Identifying Transportation Deserts in Rural North Carolina

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Vulnerable Populations

Certain populations face greater challenges meeting their mobility needs, e.g.,

• Elderly
• Low-income
• Disabled
• Minorities
• Non-English speakers
Mobility Gaps

Mismatch between mobility needs and the degree to which the built environment, transit infrastructure and transit services meet those needs

Transportation disadvantaged
Identifying Transportation Deserts

• **Individual characteristics** - age, income, mobility, ...
• **Transport system** - infrastructure and services
• **Built environment** – density, mix of uses, block length, sidewalks, ...

**Diagram:**
- Individual characteristics
- Transport system
- Built environment

**Venn Diagram:**
- Overlapping circles representing different aspects of transportation deserts.

**Abstract:**
- The identification of transportation deserts involves considering individual characteristics, transport systems, and built environments.

**Keywords:**
- Transportation deserts
- Individual characteristics
- Transport system
- Built environment
Vulnerable Populations

Research Questions:

• What mobility challenges do transportation disadvantaged populations face, particularly in rural areas?

• Is there a simple way to map the location of people who are at risk of being transportation disadvantaged, using readily available data?
**Approach**

- Map transportation disadvantaged ‘hot spots’ using GIS and census data
- Interview key informants
  - Planners, public health officials, county managers, emergency managers, transit officials, and others
- Conduct focus groups
Site Selection
Key informant interviews

• Map 1 shows main roads, towns and landmarks
• Questions about travel patterns, destinations, transit services, obstacles, deserts
Key informant interviews

Map 2: ‘hot spots’

Different thresholds for age, race, income, English proficiency, mobility impairment
Focus Groups

1. Map exercise
2. Questions about travel patterns, transport services, & suppressed demand
Data Gathering

Interviews
• 38 interviews with 51 key informants

Focus Groups
• Eastern Band of the Cherokees
• Senior citizens
• Migrant workers
• African-Americans
Data analysis

Interviews recorded, transcribed and coded
Content analysis of interviews (an iterative process)
- Develop initial set of (~80) codes
- Test, refine, consolidate
- Agree on parsimonious set of codes (31 codes)
- Double-code to ensure agreement
- Code each interview
- Analyze results

Focus groups not recorded or coded, but used to look for similarities/differences with interviews
Most Common Themes

1. Ped/Bike
2. Transit Supply
3. Informal Solutions
4. Social Vulnerability
5. Long Distance
6. Transportation Planning
7. Access to Health Care
8. Built Environment/Land Use
9. Challenges of ParaTransit
10. Access to Amenities
Findings

• Transportation disadvantage highly variable and localized

• Census data too coarse for many things
  • May overlook nontraditional TD populations

• Maps useful, but limited; need fine-tuning with local knowledge and expertise

• In our key informant interviews, we counted 20 “agree,” 13 “mixed,” and 7 “disagree” with maps
Next Steps

- Refine maps
- Include variables for built environment and transit service/infrastructure (e.g., density, transit stops)
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Questions

- Built environment & land use patterns are linked to transportation disadvantage. How can characteristics of the built environment be incorporated into the maps?

- What data sources (other than the Census) are available to measure transportation disadvantage?

- What tools have been used to identify populations at risk of transportation disadvantage?

- Are the maps useful to other fields, such as public health or housing?