

# Identifying Transportation Deserts in Rural North Carolina

David Salvesen, Ph.D.

Elizabeth Shay, Tab Combs, Michelle Madelay

Institute for the Environment

University of North Carolina-Chapel Hill



# Vulnerable Populations

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

- Elderly
- Low-income
- Disabled
- Minorities
- Non-English speakers

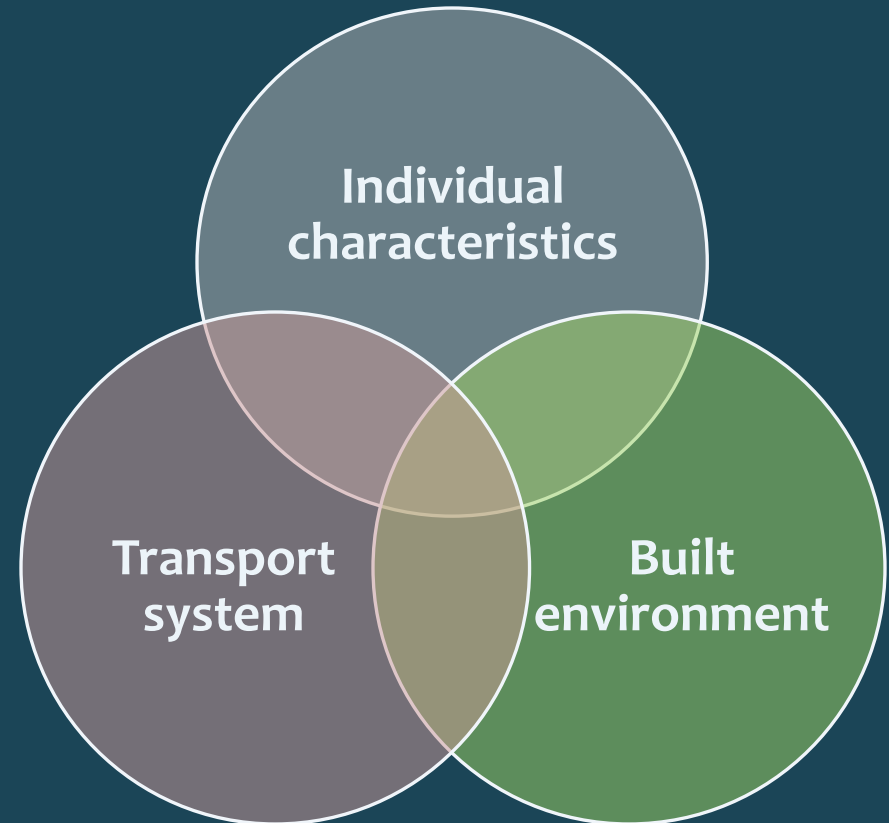
# Mobility Gaps

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, ...



# Vulnerable Populations

## Research Questions:

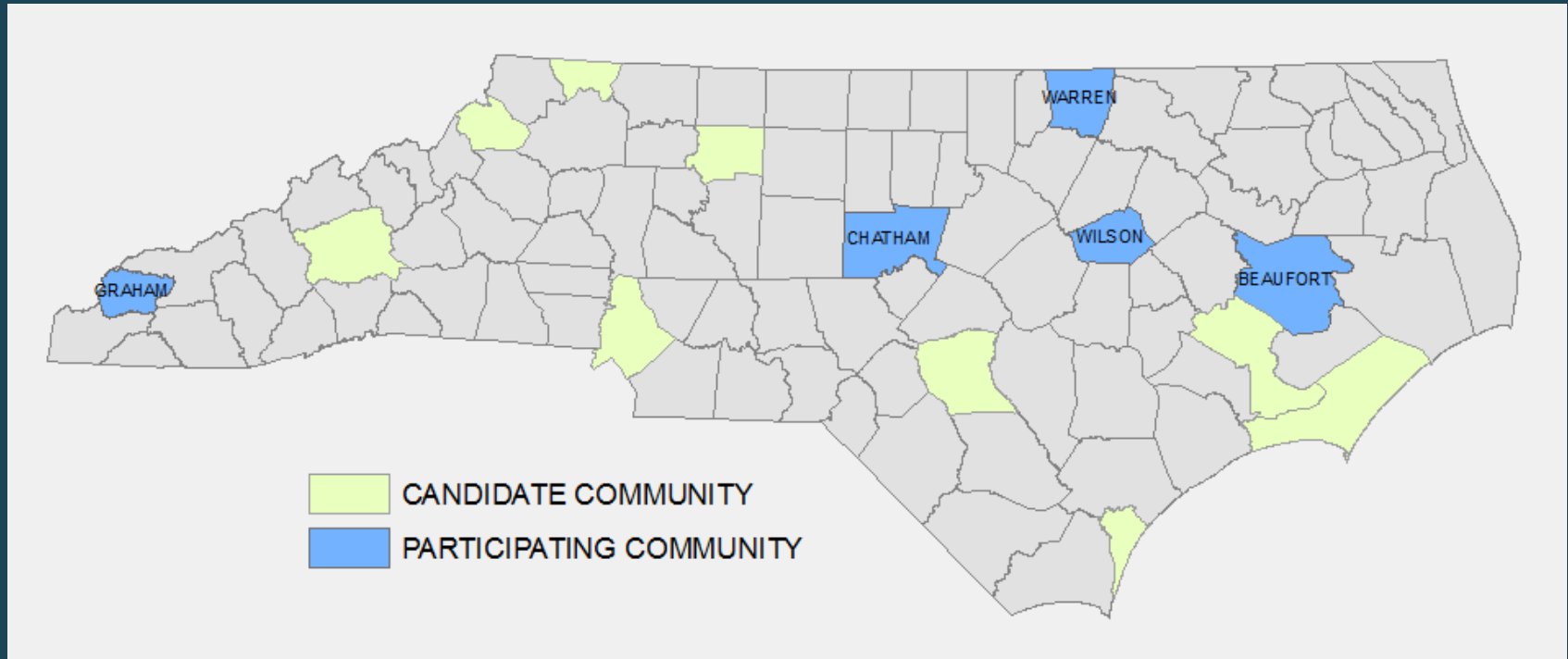
- What mobility challenges do transportation disadvantaged populations face, particularly in rural areas?
- Is there a simple way to map the location of people who are at risk of being transportation disadvantaged, using readily available data?

# 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

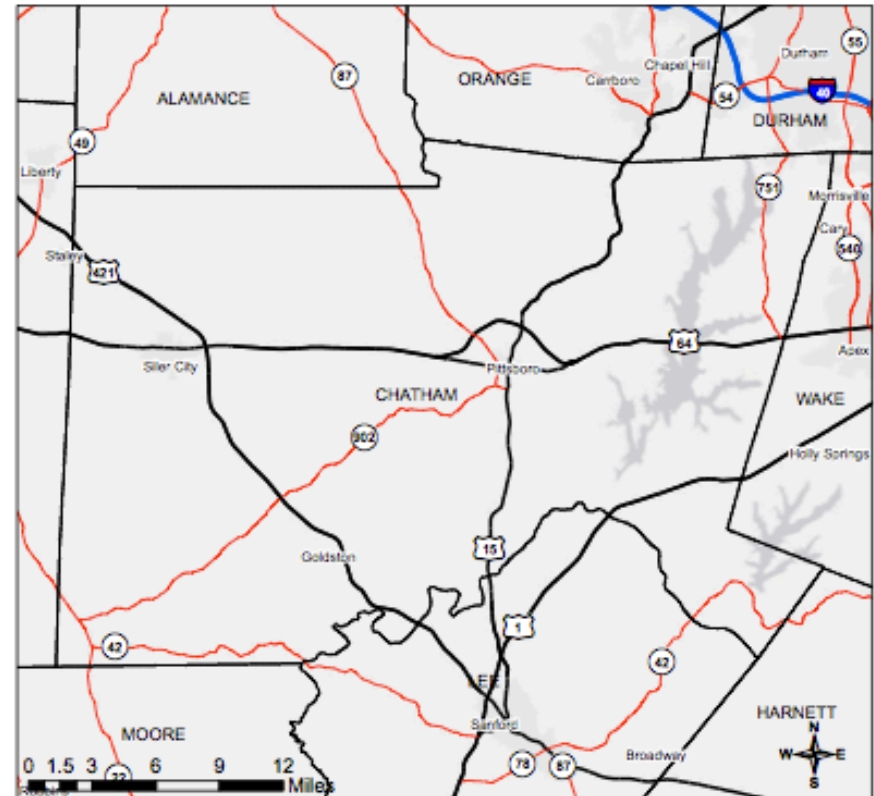


# Site Selection



# Key informant interviews

- Map 1 shows main roads, towns and landmarks
- Questions about travel patterns, destinations, transit services, obstacles, deserts



Chatham County

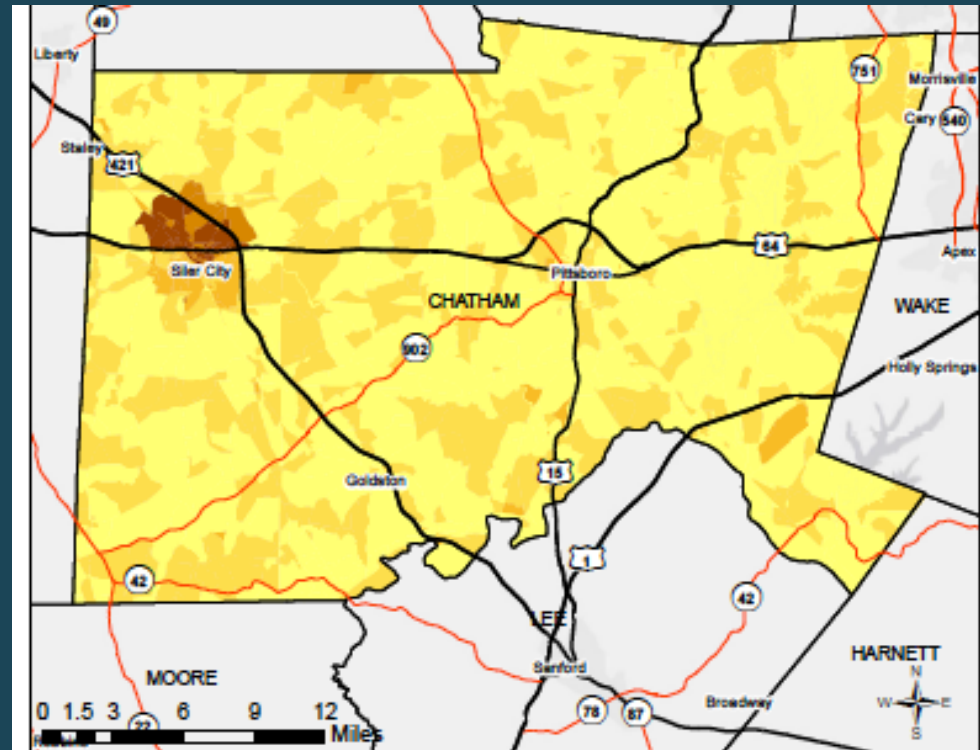
Roads  
— NC  
— US  
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# Key informant interviews

## Map 2: 'hot spots'

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



Compilation of Disadvantaged Population Factors - Chatham County

Number of Factors Exceeding Threshold (7 Total)



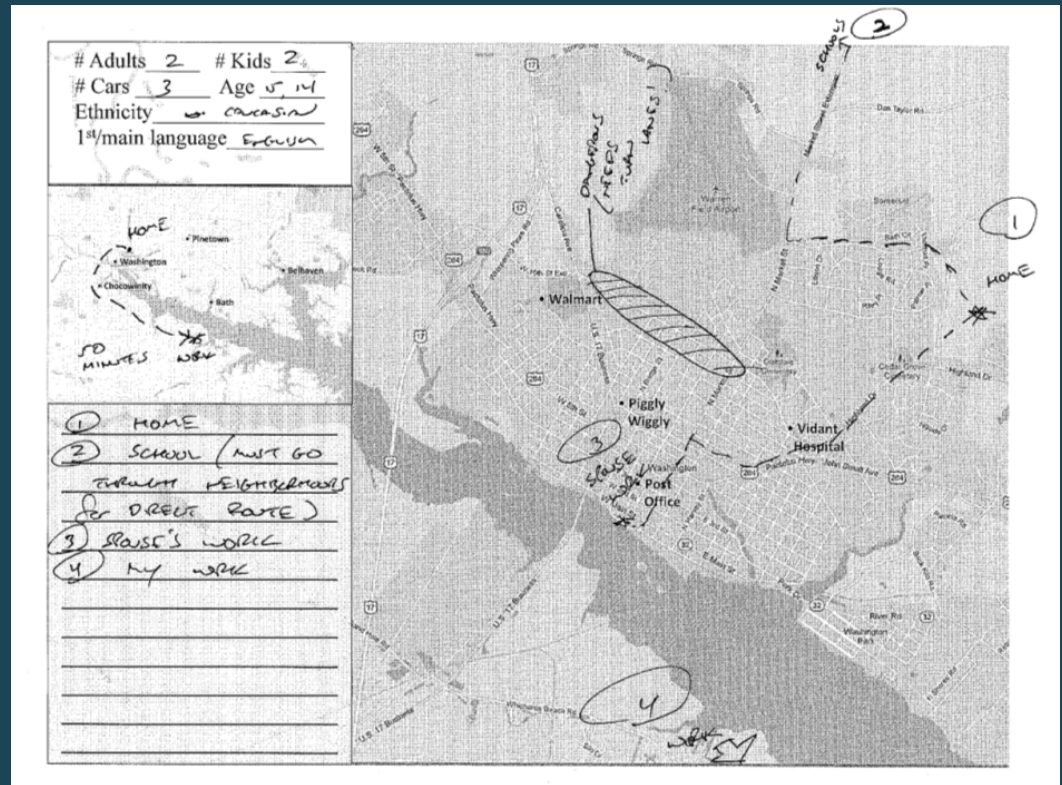
Threshold Values

- Low-income households:  $\geq$  28% of Population Below Poverty Level
- Households with mobility-impaired individuals:  $<$  73% of Population 5 Years and Over Without An
- Households with youth of non-driving age:  $\geq$  23% of Population  $\leq$  14 years old
- Households with seniors:  $\geq$  29% of Population  $\geq$  62 years old
- Ethnic minority households:  $\geq$  64% Minority Population
- LEP households:  $\geq$  8% of Population speaking English less than "Very Well"
- Careless Households:  $\geq$  13% of No Vehicle Households



# 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)

# Contact

David Salvesen

Center for Sustainable Community Design

Institute for the Environment

University of North Carolina at Chapel Hill

[salvesen@unc.edu](mailto:salvesen@unc.edu)

(919) 962-7045





# 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?

