

NATIONAL  
ACADEMIES

Sciences  
Engineering  
Medicine

**TRB** TRANSPORTATION RESEARCH BOARD

# TRB Webinar: Advancing Equity in Travel Experiences—The Role of Gender and Identity

*November 29, 2023*

*12:00PM – 1:30PM*



NOVEMBER 2022 UPDATE

# PDH Certification Information

1.5 Professional Development Hours (PDH) – see follow-up email

You must attend the entire webinar.

Questions? Contact Andie Pitchford at [TRBwebinar@nas.edu](mailto:TRBwebinar@nas.edu)

*The Transportation Research Board has met the standards and requirements of the Registered Continuing Education Program. Credit earned on completion of this program will be reported to RCEP at RCEP.net. A certificate of completion will be issued to each participant. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the RCEP.*

**ENGINEERING**



REGISTERED CONTINUING EDUCATION PROGRAM

# AICP Credit Information

1.5 American Institute of Certified Planners Certification Maintenance Credits

You must attend the entire webinar

Log into the American Planning Association website to claim your credits

Contact AICP, not TRB, with questions

# Purpose Statement

This webinar will present a study funded by the Minnesota Department of Transportation (MnDOT) that collected travel behavior data and integrated it with existing data to identify patterns based on gender identity. The findings of these efforts can identify potential disparities in transportation costs and benefits across communities in urban, suburban, and rural areas.

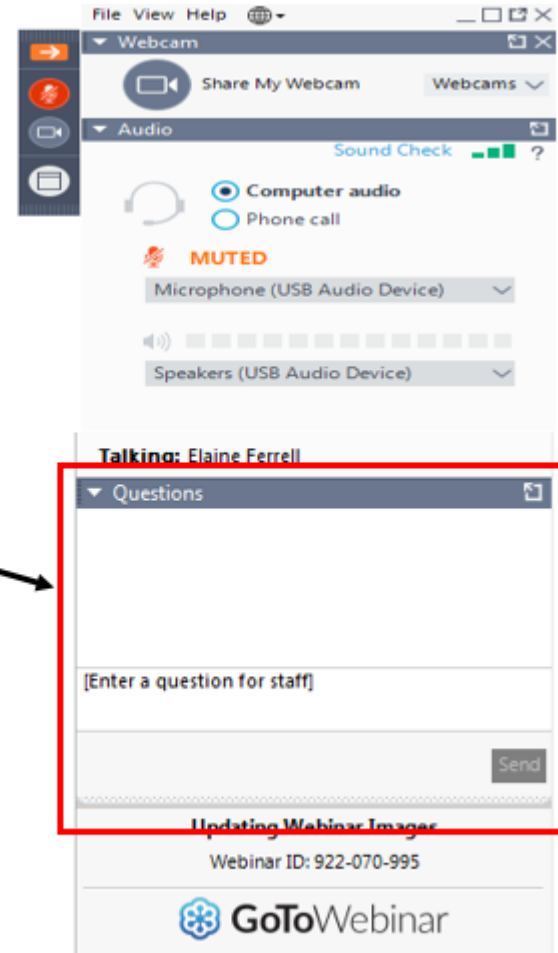
# Learning Objectives

At the end of this webinar, you will be able to:

- (1) Understand and use gender-related terms
- (2) Recognize how gender can influence activity-travel behaviors
- (3) Relate gender to subjective well-being outcomes

# Questions and Answers

- Please type your questions into your webinar control panel
- We will read your questions out loud, and answer as many as time allows



# Today's presenters



Hally Turner

[Hally.Turner@state.mn.us](mailto:Hally.Turner@state.mn.us)



Ying Song

[yingsong@umn.edu](mailto:yingsong@umn.edu)



Erika Shepard

[Erika.Shepard@state.mn.us](mailto:Erika.Shepard@state.mn.us)



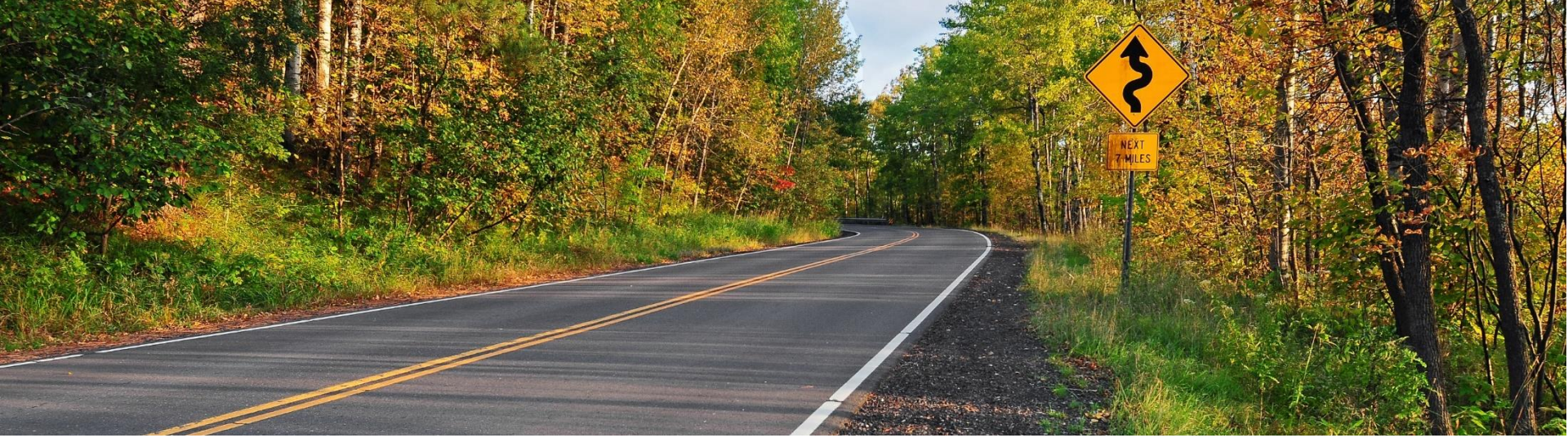
UNIVERSITY OF MINNESOTA

Driven to Discover<sup>SM</sup>

NATIONAL  
ACADEMIES

Sciences  
Engineering  
Medicine





## Gender and Transportation

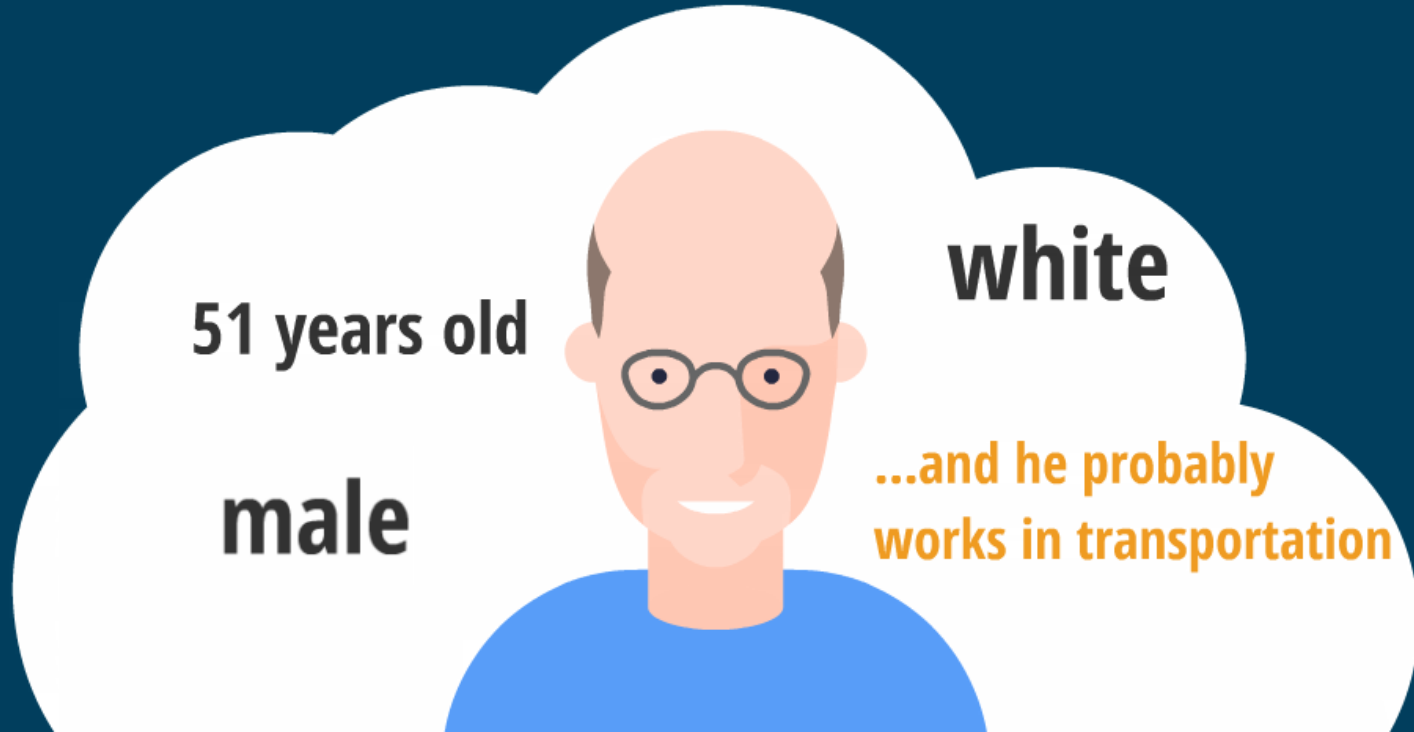


Transportation is NOT gender neutral



# Meet Mike

**Mike is our typical participant.**



# Research says women are more likely to ...

- Make more trips and travel fewer miles
- Make trips to serve others
- Reduce and give up driving earlier than men
- Suffer greater injury in crashes
- Have travel inhibited and challenged by lack of neighborhood accessibility
- Need critical planning and policy solutions to overcome long-term differences in the travel patterns and behavior

# CHANGING LANES

a gender equity  
transportation  
study

**FINAL  
REPORT**



LADOT found that women have more complex travel patterns and greater concerns about personal safety, leading to an increased reliance on cars

## Why consider gender in transportation

- Transportation has a significant impact on health and wellbeing





# Why consider gender in transportation

- Transportation has a significant impact on health and wellbeing
- We need to understand structural barriers and challenges to overcome inequitable outcomes



# Why consider gender in transportation

- Transportation has a significant impact on health and wellbeing
- We need to understand structural barriers and challenges to overcome inequitable outcomes
- Changing infrastructure and technology have the potential to deliver a new paradigm



# Where are we now?



At present, it is fair to argue that there are no systematic gender inclusion procedures for transport, neither in terms of training of professionals, participation of users nor the design and planning of systems, services and equipment. As a result, it is easy to overlook gender: no protocols are in place and no sanctions are applied to those who fail to consider the transport needs of over half of the world's population.

- United Nations Economic Commission for Europe

# Gender and Travel Study Project Objectives



## Improve social inclusion by including underrepresented genders

- Advancing Transportation Equity Initiative
- Rethinking I-94



The screenshot shows the Minnesota Department of Transportation website. At the top is the MnDOT logo and name. Below that is a green horizontal bar. The main heading is "Planning & Programming" with the subtitle "Advancing Transportation Equity Initiative". A navigation menu includes "Home", "Community Conversations", "Research Roadmap", and "Contacts". The main content area features the heading "Advancing Transportation Equity Initiative" and a paragraph of text: "MnDOT is undertaking the Advancing Transportation Equity initiative to better understand how the transportation system, services and decisions-making processes help or hinder the lives of people in underserved and underrepresented communities in Minnesota. Specifically, MnDOT wants to identify key actions that transportation agencies can take to make meaningful change. The underserved and

# Project Objectives

## Reduce road user costs

- Gender identity affects individuals' behaviors, interactions and economic & health outcomes
- Transportation needs may be misunderstood by sex assigned at birth rather than gender identity

**Minnesota Human Rights Act (MHRA)**

Minnesota Legislature Search

Menu

Office of the Revisor of Statutes

Statutes Laws Rules Court Rules Constitution Revisor's Office Search Law by Keyword

2022 Minnesota Statutes > HUMAN RIGHTS > Chapter 363A > Section 363A.08

363A.07 363A.09

2022 Minnesota Statutes Authenticate PDF

**363A.08 UNFAIR DISCRIMINATORY PRACTICES RELATING TO EMPLOYMENT OR UNFAIR EMPLOYMENT PRACTICE.**

Subdivision 1. **Labor organization.** Except when based on a bona fide occupational qualification, it is an unfair employment practice for a labor organization, because of race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, familial status, disability, sexual orientation, or age:

- (1) to deny full and equal membership rights to a person seeking membership or to a member;
- (2) to expel a member from membership;
- (3) to discriminate against a person seeking membership or a member with respect to hiring, apprenticeship, tenure, compensation, terms, upgrading, conditions, facilities, or privileges of employment; or
- (4) to fail to classify properly, or refer for employment or otherwise to discriminate against a person or member.

# Project Objectives

## Safety

Understand the “full picture” of safety, including experienced emotions during travel (such as stressful and tired) to assess perceived or potential safety issues across genders



### VISION

Minnesota’s multimodal transportation system maximizes the health of people, the environment and our economy.



### MISSION

Plan, build, operate and maintain a safe, accessible, efficient and reliable multimodal transportation system that connects people to destinations and markets throughout the state, regionally and around the world.



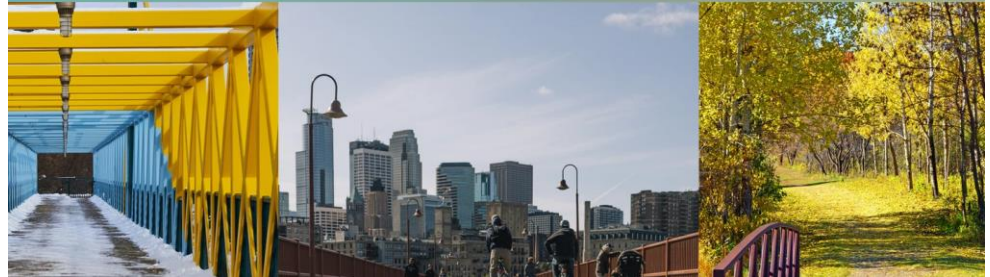
### CORE VALUES

- Safety
- Excellence
- Service
- Integrity
- Accountability
- Diversity and Inclusion

# Project Objectives

Foster long-term collaborative research on Gender, Equity, and Transportation

The  
Gender Equity in Transportation  
Collaborative





To what extent, if any, does someone's gender and identity influence their travel behaviors and experiences in Minnesota?

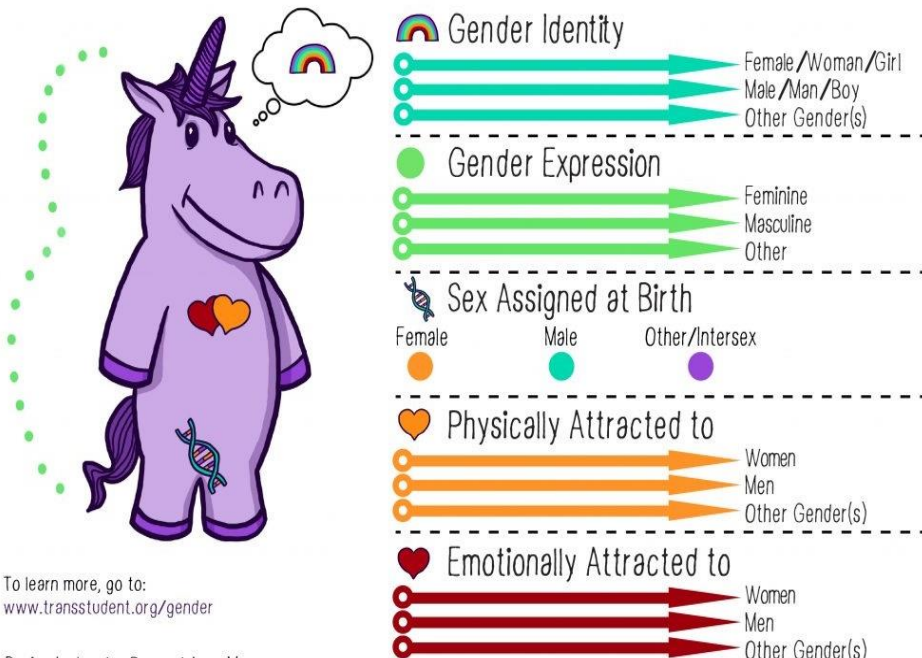
# Study Approach & Findings

## 1. Gender Terms

- Broader than the Female-Male Binary
- Gender Identity
  - ✓ “Inner feelings”
  - ✓ Affect behaviors and wellbeing
- Gender Role
  - ✓ Expected roles of each gender in a society
  - ✓ Traditional gender roles still exist and result in gender-typical behavior patterns

## The Gender Unicorn

Graphic by:  
**TSER**  
Trans Student Educational Resources



To learn more, go to:  
[www.transstudent.org/gender](http://www.transstudent.org/gender)

Design by Landyn Pan and Anna Moore

## 2. Intersectionality Nature of Gender

- Gender identity is **one of many social identities** of a person, with some others being race, family type, parenthood, and employment.
- Gender identity is **interconnected and interacted** with other dimensions of a person's social identities and creates unique needs and behaviors

➔ Diversity within each Gender Group





Database Searching

## Academic Databases:

Web of Science (1012, 7222),  
Science Direct (562, 1478),  
WorldCat (113, 704),  
Academic Search Premier  
(485, 4587)

## Transportation Databases:

TRID (171, 2389),  
Transport Database (4, 2369)  
National Transportation  
Library (0, 138)

Articles after duplicates removed (16170)

## Title/Abstract Screening (2550)

Article were excluded if it focused on

- specific travel mode(s)
- travel beyond regional level
- occasional trips

## Full-Text Eligibility:

Articles were included only if full-text was available

## Full-Text Relevance:

Articles were included if it

- contained actual case study
- used data at individual level
- has all participants adult
- applied quantitative methods
- preferably addressed identities

Articles for detailed review (25)

Initial Screening

Detailed Review

Result

## 3. Systematic Review

- Findings are consistent with common views on **gender-typical behaviors**
- Regarding intersectionality, four common attributes besides gender are **race**, **family members**, **employment status**, and **age**.
- Most studies only compare travel behaviors of women and men

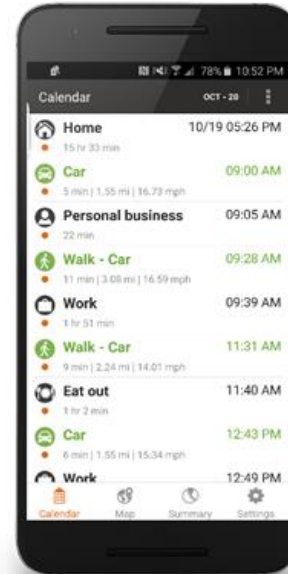
## Primary and Secondary Data

### (1) Travel Behavior Inventory Household Surveys

- 7,837 households in the metro areas
- October 1, 2018 – September 30, 2019

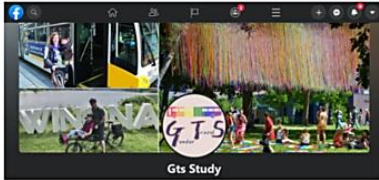
### (2) Primary Data Collection – Daynamica App

- Targeted 300 participants in Great Minnesota
- September 19, 2021 – December 31, 2021
- Gender Identity & Wellbeing Outcomes



# Data Collection

## Facebook Advertisement



## Broadcast and Reach Out



## Qualtrics Recruitment Service

Qualtrics: Get a Contact List

A contact list includes the names and email addresses of individuals to which a survey is sent. There are a variety of different ways to get a contact list. Below are some options recommended by the University.

External Contact List (Users Outside of UMN)

## Interested Participants

### Visit Project Website



### Gender & Travel Study

The University of Minnesota is seeking participants for a research project to investigate how gender and gender identity may impact people's everyday travel and wellbeing. By participating, you will help the University researchers better understand different travel patterns and experiences by gender and advance gender equity in transportation. Upon completion of participation in this study, you will receive a \$40 Amazon electric gift card.

### Complete In-take Survey

Login to Qualtrics Labs, Inc.

qualtrics.XM

- gender identity
- gender roles
- social economic status
- household characters
- travel preferences

## Genuine Participants

### 14-day Travel Diaries



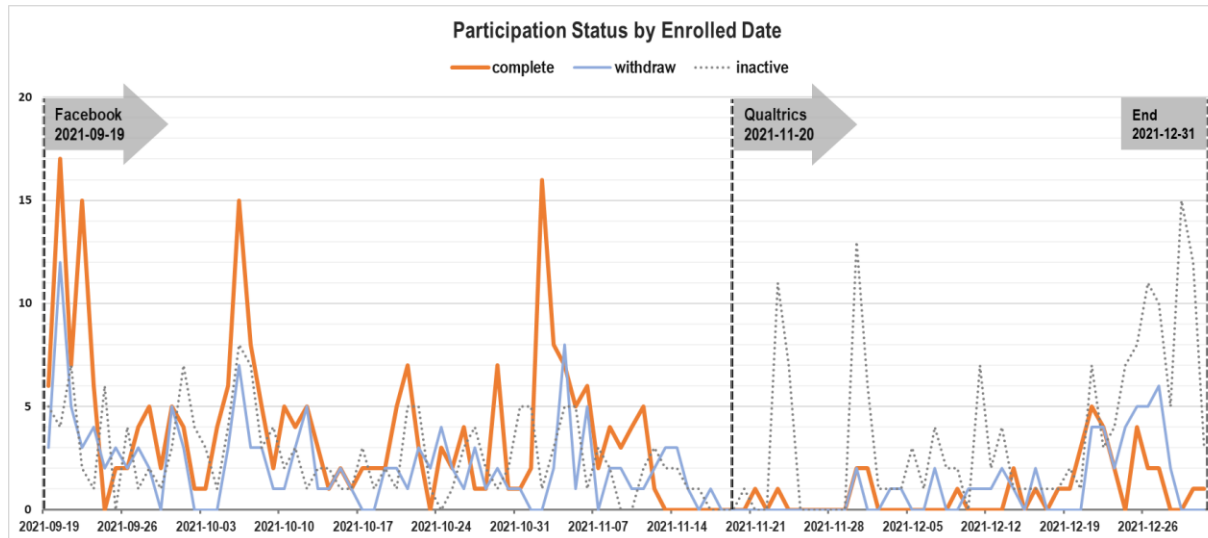
- activities and trips
- emotion status
- end of day survey (gender roles and gender expressions)

### Exit Survey

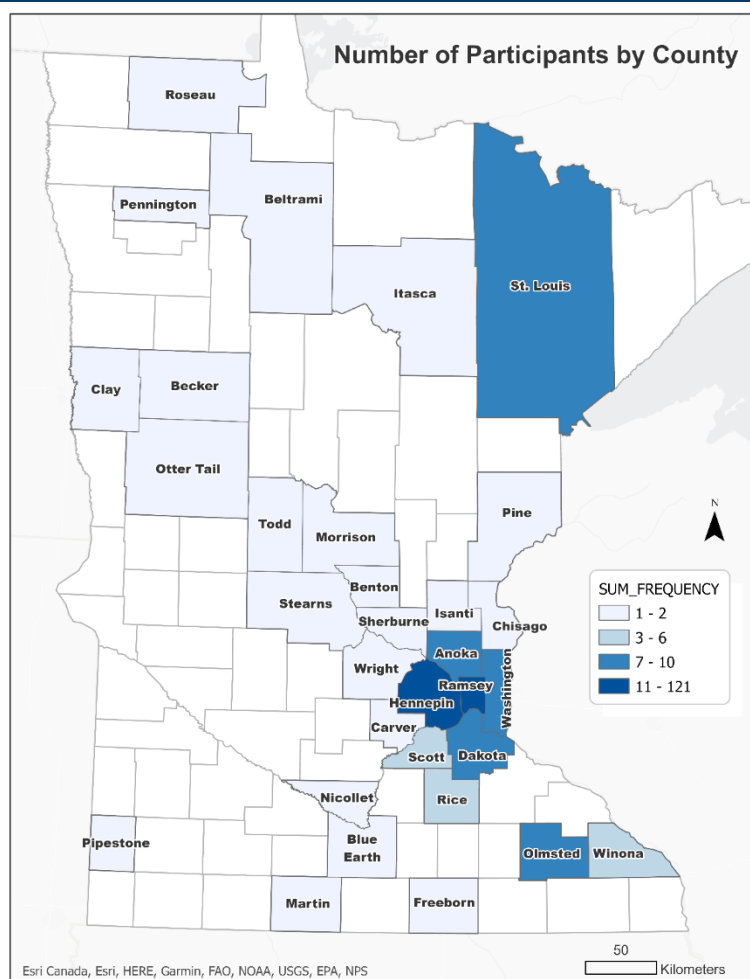
- survey experiences

- **Gender identity:** self-identified gender
- **Gender roles:** household responsibilities
- **Travel Preferences:** transit barriers (e.g., safety concerns)
- **Emotion Status:** feel safe during travel and activity participation

- Survey Monitoring
  - ✓ Detect and exclude non-genuine participants
  - ✓ Monthly report on participants' profiles ⇒ adjust recruitment strategies



# Data Collection



- Success in recruiting women and nonbinary
  - ✓ Females: 165 / 457
  - ✓ Nonbinary: 40 / 97
  - ✓ Males: 73 / 225
- Diverse employment status, family type, age...
- Beyond Twin Cities Metropolitan Area

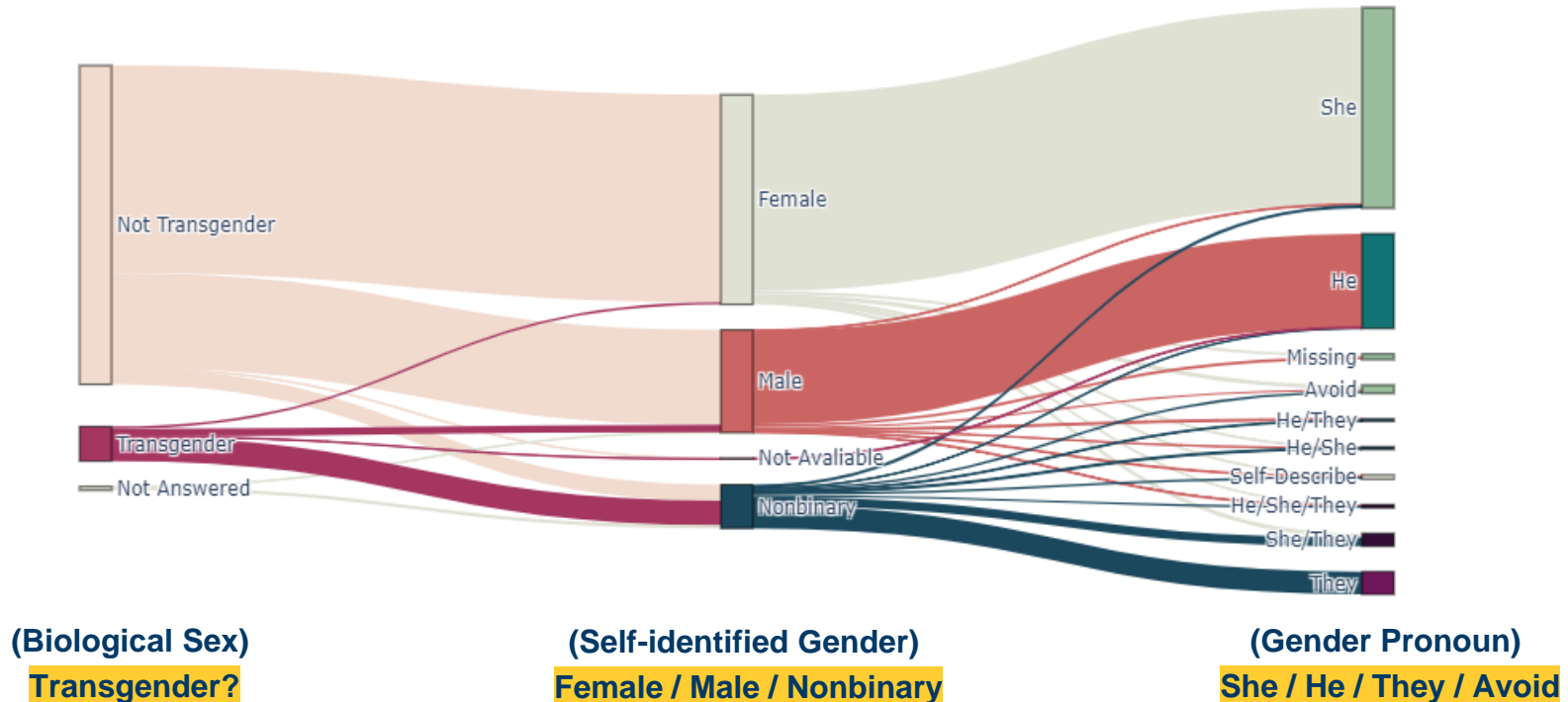


Community Engagement

# Data Analysis – Intake Survey

## 1. Gender Identity

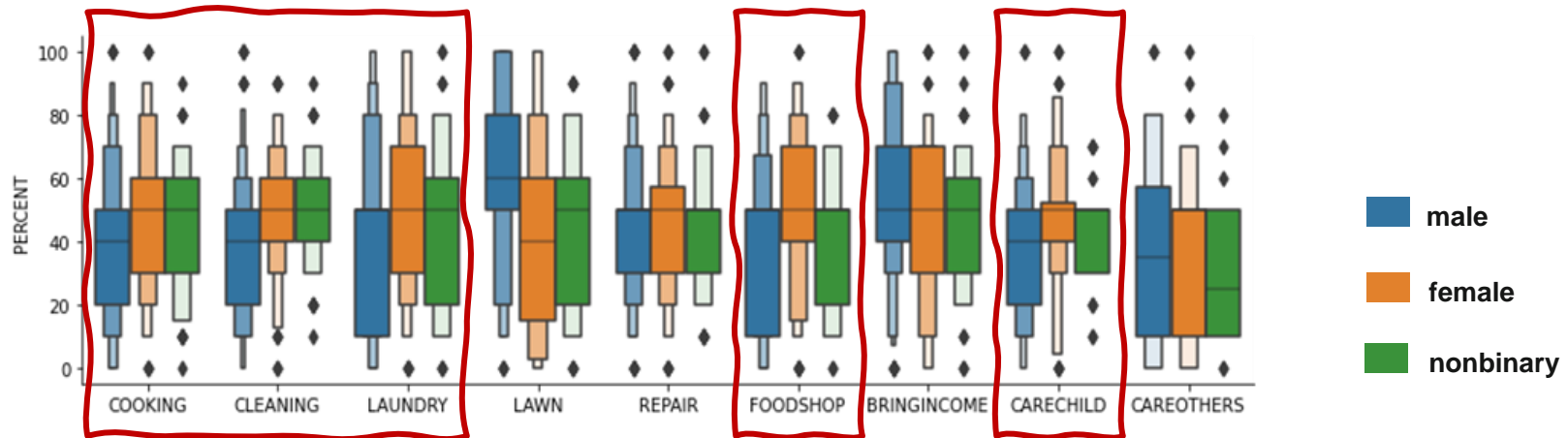
Transgender and Nonbinary are not equivalent





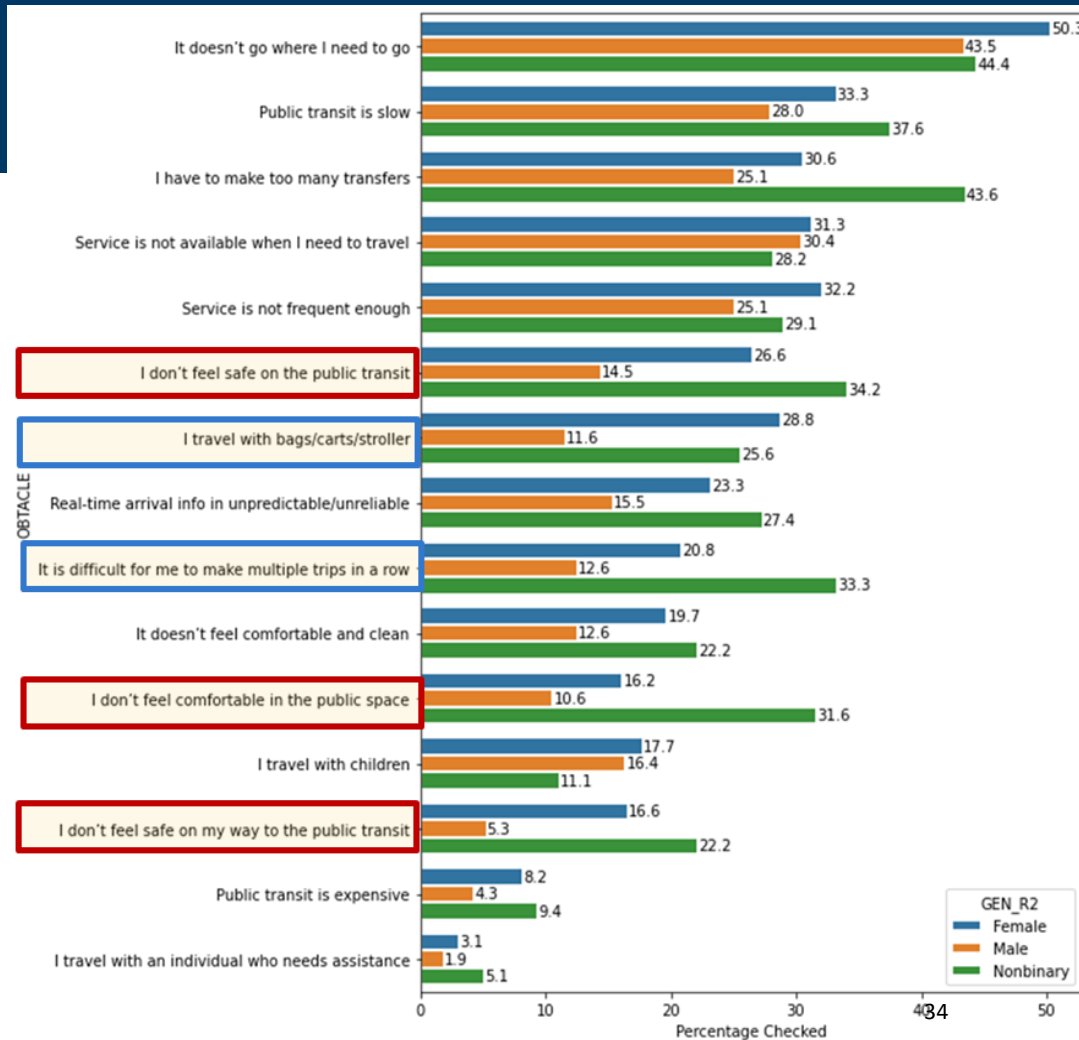
## 2. Gender Roles

- ✓ **Females** shared much more household tasks than males in *cooking, cleaning, laundry, food shopping, and child caring*.
- ✓ **Nonbinary** partners have more *equal shares* of household tasks than males and females.



### 3. Gendered behavior-mode choice; transit barriers

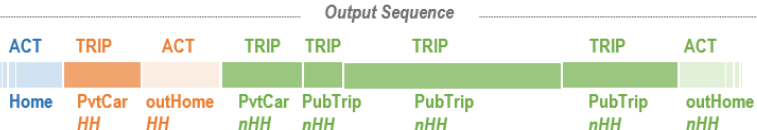
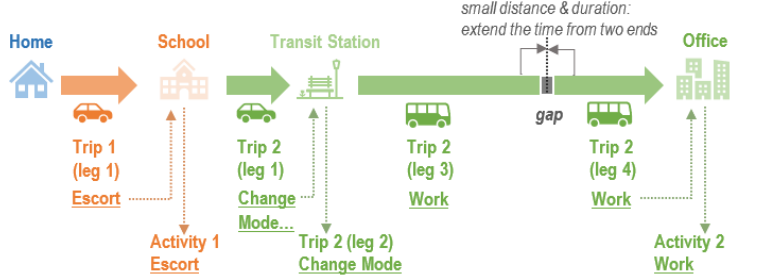
- **Nonbinary people and females** are more likely to have safety concerns, chained trips, and travelling with bag/cart/stroller.
- **Nonbinary people** are more likely to feel uncomfortable in the public space, which brings additional challenges for them to use public transit.



# Data Analysis – Travel Diary

## Household-Supporting Trips and Activities

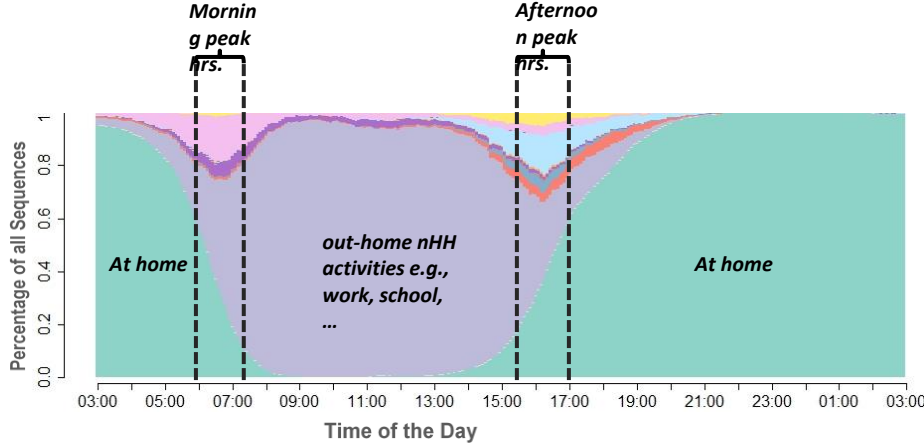
- analyze travel in the context of daily task scheduling
- user entered: a trip/activity involve household tasks?



Legend	ACT: activity	Home: home activity	outHome: out of home activity
	TRIP: trip	PvtCar: household car	PubTrip: public transit
	HH: household supporting	nHH: not household supporting	

(An example activity-travel pattern)

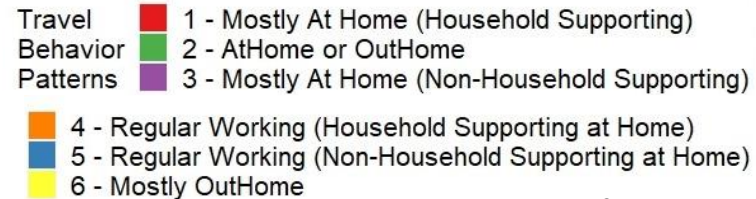
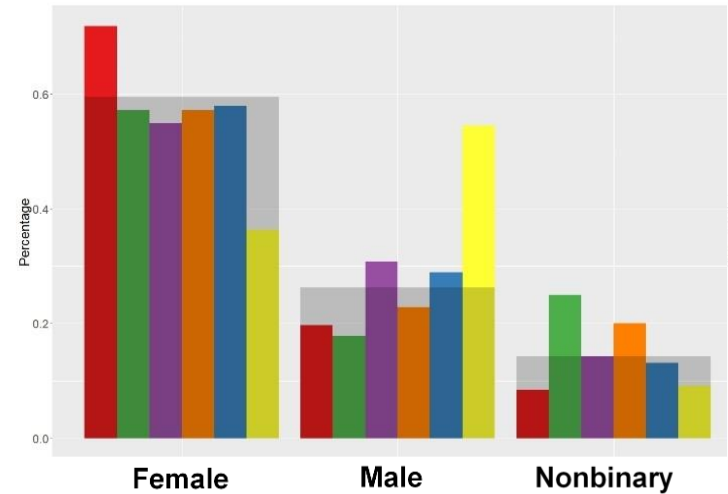
- morning and afternoon peak hours for trips
- mostly driving; some transit trips in the morning
- car trips for HH and nHH tasks before going home in the afternoon



Home.Home (at home)	PubTrip.Home (transit to home)	PvtCar.Home (driving to home)
Missing.MI (missing data)	PubTrip.MI (missing trip purpose)	PvtCar.MI (car trip purpose)
OutHome.N (out-home HH activity)	PubTrip.N (nHH transit trip)	PvtCar.N (nHH car trip)
OutHome.Y (out-home HH activity)	PubTrip.Y (HH transit trip)	PvtCar.Y (HH car trip)

## Gender Differences in Travel Behavior Patterns

- ✓ **Females** were most likely to belong to Group 1, who **stayed at home most of the day** and **shared** household tasks while they were at home
- ✓ Males were more likely to belong to Groups 3, 5 and 6, who did **not share** household tasks while they were at home or mostly stayed out of the home
- ✓ **Nonbinary gender** group was more likely to belong to Groups 2 and 4, who had **decent amounts of trips and out-of-home activities**, and **shared** household tasks both at home and out-of-home



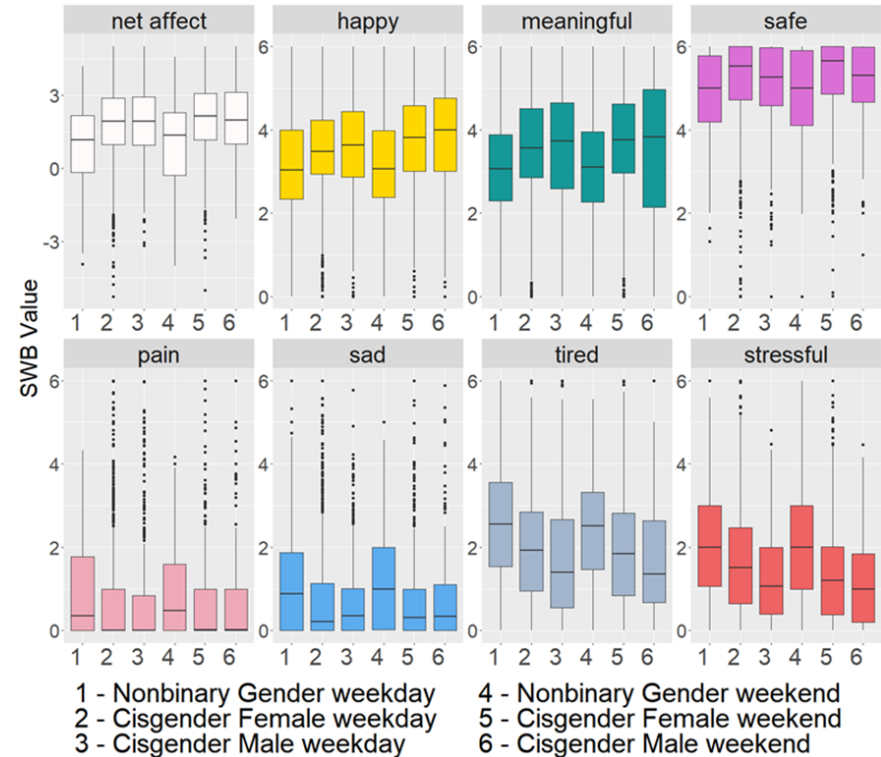
# Data Analysis – Subjective Wellbeing

## Subjective Wellbeing (SWB) Measures

- ✓ Happy, Meaningful, Safe (pos)
- ✓ Pain, Sad, Tired, Stressful (neg)
- ✓ Net affect (avg. pos – avg. neg)

**Nonbinary gender** group had less intensive positive emotions and more intensive negative emotions than other gender group.

**Females** tend to feel more tired and stressful and slightly less happy and meaningful than males



# Data Analysis – Subjective Wellbeing

## ■ Complex Nature of Gender on Wellbeing

### *Average number of trips per day*

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Sun.
Female (164)	4.45	4.48	4.26	4.28	4.78	<b>5.02</b>	<b>4.54</b>
Transgender Female (5)	4.00	2.00	5.50	7.00	4.67	<b>2.67</b>	<b>2.00</b>
Male (66)	4.67	4.56	4.56	4.49	4.50	4.85	4.51
Transgender Male (5)	4.43	5.33	5.87	4.86	5.80	5.76	3.58
Nonbinary (13)	4.11	4.23	4.13	4.72	5.22	5.62	5.14
Transgender Nonbinary (24)	3.92	4.19	4.53	4.26	4.51	5.82	5.04

- **Transgender females** had much less trips during weekends than cisgender females (and all other genders)
- No obvious differences between other gender groups

### *Overall emotional well-being per day*

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Sun.
Female (164)	2.83	2.80	2.81	2.85	2.94	3.06	3.02
Transgender Female (5)	<b>0.23</b>	<b>0.31</b>	<b>0.62</b>	<b>0.75</b>	<b>0.66</b>	<b>0.22</b>	<b>0.33</b>
Male (66)	2.98	2.99	2.98	2.94	2.97	3.07	3.02
Transgender Male (5)	2.26	2.49	2.12	2.09	2.46	2.31	2.38
Nonbinary (13)	2.29	2.26	2.35	2.58	3.01	2.69	2.52
Transgender Nonbinary (24)	<b>1.60</b>	<b>2.03</b>	<b>1.82</b>	<b>1.72</b>	<b>1.71</b>	<b>2.00</b>	<b>1.69</b>

- **Transgender females, males and nonbinary people** had much lower net affect values across seven days of the week, especially **transgender females**.



## Outcomes & Next Steps

## 1. Inclusion of underrepresented genders

- ✓ It is crucial to consider gender identity and address the special needs and experiences of nonbinary people.

## 2. Understand more about needs for women and all genders

- ✓ Women shared more household tasks than men, even when they had jobs, which significantly limited their travel times and travel options and increased their car-dependency.
- ✓ However, Black women still depend on public transit more than women of other races, which is likely due to their limited access to cars. Therefore, it is crucial to address the intersectionality while promoting gender equity.
- ✓ Women and nonbinary people feel more difficult to have chained trips and travel with carts/strollers/bags while using public transit, which indicates their needs for additional accommodations for transit trips.

### 3. Assess perceived or potential safety issues across genders:

- ✓ Women and nonbinary people are more tired and stressed, which may indicate higher potential risks.
- ✓ Women and nonbinary people feel less safe using transit and on their way to/from transit

- We have a foundational study that found gender disparities exist in travel behavior and experiences
- MnDOT exploring next steps
- What other agencies and industries need to consider gender?



**MnDOT is exploring the following steps to advance inclusivity and equity in transportation policy and planning**





# Outcomes & next steps

Adopt gender-inclusive language in project design and communication



Survey Design



Project design



Communications

# Outcomes & next steps

Adopt gender-inclusive language in project design and communication

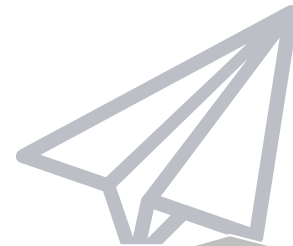
Formalize a process to monitor engagement in real time to collect feedback that is representative of the population



Survey Design



Project design



Communications

# Outcomes & next steps

Engage with community to better understand travelers' needs, experiences and the intersectional nature of gender



Representative  
feedback



Qualitative interviews

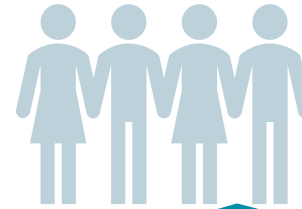


Nurture relationships

# Outcomes & next steps

Engage with community to better understand travelers' needs, experiences and the intersectional nature of gender

Formalize a process to monitor engagement in real-time to ensure we're collecting representative feedback



Representative  
feedback



Qualitative interviews



Nurture relationships

# Outcomes & next steps

Undertake research that builds on the findings of this study



# Outcomes & next steps

Undertake research that builds on the findings of this study

Support future research through the Gender Equity in Transportation Collaborative



[GET Collaborative](#)



Safety



Geography



# What other suggestions do you have?

- Are there other approaches to advancing gender equity in a state DOT context?
- Are there modifications you would recommend to the approach?
- How could your organization advance gender equity?



# Thank you!

Hally Turner (she/her), MnDOT

[Hally.Turner@state.mn.us](mailto:Hally.Turner@state.mn.us)

Erika Shepard (she/her), MnDOT

[Erika.Shepard@state.mn.us](mailto:Erika.Shepard@state.mn.us)

Ying Song (she/her), University of Minnesota

[yingsong@umn.edu](mailto:yingsong@umn.edu)

# Today's presenters



**Hally Turner**

[Hally.Turner@state.mn.us](mailto:Hally.Turner@state.mn.us)



**Ying Song**

[yingsong@umn.edu](mailto:yingsong@umn.edu)



**Erika Shepard**

[Erika.Shepard@state.mn.us](mailto:Erika.Shepard@state.mn.us)



UNIVERSITY OF MINNESOTA

**Driven to Discover<sup>SM</sup>**

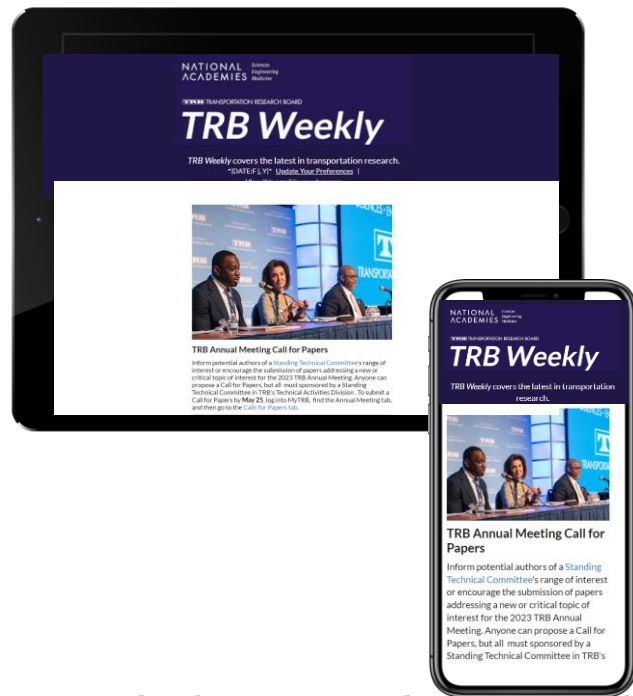
**NATIONAL  
ACADEMIES** *Sciences  
Engineering  
Medicine*

# Subscribe to *TRB Weekly*

If your agency, university, or organization perform transportation research, you and your colleagues need the *TRB Weekly* newsletter in your inboxes!

Each Tuesday, we announce the latest:

- RFPs
- TRB's many industry-focused webinars and events
- 3-5 new TRB reports each week
- Top research across the industry



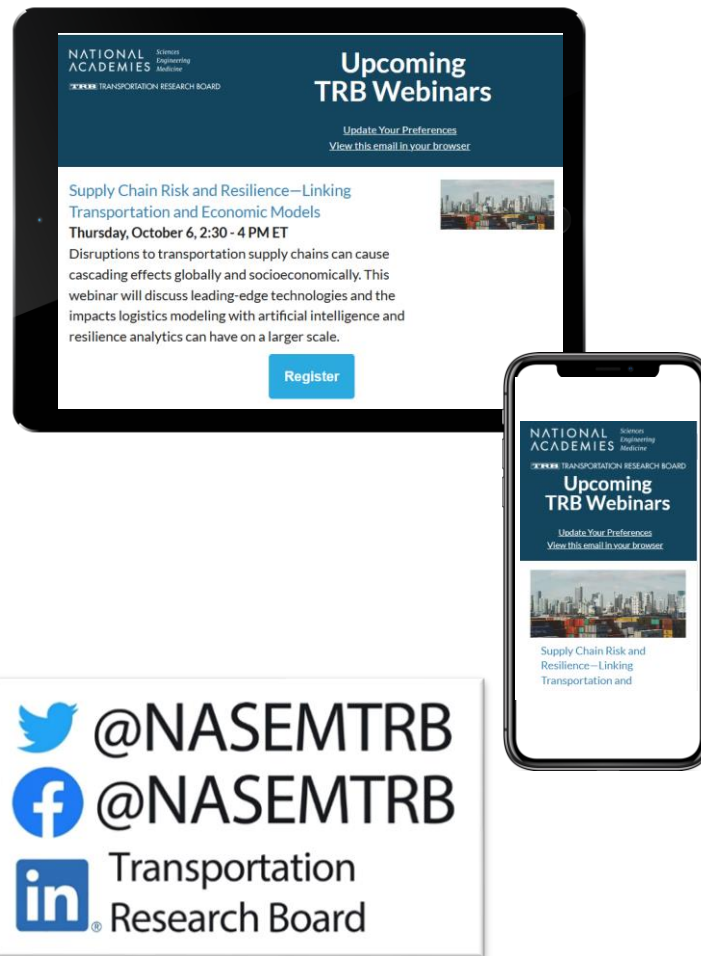
Spread the word and subscribe!  
<https://bit.ly/ResubscribeTRBWeekly>

# Discover new TRB Webinars weekly

Set your preferred topics to get the latest listed webinars and those coming up soon every Wednesday, curated especially for you!

<https://mailchi.mp/nas.edu/trbwebinars>

And follow #TRBwebinar on social media





TRB 103rd

# ANNUAL MEETING

On January 8–12, 2024, join the single largest gathering of transportation practitioners and researchers in the world. *Register today!*

[www.trb.org/AnnualMeeting](http://www.trb.org/AnnualMeeting)



# Get involved

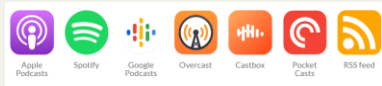
<https://www.nationalacademies.org/trb/get-involved>

- **Become a Friend of a Standing Technical Committee**

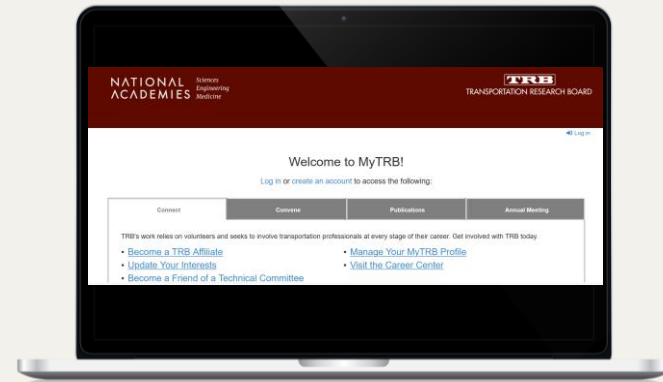
Network and pursue a path to Standing Committee membership

- **Work with a CRP**

- **Listen to our podcast**



<https://www.nationalacademies.org/podcasts/trb>



We want to hear from you

- Take our survey
- Tell us how you use TRB Webinars in your work at [trbwebinar@nas.edu](mailto:trbwebinar@nas.edu)

