

**North Central Texas  
Council of Governments**

Mobility on Demand (MOD) Working Group  
Microsoft Teams  
September 20, 2021  
1:00 - 2:00 p.m.

Welcome and Introductions

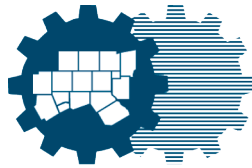
**Transportation Equity: Exploring Latent Demand Using MyAmble**

(Noelle Fields, Ph.D., LCSW, Stephen Mattingly, Ph.D. – The University of Texas at Arlington)

Q&A

NCTCOG Updates

Closing



## North Central Texas Council of Governments

### Mobility on Demand (MOD) Working Group Meeting Minutes

Microsoft Teams  
September 20, 2021  
1:00 - 2:00 p.m.

#### Participants:

- **NCTCOG:** Rachel Jenkins, Shannon Stevenson, Gypsy Gavia, Dora Kelly, Vivian Fung, Catherine Osborn, Clint Hail, David Garcia, Deborah Erwin, Donald Parker, Ezra Pratt, Hua Yang, Kate Zielke, Martin Bate, Sonya Landrum, Tim O'Leary, Travis Liska, Ying Cheng
- **AECOM:** Kristina Holcomb
- **Cambridge Systematics:** Lizzie Welch, Hannah Santiago
- **Catholic Charities:** Matt Jacobs
- **City of Arlington:** Alex Radke, Ann Foss, Bob Johnson, Melissa Heltzel, Lyn Moten
- **City of Frisco:** Kerin Smith
- **City of Grand Prairie:** Monica Law
- **City/County:** Rhonda Daugherty
- **CTS:** Katie Ragan, Kimberly Vaughan
- **DART:** Dawn Dorman, Dwight Burns, Jesus Flores, Kerri Babbitt, Maxime Paul, Nevin Grinnell, Noah Berlin
- **DCTA:** Brandy Hazel
- **eCarra:** Rock Robinson
- **FTA:** Marc Oliphant
- **Irving Holdings:** Charlie Johnston
- **MATA:** Vic Cervantes
- **North Texas Center for Mobility Technologies:** Victor Fishman
- **PTS:** Terry Roberson
- **Routematch by Uber:** Todd Allen
- **SCRPT:** Joseph Weeks
- **Spare Labs:** Kristen Lau, Kristoffer Vik Hansen
- **STAR:** Ashley Berryhill, Kim Britton, Valerie Orr
- **Texas Transportation Institute:** Todd Hansen
- **Toyota:** Colleen Casey, Kory Koran
- **Trinity Metro:** Aya Ealy, Carla Forman, Phil Dupler, Rodney Woods, Sandip Sen, Janice Pearce
- **UT Arlington:** Artesha Richardson, Mehrdad Arabi, Jennifer Canning, Noelle Fields, Stephen Mattingly
- **Via:** Nicole Crim

## Welcome

### Transportation Equity: Exploring Latent Demand Using MyAmble *(slides attached)*

(Noelle Fields, Ph.D., LCSW, Stephen Mattingly, Ph.D. – The University of Texas at Arlington)

- An inter-disciplinary team and partners in programs in other universities
- There is a difference between equality vs. equity and research is looking into how to increase transportation equity
- Need latent demand data; historically difficult to track and measure because people don't typically share trips they didn't make
- MyAmble was designed to collect latent travel demand data and looking at underserved populations
  - Includes a daily trip planner, trip review, challenge logger, travel buddy, and travel history that gathers various types of information and photos/videos submitted by the participant.
  - First pilot study was done in 2016-2018 focused on Tarrant County and found that participants were unable to complete 1 in 5 trips they planned
  - Follow-up study being conducted to test transferability of app across larger and more heterogenous populations
- From previous focus group with transportation professionals, they have tried to incorporate items into the app
- Lessons Learned:
  - Hoping that information can be useful in transportation modeling (travel-demand)
  - Looking at the types of activities and personal well-being that can impact individuals and capture the needs of individuals that we have failed to capture (those choosing not to travel).
  - Need to be careful with the participant selection to ensure they have enough interaction with transit agencies and technology to troubleshoot challenges
- Walk-through App

## Q&A

- A lot is focused on the actual journey, is UTA doing anything upfront for customers to know about transportation? Also, on the backend, looking into the decisions they make after?
  - The demographics survey is being sent out once consent form is completed. Get information on their experiences with transportation overall, included both actual and perceptions.
  - For decisions made afterwards, could ask additional questions within travel buddy but don't have that specifically programmed at this time. This could be added though.
- There is a lot of data but how is it going to be used to develop recommendations?
  - Hoping to categorize the latent demand into travel modelling in the future to help account for the needs of EJ populations more explicitly as we make plans in the MPOs

- Want to work with NCTCOG to encourage adoption within the agency and/or other MPOs
- Are there any data your all can share with us about the travel behavior, such as trip length, OD, etc.?  
  - Have not collected a new set of data yet but can share information where it can be identifiable.
  - Want to show that the data can be useful for populations have inability in accessing the transportation system.
- How do you see this data being actionable with active transit agencies?  
  - With transit agencies it could be actionable by identifying where populations exists where riders are identifying that they cannot access the transportation system.
  - The transit system can use data to adopt new service models to address those areas and/or populations
  - Long term goal is to have data that can be shared with transit agencies and MPOs to help with their services

### **NCTCOG Updates**

- Strategic Partnership Program is accepting proposals, information at <https://www.nctcog.org/strategicpartnerships-transit>
- Access North Texas has completed public outreach period and is moving into data analysis phase. For information on plan or to view past presentations visit <https://www.accessnorthtexas.org>
- Staff are wrapping up Southern Dallas County and Tarrant County studies and posting items online.
- Upcoming studies include Denton County Study and Intermodal Transportation Hubs for Colleges and Universities Study. To participate email [ep Pratt@nctcog.org](mailto:ep Pratt@nctcog.org)
- For information on past and upcoming Transit Studies visit, <https://www.nctcog.org/transitstudies>

### **Next Quarterly Meeting**

- Next Meeting will be in January or February 2022
- Using virtual format until further notice
- Anyone to add to our contact list? Information can be sent to Rachel at [rjenkins@nctcog.org](mailto:rjenkins@nctcog.org) or Gypsy at [ggavia@nctcog.org](mailto:ggavia@nctcog.org)

### **Closing**



Meeting will begin shortly.

Please mute your microphones and identify your name and organization in the chat box.

Chat Box Button



# WELCOME



Please place  
microphones on mute  
to prevent background  
noise



During presentations  
or while someone is  
speaking, questions  
can be made through  
the chat box



If you wish to add to the  
discussion, use the “raise  
your hand” feature or  
comment in the chat box.  
We will call on you to  
prevent multiple speakers  
at once



NCTCOG PRESENTATION

# MOBILITY ON DEMAND WORKING GROUP

SEPTEMBER 20, 2021

EASY  
MILE





# AGENDA

Transportation Equity: Exploring Latent Demand Using MyAmble

Q & A

NCTCOG Updates

Closing



# NCTCOG UPDATES

Strategic Partnerships

Access North Texas

Complete Transit Studies

Upcoming Transit Studies



# TRANSIT STRATEGIC PARTNERSHIPS

Focus on **need and feasibility**

Accept proposals on **rolling basis**

**Encourage partnerships** between non-service providers and existing transit providers

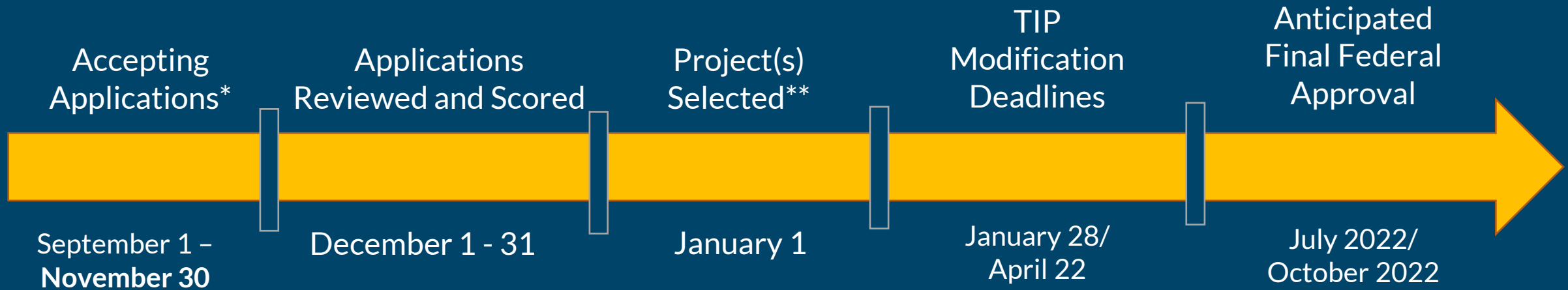
Not intended to make up for operating shortfalls

Prioritizes **Access North Texas, transit studies, accessibility, and environmental justice**



# INITIAL APPLICATION CYCLE

Launch of September 1, 2021



*\*Typically, a 6-month rolling application period. First cycle is expedited.*

*\*\* Projects may get shifted to next cycle if more development is needed*

*\*\*\* Selected projects may be submitted to either of the two TIP deadlines within the cycle.*



# TRANSIT STRATEGIC PARTNERSHIPS

**Rachel Jenkins**

Transportation Planner

Ph: (817) 608-2329

rjenkins@nctcog.org

<https://www.nctcog.org/strategicpartnerships-transit>





# ACCESS NORTH TEXAS



# ACCESS NORTH TEXAS

- Drafted strategies will be shared with stakeholders for comments.
- Another opportunity to provide feedback before the plan is approved will be through NCTCOG's official public comment period.
- Thank you for your input and participation in this process!

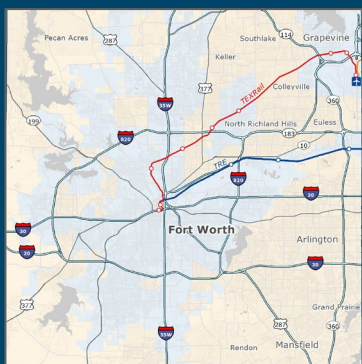


emtv.com.pg

# COMPLETED TRANSIT STUDIES

## Purpose

Develop a comprehensive approach to planning and implementing transit services outside of transit authority service areas



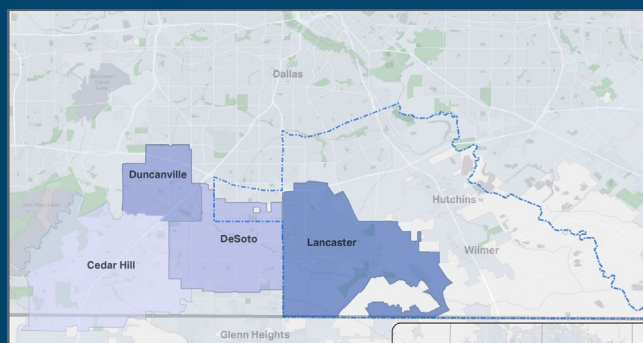
Tarrant County

## Outcomes

**Recommended Service Scenarios** based on *technical analyses* and input received

**Funding Strategies** for funding service scenarios

**Implementation Plan** that provides a roadmap to municipalities and partners for service implementation

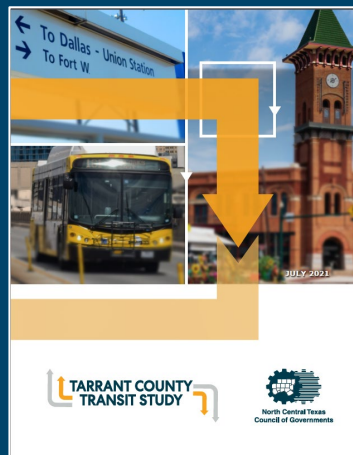


Southern Dallas County

# COMPLETED TRANSIT STUDIES

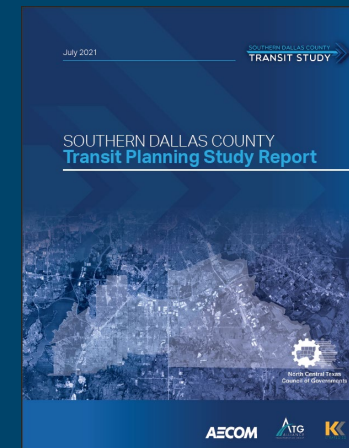
## Tarrant County Transit Study

**Three countywide scenarios** recommended with a mix of local and regional service expansion



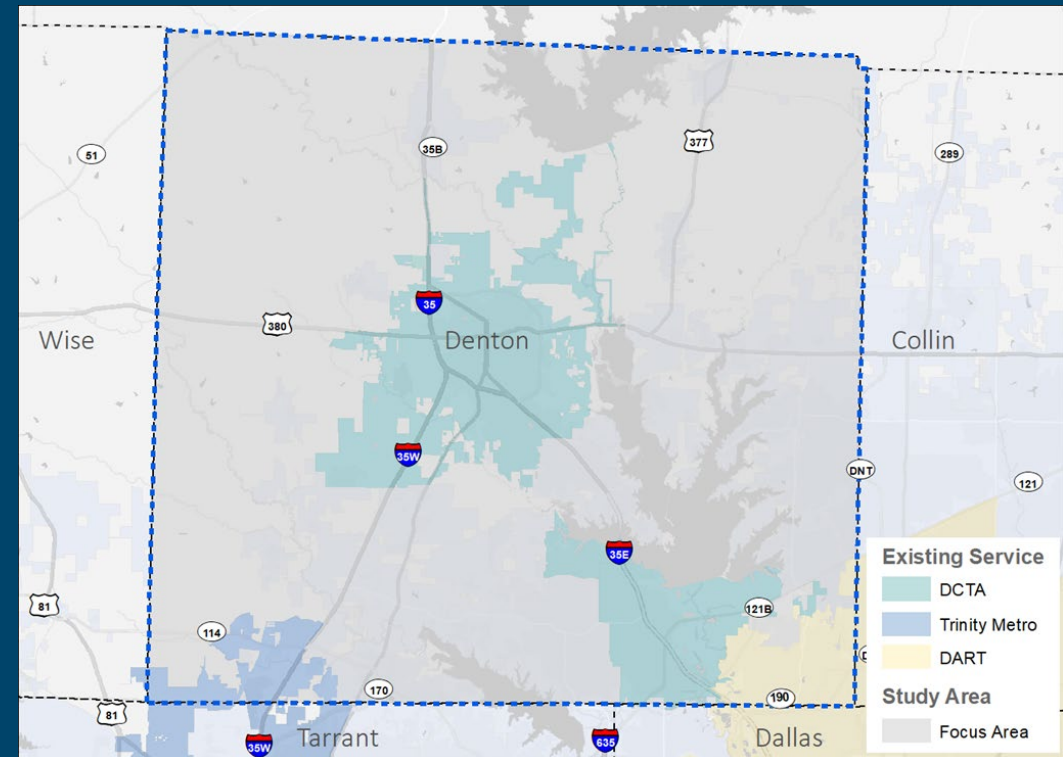
## Southern Dallas County Transit Study

A **Recommended Alternative** for four cities, while considering impacts resulting from strong growth within the Inland Port



# DENTON COUNTY TRANSIT STUDY

- RTC approved funding in 2018 to develop a comprehensive approach in planning and implementing transit services, particularly for areas outside transit agency member cities
- Received follow up request for this study from Denton County in 2019
- Funding is in place
- Currently accepting proposals submitted by consultant teams
- Expect to launch the 1-year study by early 2022
- Study Website: [North Central Texas Council of Governments - Denton County Transit Study \(nctcog.org\)](http://nctcog.org)



# INTERMODAL TRANSPORTATION HUBS FOR COLLEGES AND UNIVERSITIES STUDY

- NCTCOG received initial request from DCTA for a UNT mobility hub. Expanded scope to include colleges and universities throughout the region
- This study will assess potential for mobility hubs on campuses and offer a catalog of solutions, guidance, and options for planning and implementation
- Surface Transportation Block Grant Funding is in place
- Currently reviewing proposals submitted by consultant teams
- Expect to launch the study by early 2022
- Study Website: [North Central Texas Council of Governments - Intermodal Transportation Hubs for Colleges and Universities Study \(nctcog.org\)](https://nctcog.org)



Image Provided by CoMoUK



# NEXT QUARTERLY MEETING

- January or February 2022
- Virtual meetings until further notice
- Please contact us to suggest future meeting topics or add a colleague to the invite list



# CONTACT US

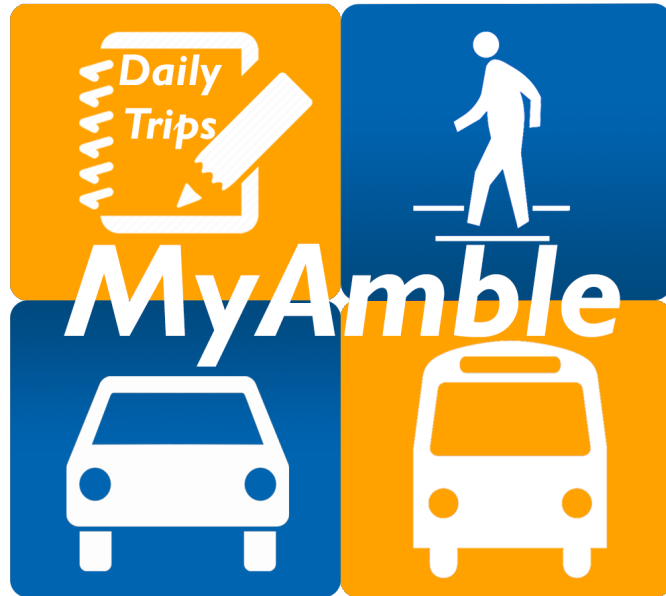


Rachel Jenkins, AICP Candidate  
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Gypsy Gavia  
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*Transportation Equity:  
Exploring Latent Demand  
Using MyAmble*

Noelle Fields, PhD, LCSW

Stephen Mattingly, PhD

A Presentation for the North Central Texas Council of Governments  
Mobility Workgroup

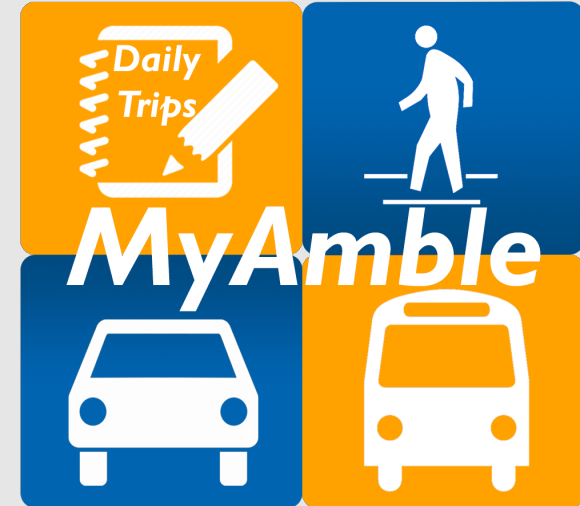
September 20, 2021



UNIVERSITY OF  
**TEXAS**  
ARLINGTON

# Agenda

- Introduction
- Scoping review
- *MyAmble* overview
- *MyAmble* pilot study
- Current study using *MyAmble*
- *MyAmble* demonstration (time permitting)



# Interdisciplinary Research Team

Dr. Courtney Cronley,  
Co-PI



Dr. Noelle Fields,  
Principal Investigator



Engineering



Dr. Stephen Mattingly  
Co-PI

Social  
Work

Graduate  
Research  
Students

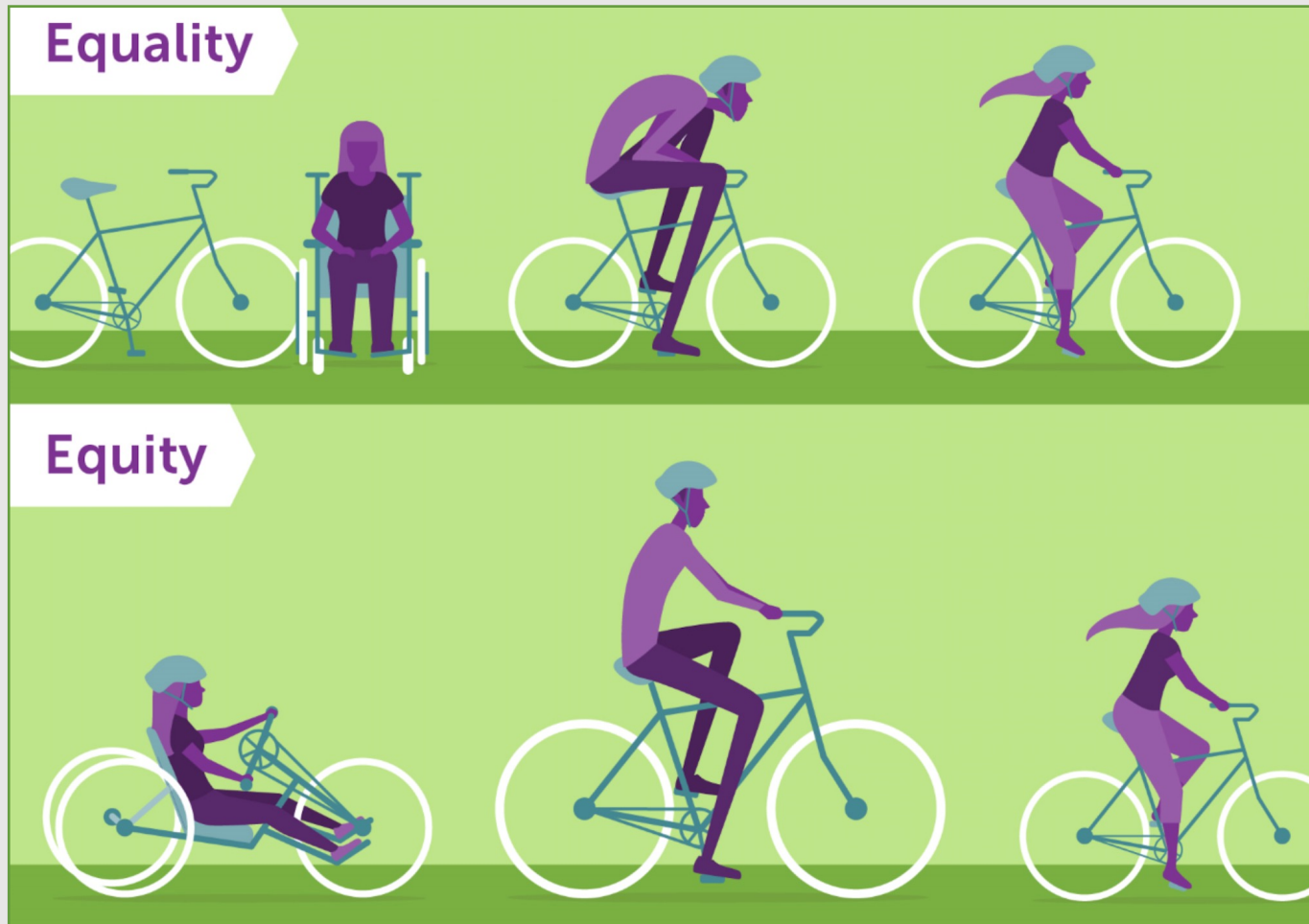
Urban  
Planning

Dr. Nicole Iroz-Elardo,  
Co-PI

Computer  
Science



# Transportation Equity Framework



- 1) Equal accessibility to destinations
- 2) Recognition of underserved populations
- 3) Increased access to opportunities


*(Pereria et al., 2017)*

# Current Transportation Conundrum

People who own a vehicle enjoy on-demand, door-to-door mobility



Those without a personal vehicle rely on fixed route transit or ADA paratransit. Currently, that does not provide equal access to destinations and opportunities, and disproportionately impacts BIPOC individuals and those who are lower-income



**How do we increase transportation equity *without* increasing vehicles on the road?**

# SCOPING REVIEW METHODS

What are the available apps?  
For what purpose are they used?  
Where are they used?  
With what populations are they used?  
What data do they collect?

## Databases

- Communication and Mass Media
- Psychology and Behavioral Health
- Sage Journal
- Scopus
- Social Service Abstracts
- Social Work Abstracts
- Taylor & Francis
- Engineering Village
- IEEE Xplore
- Science Direct
- SciTech Premium
- TRID

## Search Terms

- Smartphone\*; smart phone\*; mobile phone\*; mobile device\*; mobile app\*; cell phone; smart technology; mobile computing; intelligent systems; global positioning system; internet; telephon\*
- Data collect\*
- Mass transit; transport\*; transit; public transport\*; travel; automobile\*; driver\*; urban transportation; motor transportation

## Criteria

- **Date range:** 2010-2020
- **Language:** English
- **Population:** Daily travelers
- **Concept:** State-of-the-art smartphone data collection apps currently available
- **Context:** Transportation research

## Process

- MSW & PhD students title / abstract screened independently.
- A PhD student resolved conflicts.
- MSW & PhD students conducted full review.
- PhD students resolved the conflicts through consensus.
- Faculty resolved irreconcilable differences.
- MSW & PhD students charted the data using a specially designed Excel spreadsheet archived on OneDrive.
- Faculty reviewed all findings

# Results

## Available Apps

- Articles (n=25)
- Unique apps (n=18)
- Apps in multiple articles (n=6)
- Unnamed apps (n=3)

## Purpose / Places

- Personal transportation patterns (n=14)
- Engagement with public transit (n=6)
- International
  - Europe (n=9)
  - N. America (n=7)
  - Asia (n=2)
  - S. America (n=2)
  - Oceania (n=1)

## Populations

- **General (n=9)**
- **Specific, not EJ (n=7)**
  - University communities
  - Professionals
  - Transit users
- **EJ (n=1)**
  - Lower income older adults
  - Single parents experiencing homelessness

## Collected Data

- Mode of Transportation (n=17)
- Travel Diary/Plans (n=16)
- Barriers/Difficulty (n=13)
- Trip Purpose (n=10)
- Social Component (n=4)
- Latent travel demand (n=1)



# We Need Latent Demand Data

What would individual mobility look like if all individuals had equitable access to equitable transportation?

Where would people go?

When?

How frequently?

Using what mode?





# *MyAmble*: Designed to Collect Latent Travel Demand Data

Software compatible with mobile and cross-platform technologies

- Currently works on Android operating systems
- Easily downloaded to smartphones with Internet access
- Active quantitative and qualitative data collection

Captures diverse transportation behaviors, underserved populations

- Older Adults
- Lower-Income Families
- Latinx Populations

Unique ability to capture uncompleted and desired, but not taken, (latent) trips

- Explores the importance of the trip to the participant
- Explores mood changes based on travel complete and incomplete travel
- Explores social dynamic of travel

Features/Data	Paper/Website Travel Diary	Smartphone Travel Diary App	<i>MyAmble</i>
<b>Observed Trips</b>			
*Mode	X	X	X
*Purpose	X	X	X
*Departure time	X	X	X
*Origin/destination	X	X	X
*Trip importance		X	X
*Trip success		X	X
*Trip challenges			X
*Impact on mood		X	X
*Interact w/ friends/family		X	X
<b>Unserved/failed Trips</b>			
*Purpose			X
*Trip importance			X
*Impact on mood			X
*Reason for no trip			X
*Consequences			X
GPS identifies trips		X	
GPS verification of destination		X	X
Social exclusion and transportation			X
Travel history			X
Visual record of challenges		X	X



# *MyAmble* Navigation

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Daily Trip Planner

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Trip Review

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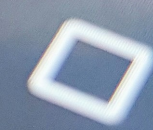
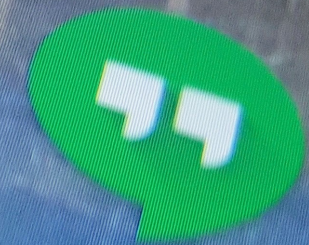
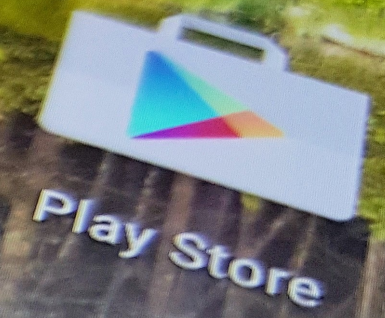
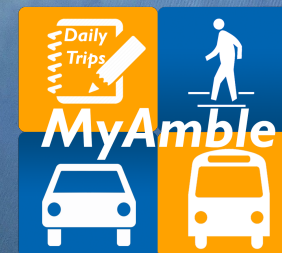
Challenge Logger

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Travel Buddy

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Travel History







MyAmble V.2.1 | testadmin261

- Daily Trip Planner**  
Plan your daily trips
- Trip Review**  
Review your planned Trips
- Challenge Logger**  
Take pictures, video or write us about your travel challenges
- Travel Buddy**  
Text message with with users
- Travel Story**  
When you have time, tell us more about your transportation history

















Choose Activity

Expected departure time:

 Select a date by clicking calender icon

 Tap Icon to select time

Please choose from the following options.

 Grocery Shopping <input type="checkbox"/>	 Bank <input type="checkbox"/>
 Work <input type="checkbox"/>	 Religious Service <input type="checkbox"/>
 Pharmacy <input type="checkbox"/>	 Doctor Appointment <input type="checkbox"/>
 Hospital <input type="checkbox"/>	 Court <input type="checkbox"/>
 Hotel <input type="checkbox"/>	 School <input type="checkbox"/>
 Eat out at restaurant <input type="checkbox"/>	 Mall <input type="checkbox"/>
 Post Office <input type="checkbox"/>	 Library <input type="checkbox"/>
 Entertainment <input type="checkbox"/>	 Friends and Family <input type="checkbox"/>

**SUBMIT**

Planned activity: Friends and Family # 1

How important is this trip for you?

- Not important
- Less important
- Neutral
- Important
- Very Important

How will you get to your destination? (Please identify your primary source of transportation to get to your destination)

<input type="checkbox"/> ParaTransit	<input type="checkbox"/> Train
<input type="checkbox"/> Taxi	<input type="checkbox"/> Lyft/Uber
<input type="checkbox"/> Bus	<input type="checkbox"/> Walking
<input type="checkbox"/> Biking	<input type="checkbox"/> Volunteer Driver
<input type="checkbox"/> Driving Myself	<input type="checkbox"/> Someone else driving me (car)
<input type="checkbox"/> Circulator	<input type="checkbox"/> Scooter
<input type="checkbox"/> Other :	

To what extent did completing this trip improve your mood?

- Not at all
- A Little
- Somewhat
- Mostly
- Entirely

How important is this trip for you?

- Not important
- Less important
- Neutral
- Important
- Very Important

Did you face any problem when completing this trip?

- Yes  No

If yes, what problems did you face?

Enter text here

How did you get to the source of transportation selected above?

- No help  Wheelchair
- Walking with an assistance device  Walking unassisted
- Other

Did you take this trip with someone else?

- Yes  No

If yes, who went with you?

- Friend  Co-worker
- Volunteer  Family Member
- Neighbor
- Other

Did you need any assistance from another person (e.g taxi driver, family member) to use the mode of transportation? (e.g transferring from wheelchair into the seat of a car)?

- Yes  No

Did this trip enable you to spend time with family or friends?

- Yes  No

How important is this trip for you?

- Not important
- Less important
- Neutral
- Important
- Very Important

Why was this trip important to you?

Enter text here

Why were you not able to complete this trip?

Enter text here

What are the consequences for not completing this trip?

Enter text here

To what extent did missing this trip make you feel the following?

- Frustrated**
- Not at all

3:46

← Review Journal

To what extent did you complete the trips you planned for today?

Not at all  
 A little  
 Somewhat  
 A lot  
 Very much

Overall, what were the benefits of completing today's trip?

Enter text here

---

After making your daily plan, did you think of a trip that you wanted to complete but did not, for example visiting a family member

Yes                       No

If yes, what was the trip? (For example: visiting a family member)

Enter text here

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In general, would you say your health is


Excellent

51


Challenge Logger

Enter text here

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|||    ○    <

3:24

← Main Question: hi Anna, checking on new app ... +

adminb@my

Main Question: hi Anna, checking on new app version

user2@my

hi! thanks for checking in

adminb@my

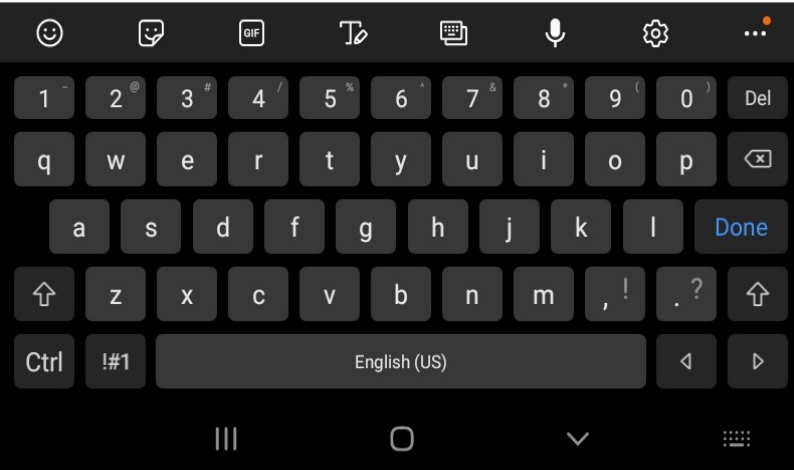
tb seems to be working between adminb and user2!

user2@my

everything is awesome

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Type your message here...



|||    ○    v    ≡

CHILDHOOD

STOPPED DRIVING

GENERAL

BIKING

FIRST CAR

PUBLIC TRANSIT

WALKING

Did you grow up going on road trips with your family?

Enter text here

Save

Did both of your parents drive?

Enter text here

Save

How many cars did your family own growing up?

Enter text here

Save

Did you have any challenges or problems with cars growing up?

Enter text here

Save

What are some of your early memories riding in a car with your family?

Enter text here

Save

Do you have a favorite car?

Enter text here

Save

Which mode of transportation is your most preferable?

Enter text here

Save

What does transportation mean to you?(lifelong perspective)

Enter text here

Save

Do you rely on carpooling?

Enter text here

Save

# Pilot Study (2016-2018)

- Setting: Tarrant County, Texas
- Community partner: Meals on Wheels
- Sample: Ten adults (70% female, 50% African American, mean age = 69.56, SD = 3.75) logged trips completed and trips missed, including destinations and impact on perceived well-being in *MyAmble*, for 14 days
- Samsung tablets and Wi-Fi hotspots were loaned to participants
- Gift cards used as participant incentives





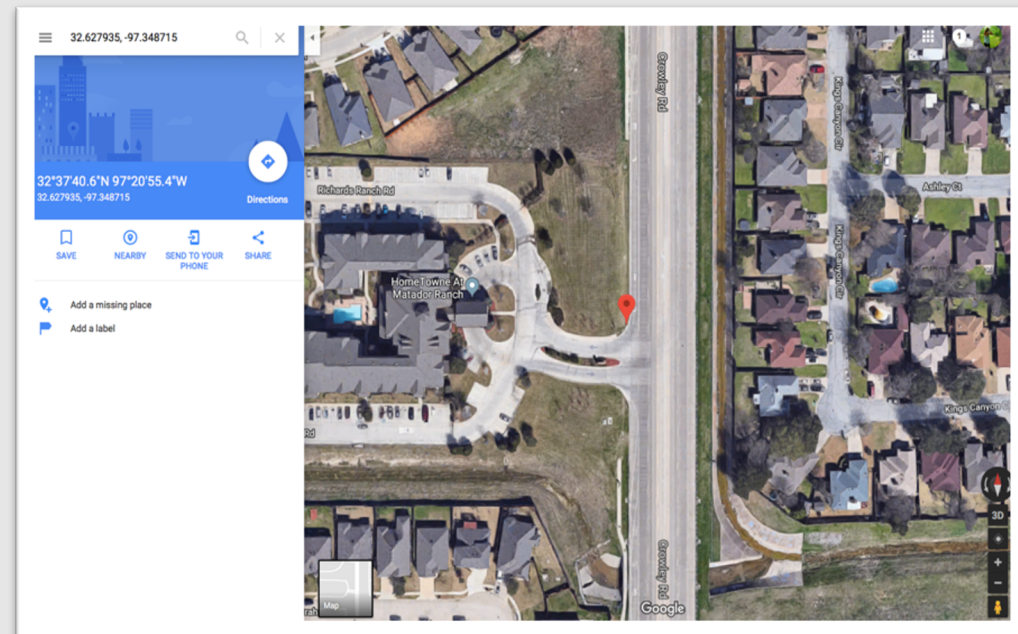
# Trip Planner/Trip Review Results

- Participants logged a total of 95 daily trip plans throughout the two-week study period.
- More than half were planned (n = 54, 56.8%), and most were reported as very important to participants (n = 59, 71.1%).
- Trip destinations most often included the grocery store (n = 28, 29.5%), medical appointments (n = 11, 11.6%), social visits (n = 10, 10.5%), and the bank (n = 12, 12.6%).
- Participants were unable to complete nearly 16% of the trips that they planned during the two-week study period, or nearly one in five trips.
- Nearly half of grocery store trips were unplanned, and a fourth of planned grocery store trips were missed.
- The pattern was similar for doctor appointment destinations.



# Challenge Logger Example

- Participant 6 utilized this feature multiple times throughout the study, noting challenges he faced ambulating in the community with his motorized-wheelchair. In a few instances, he noted a sidewalk problem, located at the following GPS coordinates (32.627935, -97.348715). The image above identifies sidewalk construction that is especially challenging for him, as he had to travel on the street while this sidewalk construction was taking place.



# Travel Buddy Example

“How does transportation access affect your overall quality of life?”

*I rely on bus, MITS and other transportation for grocery, personal care, outings, visiting friends, and just seeing the city of Fort Worth. If my mode of transportation is ...not available, then it would be hard for me to accomplish any of the aforementioned reasons that I used the local transportation. I'll go I can find a bus route to go to certain places the drop-off location is quite a distance from where the bus stop is. Like today being that my regular driver was not available I would have had to take the bus. The bus stop for my doctor was 15 minutes away from his office. That would require me to drive my power chair 15 minutes both ways. This would have been an inconvenience for me so therefore I had to cancel the doctor's appointment. I hope this explains how things run when you're disabled and need transportation.*



# Travel Story Example

**If you stopped driving, when did this happen?**

- *I stopped driving about seven years ago when I was diagnosed with degenerative bone disease*
- *This happened about 15 years ago. I didn't have a car, but still had my driver's license*
- *When I could no longer afford to maintain a car. I would still be driving if I had a car.*



# Follow Up Studies

- *MyAmble* was implemented in a second pilot study, “Safe Routes to Age in Place in Franklin County,” funded by the Ohio Department of Transportation (2019-2020)
- **Current study, “App-based Data Collection to Characterize Latent Transportation Demand and Impacts on Health and Quality of Life within Environmental Justice Populations” (funded by North Central Texas Council of Governments and the National Institute for Transportation and Communities (2020 – present)**

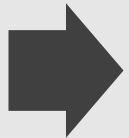


# Current Study

- The current study will test the transferability of the app across larger and more heterogeneous populations and cross-platform compatibility from tablets to smartphones.
- Setting: Three diverse regions of the United States (Dallas, Knoxville, Tuscon)
- Research questions:
  - 1) What is the transferability of MyAmble to broader populations of marginalized and underserved communities across 3 states (N = 90);
  - 2) What is the efficacy of MyAmble in a smartphone mode of delivery?;
  - 3) What are the key components necessary for general adoption and use of MyAmble?;
  - 4) What is the quality and usability of the data in terms of showing how types of trips (completed, missed, and latent) associate with physical health, mental health, psycho-social well-being, and economic opportunities for underserved and marginalized populations?



Preliminary Focus Groups with transportation engineering, planning, and social services experts



Preliminary Focus Groups with end users



Refined app per the recommendations of professionals and end users



Recruit participants from community partners



Train on how to download and navigate the app and receive \$10 for logging their first trip



Use the app for 14 days with Graduate Research Assistants checking in to increase engagement



Participants receive compensation and are invited to an optional exit Focus Group

# Study Timeline

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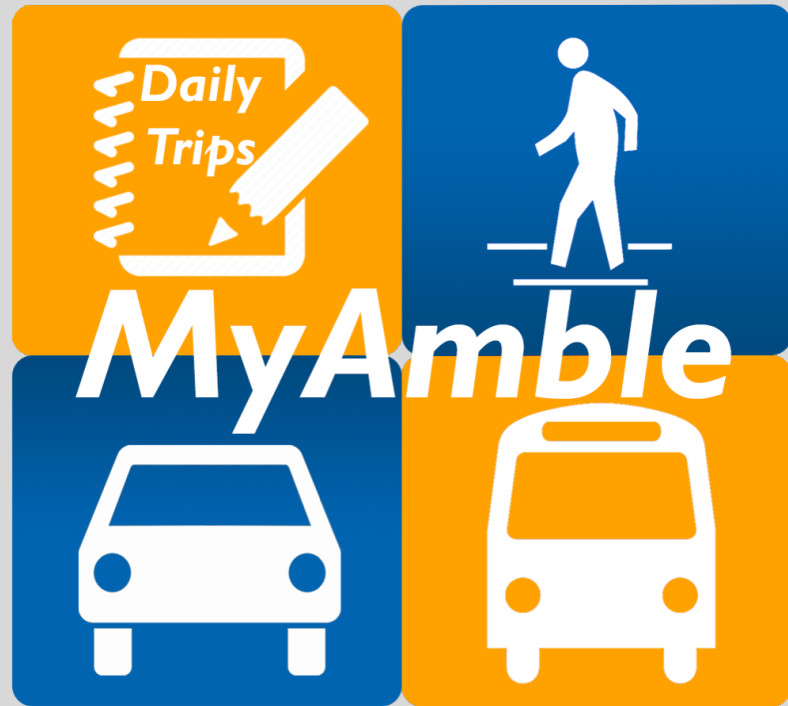
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# Thank you!

Please visit our website for more information about *MyAmble*!

<https://transportequity.utk.edu>

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