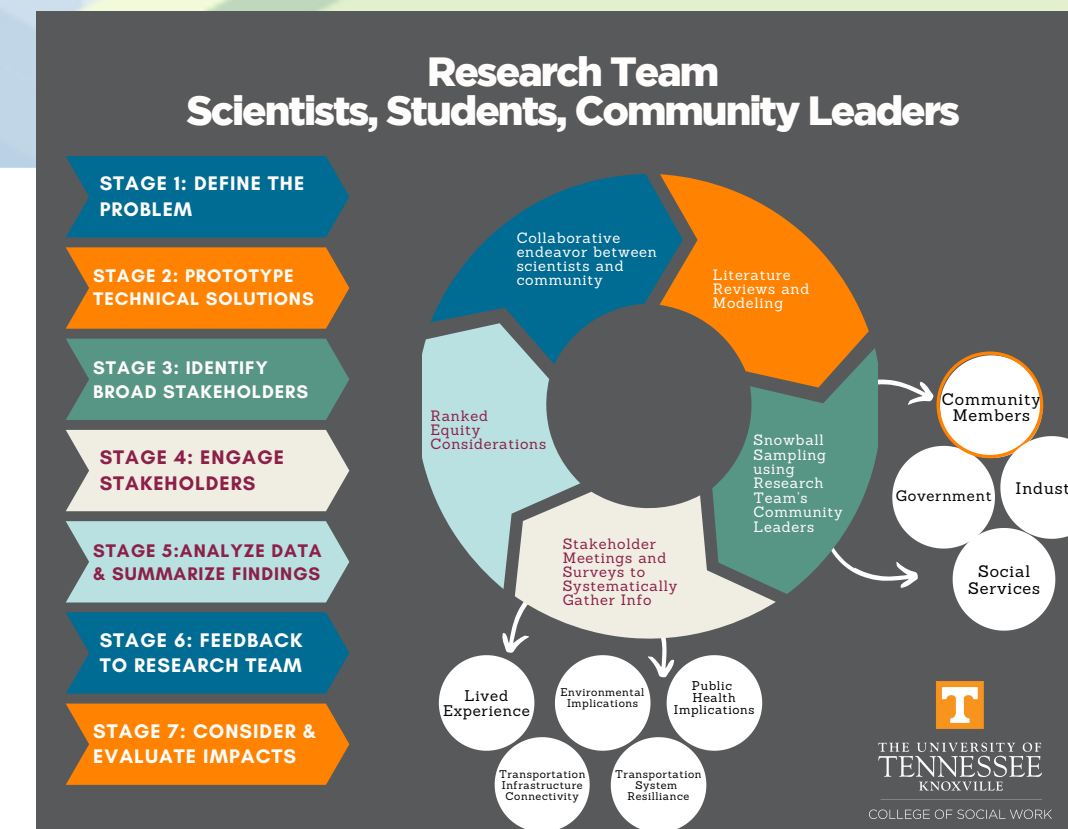


Equitable and Ubiquitous Converged Data & Transportation Services for Underserved Communities

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PG, FY2021



A community-driven study to utilize data-driven solutions and emerging technologies to overcome the spatial mismatch between affordable housing and transportation within low-density communities with distinct spatial patterns of racial and income-segregation

RESEARCH ADVISORY BOARD

Troy Ebbert, TNDOT

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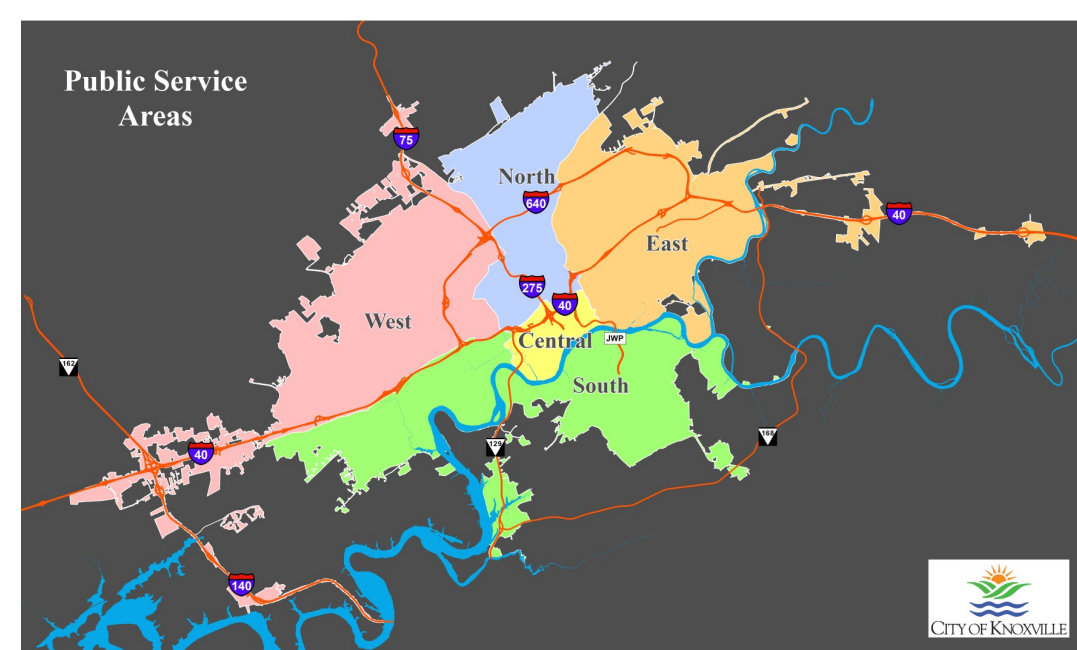
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Ellen Zavisca, Knoxville/Knox Trans. Pl. Or.

COMMUNITY CONTEXT

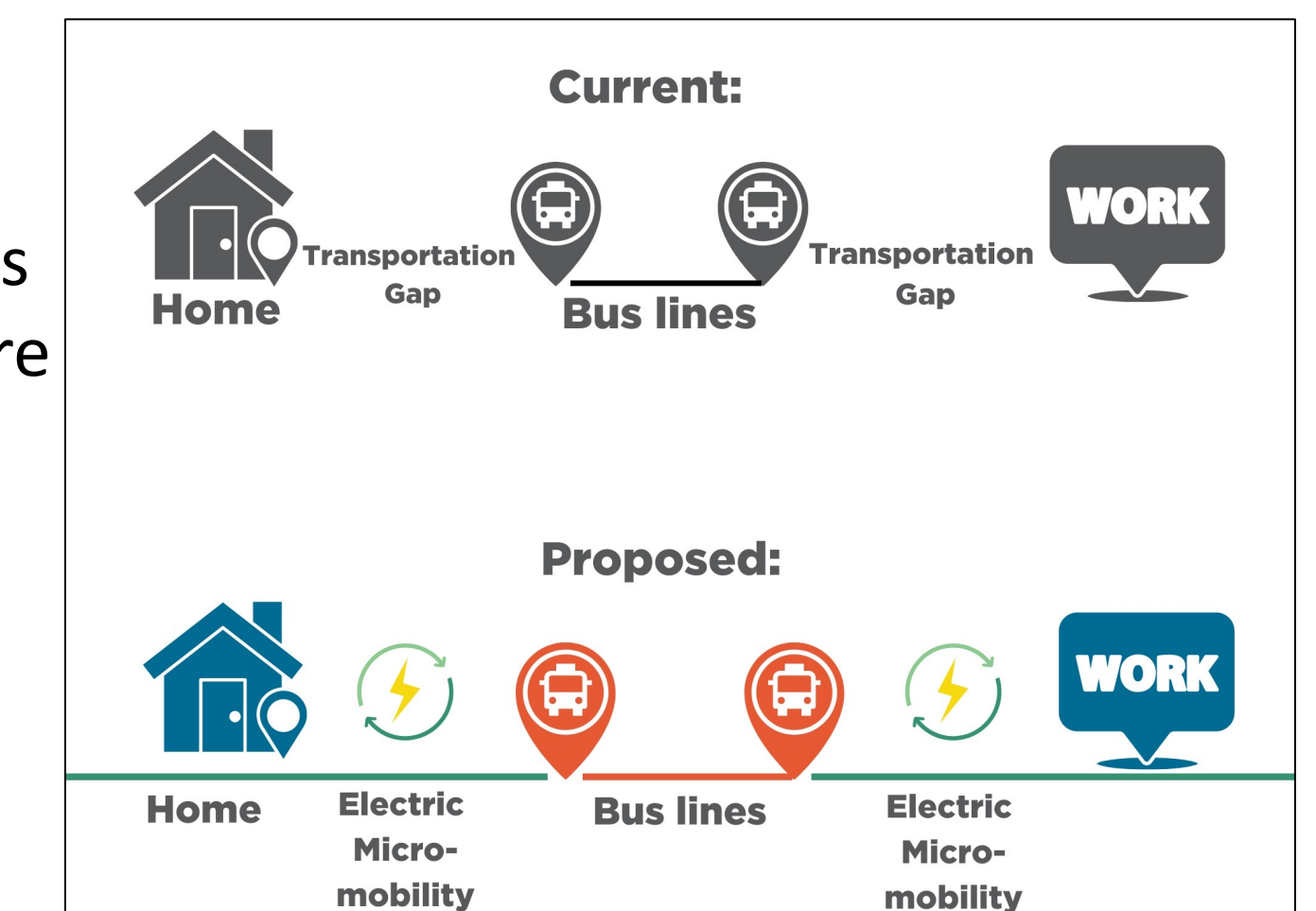


Knox County, TN, is a low-density MSA (936 people/sqm)

- Emerging transportation and digital technologies and infrastructure are increasing, but distribution remains inequitable.
- Mobility gets faster and greener for some, but affordable housing community residents face a binary choice – gas-powered car or public bus...or just staying put.
- Among older adults residents, digital literacy and phone access pose additional barriers

INTELLECTUAL MERIT

- Technological Advancements: Synced public transit and micro-mobility connectors through data sharing = more efficient and convergent transportation infrastructure
- Sociotechnical Advancements: AI-enhancements promote acceptability & rider engagement
- Equity and Societal Advancements:
 - Improved access to resources for underserved community members
 - Improved social inclusion – enhanced well-being and psychosocial health

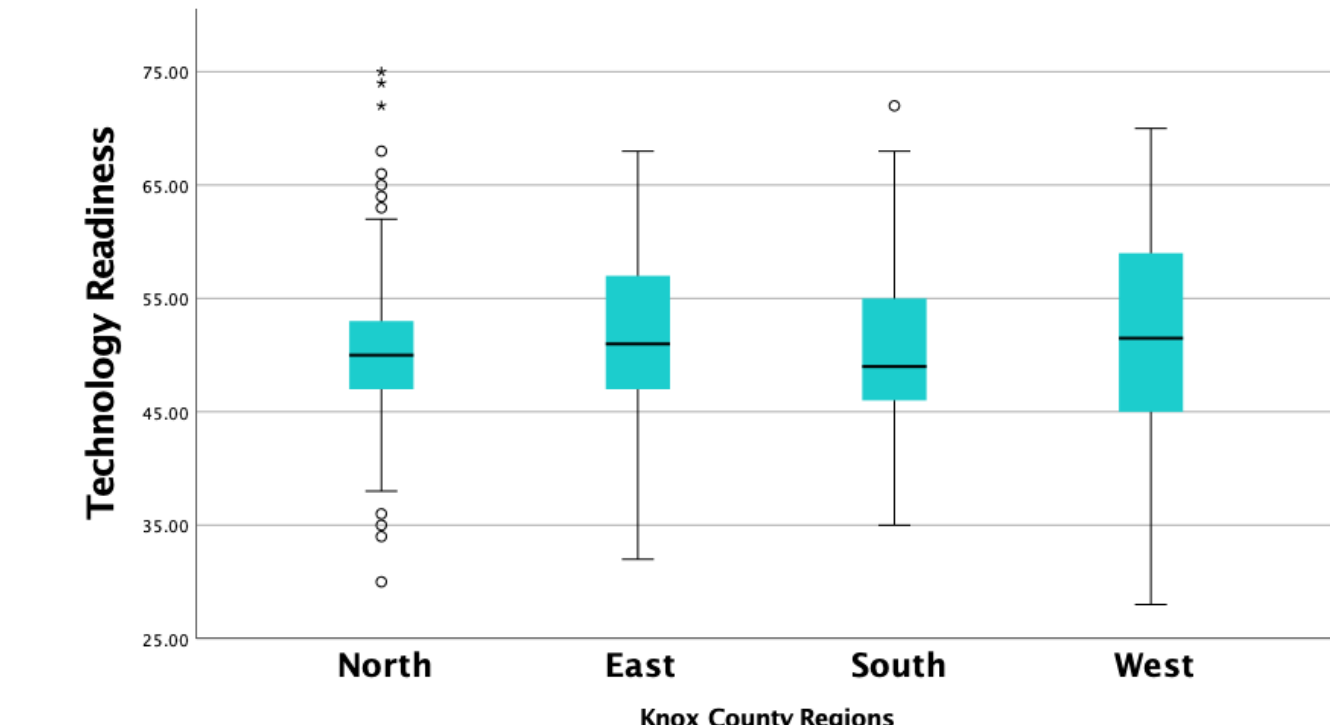
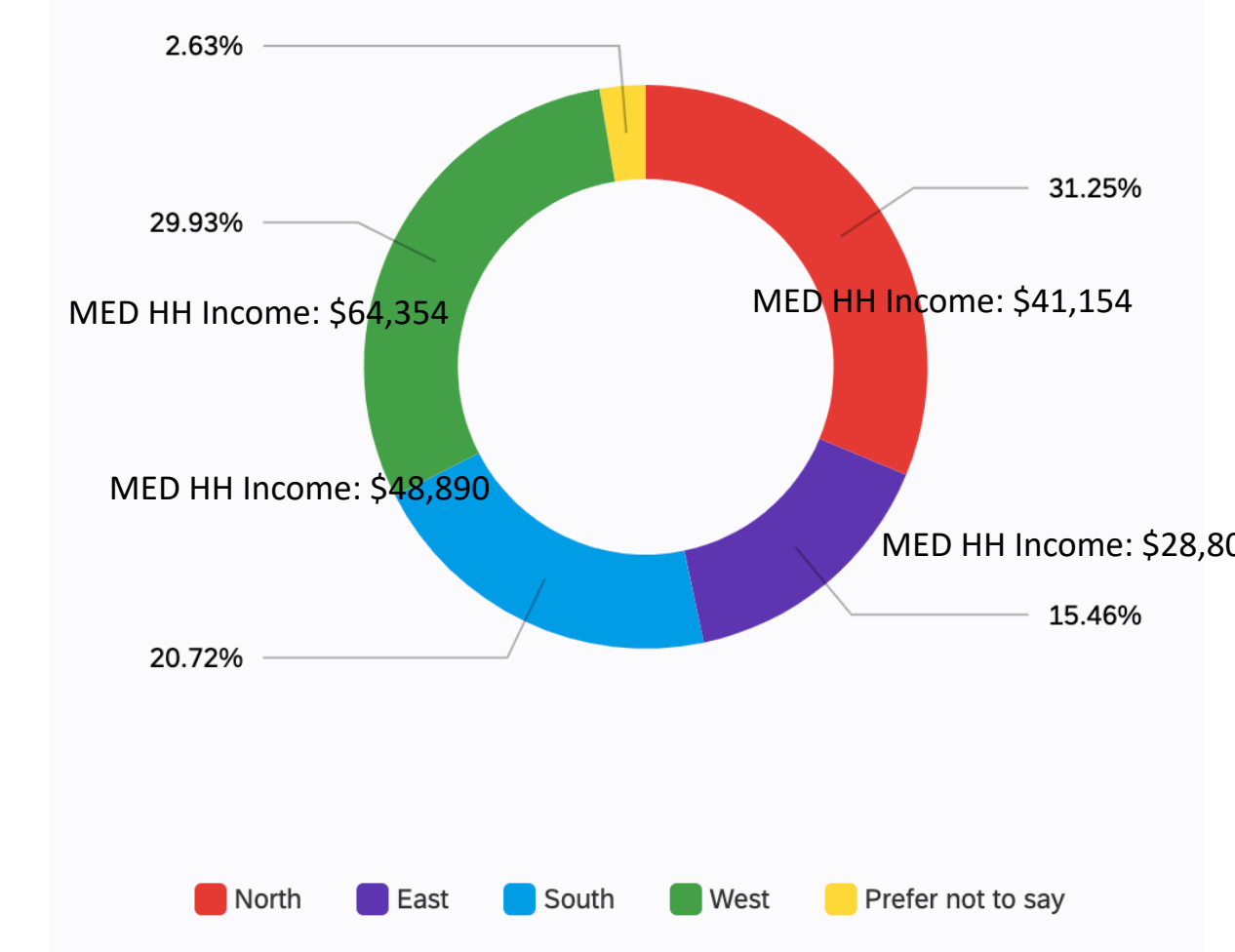


PROJECT ACTIVITIES

Focus Groups: 3 in-person and 1 online – emphasis on residents in underserved neighborhoods

- Transportation discontent based on small, but critical gaps in trips
- *"We need a person like Debbie [community volunteer]– [she had an] errand bus...once a month, right after payday...I miss her so much. If you'll just get us a person like Debbie..."*
- *"We need to have them golf carts...to go to the Dollar Tree and back."*
- Social exclusion: *"You just have to sit and wait...miss out on everything else."*
- Infrastructure investment inequities: *"You only see the sheltered ones [bus stops] in the nicer communities."*

County-wide Online Survey (N=309, 6% Black, 4% Latinx, 49% Male)



Mean differences in Perceived Technology Readiness by county region

BROADER IMPACT – IMMEDIATE SOCIETAL IMPACT

- Increased equity in access to basic resources, shopping, job applications, housing applications – increase in economic mobility and independence
- Greater perceived social inclusion among residents who are underserved
- Improved mental health

BROADER IMPACT – SUSTAINABILITY

- A replicable model for how to integrate public transit and micromobility in low-density MSAs to achieve equity in residential mobility
- Convergent, transportation and digital systems to facilitate data-informed electric and micro-mobility infrastructure.
- More efficient and targeted micromobility resources allocation

NEXT STEPS

- Participatory workshops in underserved neighborhoods
- Visual Display of beta dashboards
- Develop meaningful measures of human and infrastructure impacts

