

### Developing Indicators for Comprehensive Evaluation of Equity in Transportation System

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- Background
- Research Goals
- Study Approach
- Findings
  - Literature Review
  - Professionals' Interviews
- Recommendations
- Policy Implications





- Transportation Equity looks at the fairness within transportation systems that integrates safety, accessibility, inclusivity, and efficiency for all road users and all transportation modes
- It examines the connectivity, accessibility, and affordability of transportation systems







- Establish a comprehensive and holistic definition of transportation equity
- Discern and delineate the fundamental constructs and parameters that exert significant influence on equity within transportation systems
- Develop performance metrics to gauge equity within the defined constructs
- Establish a foundational framework for future studies that allow the evaluation of equity in transportation systems using real-world data



### Study Approach





### Literature Review



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### Literature Review



**Sustainability** 

Unfair distribution of detrimental effects of unsustainable practices and beneficial innovations

Performance indicators in practice:

- Pollution measures
- Multimodal transportation
- Laws and regulations



Safety

Approaches to safety must account for all road users

Performance indicators in practice:

- Crash rate
- Fatalities



### Literature Review



Spatial and temporal problems impacting equity:

- Access based on spatial land use patterns
- Long travel times for some populations
- Accessibility is lower during later hours

Performance indicators in practice:

Spatial & Temporal

- Distance to transportation facilities
- Travel times based on available modes of transportation
- Spatial correlation to accessibility



### Literature Review



The ability to afford different transportation modes or routes

Performance indicators in practice:

- Level of Income
- Race
- Occupation
- Socio-economic
- Education
- Local transportation infrastructure



### Literature Review



The level of transportation services availability and feasibility to reach destinations

Performance indicators in practice:

- Proximity to transit stops
- Mode share

Accessibility & Mobility Vehicle ownership



### Professionals' Interviews

**11** Interviews with transportation professionals

# Agencies were selected from ${}^{9}$ different states, and ${}^{2}$ national programs

California, Colorado, Delaware, Minnesota, New Jersey, Pennsylvania, Utah, Washington, and Wisconsin

Interviews were performed online, recorded, and transcripted verbatim



## Professionals' Interviews

- The interviews were semi-structured and consisted of 10 questions
- > The participating organizations were recruited purposively
- Sampling methods: Judgment and Convenience

Criteria	Category	YoE
Field	Engineering	7
	Other	4
Years of Experience	Less than 5	1
	5 – 10	4
	More than 10	6

Criteria	Category	YoE
Affiliation	Public	9
	Academic	1
	Non-profit Organization	1



### Professionals' Interviews

#### **Definition of Transportation Equity**

Ensures the specific needs of underserved communities are taken into account and addressed

Providing access to roads and services in a fair and equitable fashion It is safety, reliability and accessibility for all modes of travel and for all people of all ages, backgrounds and ability.

It is one where if you can look for inequities, you can't.

It is inclusive of the community in all aspects of planning, design, and construction

The benefits and burdens of transportation systems service and spending are fair and just Prioritizes underserved groups and brings the health of of all groups to the top rather than profit

When everybody has the ability, freedom, and access to choose how to safely get where they need to go

## **INCLUSIVE, FAIR, & ACCESSIBLE**



### Professionals' Interviews





### Recommendations

- Diversity and Inclusion
- Engage the community in decision-making processes, especially marginalized groups
- Prioritize safety by addressing the hotspots and implementing public awareness campaigns
- Ensure transportation affordability, especially for marginalized communities
- Encourage the use of green transportation options to improve air quality



### **Policy Implications**

- Reallocating resources towards areas with historically less investment; and maintain transparency in funding allocation
- Data collection and monitoring, data disaggregation by race, income, and ability is crucial
- Partnerships with health departments, environmental agencies, and community organizations
- Regularly update engineering standards to reflect the latest best practices in safety and sustainability.
- Ensure compliance with Environmental Justice (EJ) standards to prevent disproportionate negative impacts on marginalized communities



## Thank You!

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