researcher & Consultant—[Tech is Here](#)
  - Dr. Johanna Zmud, Texas A&M Transportation Institute—[Current and Projected Users of Ride-Hailing and Ride-Sharing](#)
- Group Social—Heavy Hors d'oeuvres & Drinks, Art Hotel

## Day 2

- Break into groups based on identified themes and identify 3-4 strategies of actions.
  - Safety—Jason McGlashan
  - Sustainable Mobility—Joe Iacobucci
  - Funding—Justin Robbins
  - Human Experience—Kaia Nesbitt
  - Infrastructure—John Tolva
  - Governance (including data)—Jason Longsdorf
- Finalize list of strategies of actions to be presented to the Metro Ambassadors
- Present strategies of actions to Metro Ambassadors to vote on an impact scale from 1-5 conjunction with the 5 goals.
- Tally up the votes and identify top strategies of actions
- Finalize list of strategies of actions and tactics.

## Day 3

- Charrette Task Lead Meeting & Discussion—Scenario Finalization
- Lunch—Joe Iacobucci to discuss transit and mobility technology

## What We Learned

Analysis of the data gathered during community engagement activities led to a number of key discoveries. Generally speaking, participants in the study made a clear distinction between the meaning of transportation and the meaning of mobility. Transportation meant getting from point A to point B—by various modes (eg, on foot, bike or car)—in a safe and comfortable manner. Mobility, on other hand, related to the freedom to move without restriction through the environment: “to go where you want, when you please, with ease”. Accessibility and independence were identified as important characteristics of mobility. Because this project focused on mobility, in addition to transportation, the door opened to more meaningful solutions that may not have been discovered otherwise. Additional key discoveries included:

### Key discovery 1: Importance of mobility—it’s a key enabler of quality of life

During our ethnographic interviews, we gathered information about how people define quality of life and its relationship to transportation. Almost across the board, access (or transportation depending on how you define it) fell in the middle in terms of priorities for quality of life, whereas health, safety and financial wellbeing were ranked as the top quality-of-life factors. For Denver area residents, mobility represents freedom, control and access to other quality-of-life enablers.

Mobility is tied to health in many ways to our metro area residents. This ranges from being able to get around barrier-free to having access to healthcare services when and where you need them. People face changing mobility as they age, deal with health issues, and may become disabled. Loss of ability and self-reliance are jarring and people may struggle to maintain a sense of normalcy.

Access has the immense power to open and close doors. Many residents, when deciding where to look for a home and build a community, choose their neighbourhood because of the access the location offers—access to trails, libraries, schools, restaurants, public transportation, or a job they already have. Several residents noted that being close to the light rail or express bus was one of the most important factors when selecting their new home. Similarly, access (or lack thereof) may limit or impact one’s job opportunities. We met one woman who has no car and doesn’t live near convenient public transit access. She is currently looking for work but is limited to jobs she can get to on foot or via a cheap Uber fare.

For some, mobility-induced stress can impact relationships. We spoke to one couple, for example, whose relationship began to crack under the stress they faced each day, including the traffic while commuting downtown for work. Now, they take the express bus. They each noted significant improvements in their relationship from less stress—and even their daughters noticed a difference.

### Key discovery 2: It’s about more than infrastructure

For the most part, the people we interviewed were primarily concerned with getting from points A to B (to C) and used whatever means would get them there efficiently and safely. The means and mobility methods they use to get from A to B, however, are already beginning to blend what were previously strictly private or public modes of transportation. The recent pervasiveness of scooters and bike share, also known as micro-mobility options, allow some Denver urbanites to quickly and inexpensively fill the last-mile gap and connect to a public transit system from a home or office.

People are moving between public and private modes of transportation on their own but the system hasn’t caught up yet. Transportation entities need to help support this by: bridging gaps between various services, and removing the friction in the system (eg, disparate payment mechanisms), thereby facilitating

seamless navigation of those choices; and helping residents change their transportation behaviour by providing education about available options.

The mental models of the surrounding geography and transportation system are ingrained, and breaking away from them is difficult. Understanding these models, which are influenced by schedule, cost, ability and proximity, can help pinpoint what adjacent options could be taken advantage of to expand levels of comfort and understanding.

### Key discovery 3: Missing links create gaps to connectivity

As new systems of mobility and transportation emerge, the private sector will continue to be profit-driven and focused on their individual niches, creating gaps in connectivity. The public sector, however, is positioned to play an important role in creating a transportation vision based on holistic connectivity.

Mobility should be considered as a service ecosystem, with public agencies acting as co-ordinators among the various service providers and ensuring broad social equity needs are addressed to help the overall economic vitality of a region. Mobilising accessibility-equipped vehicles through a ride-sharing service could provide transportation for people with disabilities at a lower cost than a medi-van. Ride sharing may also benefit older residents who are trying to retain mobility freedoms and increase social connectivity. Without public involvement, however, even basic pedestrian mobility issues, such as community sidewalk and trail connectivity, will not be addressed.

Public entities in cities across the US have found themselves scrambling to respond to unexpected developments in the private sector. Take, for example, the sudden introduction of electric scooters. Maintaining order and public safety are the purview of city officials, but sometimes policies and procedures lag behind private-sector implementation of new modes of transportation. In cities and regions where public and private entities collaborate, there is great opportunity to both advance mobility technology and improve socially equitable liveability.

### Key discovery 4: Safety and security are critical

The safety of new transportation technologies emerged as a significant concern among participants. Concerns about safety were reflected in many forms, including personal safety, such as putting yourself in the hands of an Uber driver, and worries about increased injury from new technologies that haven't been fully vetted (e.g., electric scooters travelling in lanes of car traffic). Data security was a concern, too, both from an individual perspective as well as from the viewpoint of public or private entities.

Safety was also ranked by participants as the second most important factor in determining quality of life. It's about you and those you love feeling safe and secure, putting your mind at ease, and enabling your focus to be on other important things, such as work and recreation. Safety is easy to take for granted, as many residents noted, but it certainly impacts day-to-day decisions about what mode of transportation to take depending on what time of day it is and where one is headed. The light rail is perceived as being safer, whereas buses and the MallRide, a free bus on 16<sup>th</sup> Street in downtown, are perceived as unsafe.