
Active Living in Rural Populations

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Scientists Still Seeking Cure for Obesity

The Onion - 2004

I came down with obesity 2 years after I got married. I know it was hard for my husband to watch me suffer from this disease. When he caught obesity a year later, he got so depressed he couldn't do anything but sit on the couch. Some days, we sit and watch television from dawn to dusk, hoping for news of a breakthrough.



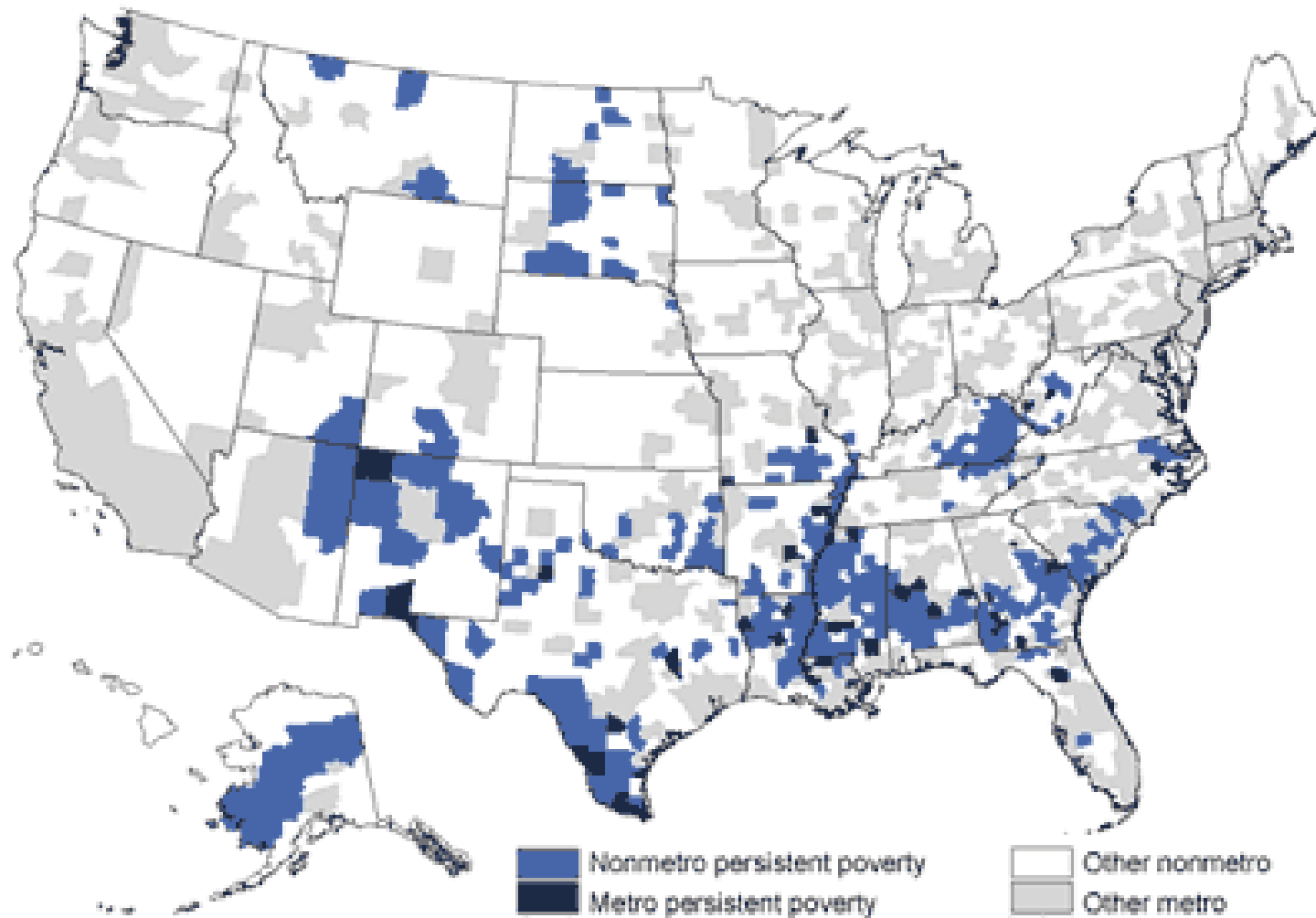
What is Rural? Definitions

- Non-metro (whole county)
- Non-metro, multi-level
 - Rural Urban Continuum
 - Rural Urban Commuting
- Frontier (less than 7 persons per sq. mi.)
- Census (urbanized areas)

What is rural? The rural experience

- 5.7% engaged in Agriculture
- 22% public sector
- 22% service sector (education and health)
- Median household income is 75% of urban
- 85% of poor counties (>20% <FPL) are rural
- 88% of persistent poverty counties are rural

What is rural? Persistent Poverty



What do we know about rural obesity

- Adults:
 - Urban 19.1%
 - Rural 22.7%
- Adolescents
 - Rural = 1.25 urban (Odds ratio, from Lutifiyya, 2007 children 5-18, National Survey of Children's Health)

What do we know about rural obesity?

- State studies of youth:
 - Iowa (children 9-12) 25% rural vs. 19% urban
 - Maine (Medicaid children) 36% rural vs. 27% urban
- National Study
 - Lutifiyya et al. 2007 Adolescents aged 5-18
 - Rural vs. Urban = 1.25 OR

What is rural? What does it look like?



What is rural?



What does it look like?



What is rural? What does it look like?



What is rural? What does it look like?



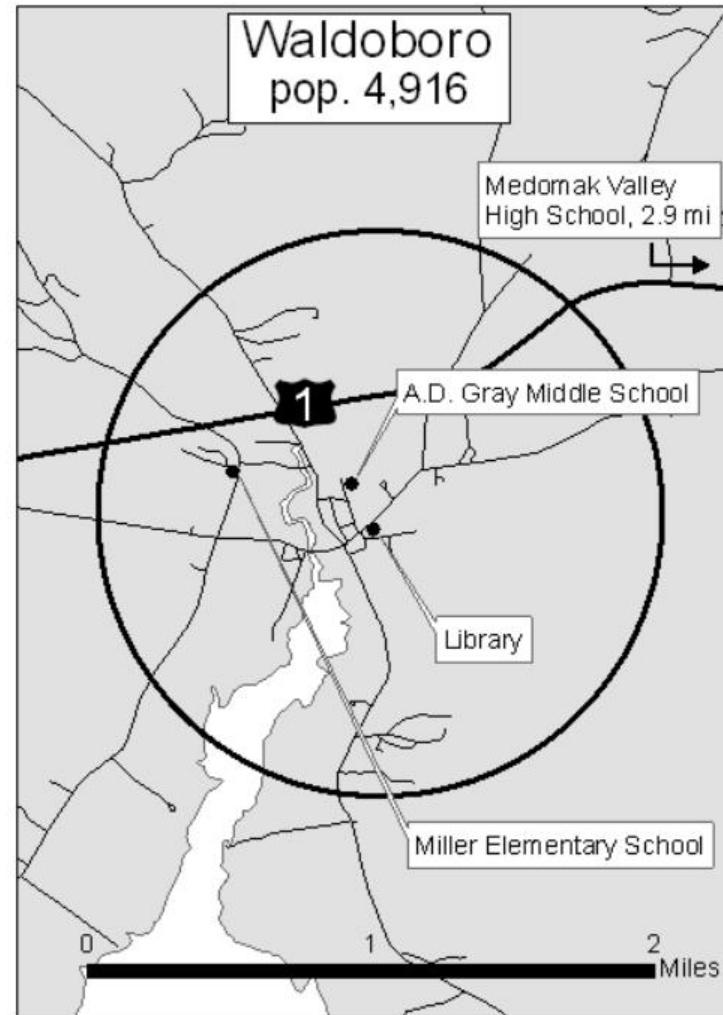
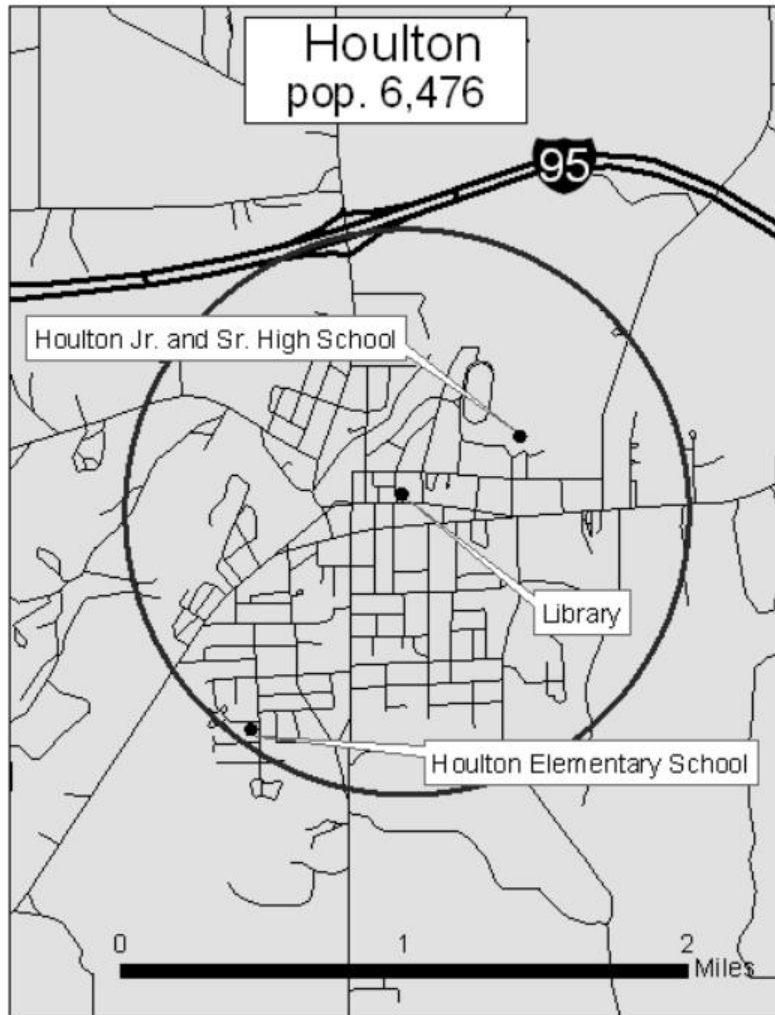
What is rural? What does it look like?



The Rural Townscape

- Density
- Diversity
- Design

Population Density. Intersection Density



How does the *Active Living Model* Fit?

- Domains:
 - Household
 - Occupation – Schools (design, siting, PE policy)
 - Transportation – walking, biking, driving, busing
 - Recreation – programs, cost, access
- Assessment Instruments
 - Irvine-Minnesota Audit

Study Sites: Maine

- Dover Foxcroft
 - pop. 4211 Piscataquis County 4/sq mi
- Houlton
 - pop 6476 Aroostook County 11/sq mi
- Waldoboro
 - Pop 4916 Lincoln County 74/sq mi

Conducting research in rural settings



Changing Landscape

- Rural places are not all the same
 - *'Few issues bedevil analysts and planners concerned with rural education more than the question of what actually constitutes "rural"'*
– Department of Education
- Economic and social character varies greatly
 - Declining job opportunities and population loss
 - Areas rich in natural amenities have experienced economic transformation and rapid population growth
 - Attributes:
 - tracts of open land
 - low population densities
 - scattering of small to medium-sized settlements
 - less developed transport infrastructure
 - lack of access to services and amenities



Central Valley



Southeast



Mississippi River Delta



Appalachia

Background

- Chronic, entrenched poverty
 - Economic limitations
 - Fewer job opportunities = young future leaders moving away from rural areas
- Low education
- Racism
- Isolation and Stigma
 - Common: No “outsider” policy

Economic Constraints & Scarce Resources



Competing issues

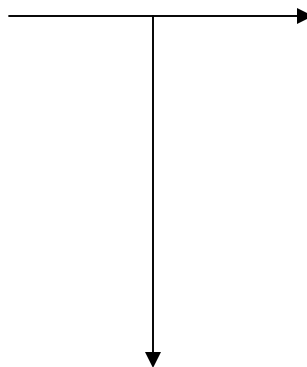
- Few local leaders
 - Focus is often on other issues
- Competing issues:
 - Substance abuse (alcohol, prescription drugs, meth, marijuana)
 - Unemployment
 - Family dynamics
 - Single mothers – little/no father involvement
 - Many children not living with parent
 - Migrant families

Competing Issues

Strong faith community



Community struggling with high rates of unemployment and alcoholism among adult male population



Faith community focused on other priority areas, not active living

“Research” in rural settings

- Lack of knowledge about research – it’s purpose, it’s use
 - Research = programming
 - General hesitation to be “studied”, “tired of being studied all the time”
 - Anonymity is crucial
 - History of negative publicity, exploitation

Barriers to conducting research

- Building partnerships
- Finding local leaders and partner organizations is difficult
- Low literacy populations
 - IRB required language for consents forms
 - Extremely problematic, level of understanding?
 - Difficulties with survey instruments

Obstacles to overcome

- Understanding the language:
 - What does “safety” mean?
 - Safe from crime, safe from logging trucks, safe from snow mobilers, safe from drug addicts, safe from animals (dogs, bears, snakes)
 - What does “community” mean?
 - What does “neighborhood” mean?
 - A hollow in Appalachia

Obstacles to overcome

- Logistical considerations
 - Travel!!!!
 - Distance to services
 - Cost
 - Study staff
 - Participants (barrier to participation)
 - Communication challenges
 - Sparse internet/cell phone access
- Weather
 - Time of year impacts participation, data collection
- Timing
 - Conflicts with school calendars
 - School testing
- Use of incentives
 - Cash or gift card?

“Freeway Entrance on the Right”



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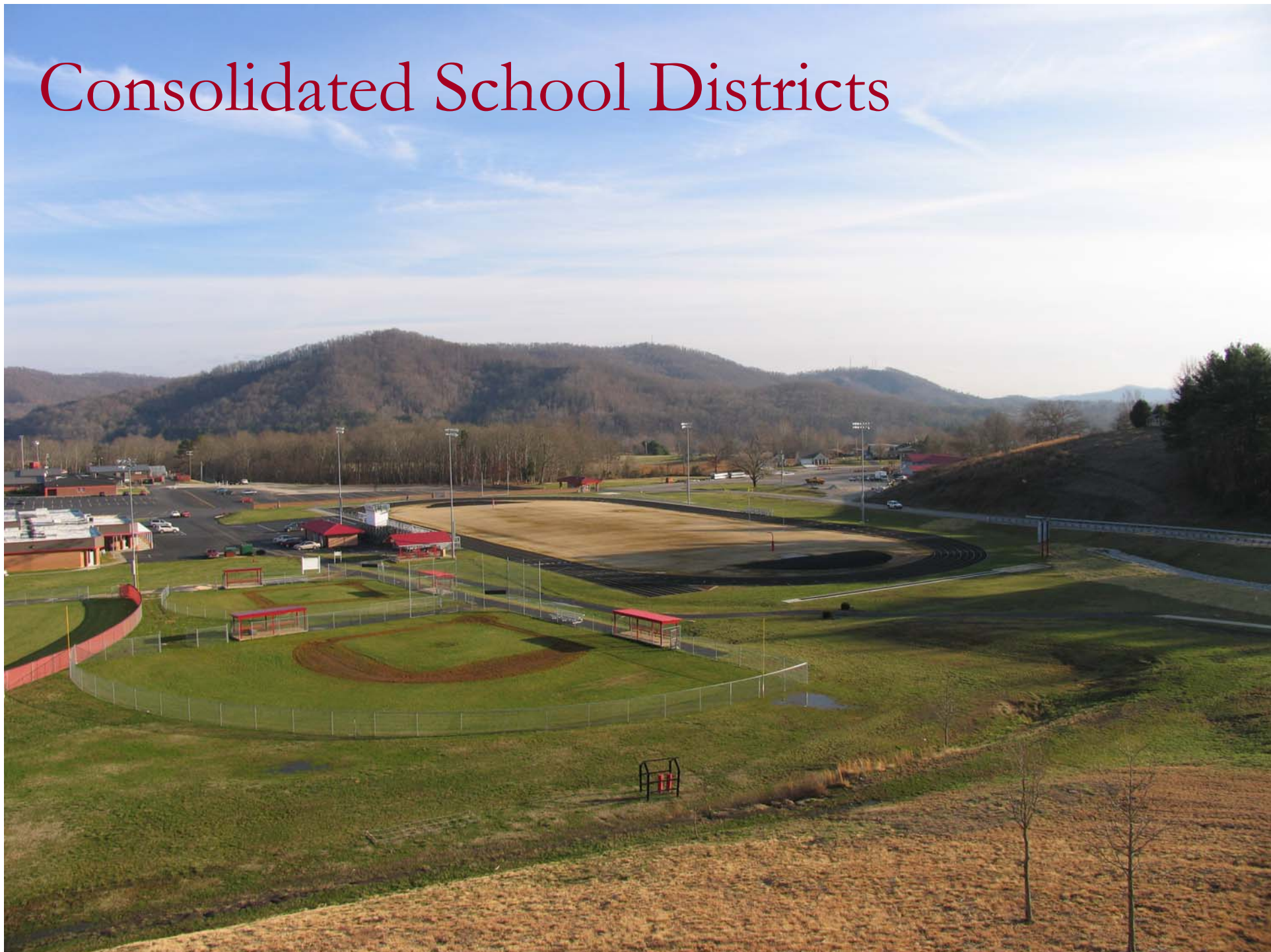
Tufts
UNIVERSITY

Gerald J. and Dorothy R.
Friedman School of Nutrition
Science and Policy

Transportation Issues



Consolidated School Districts



Understanding physical activity opportunities and barriers for children living in rural America

Mississippi River Delta

Appalachia

Central Valley

Southeast



Active Living for Rural Populations

➤ Project Goals:

- To develop a rural model for active living to potentially inform future research and community interventions
- To develop a preliminary rural environmental audit tool to help streamline and standardize measurement methods in future rural active living studies and interventions.



Mixed-methods approach

■ Qualitative

- Focus groups: 6-8 year olds and 9-11 year olds (2 per region and age group, 16 total)
- PhotoVOICE:
 - 17 school staff focusing on school environment, including policy
 - 99 parents focusing on home and community environments
- Built Environment

■ Quantitative

- Family Survey
- Accelerometer (child)

Focus Groups

- Physical Environment
 - Availability of parks
 - Use of hotels and retail locations for PA
 - Hotel pools, McDonald's Playland
 - Transportation sometimes a challenge
 - SC/CA: "No one to drive you"/"Gas prices"
 - MS/KY: "Someone will always drive me"
- Social Environment
 - Safety/crime
 - Few adult role models

PhotoVOICE - Schools

- Policy
 - Limited - no PE time
 - Focus on “instruction”
 - Classrooms teachers provide equipment
 - Withholding recess/PA as punishment
 - Limited programming
- Physical Environment
 - Space constraints (no indoor facility; hilly terrain)
 - Location
 - Age-appropriate equipment
- Social Environment
 - “Lazy/unmotivated” children
 - Parent pick-up



“These children today...they expect to be picked up. They don’t want to walk no where. And parents do it. Some of the can’t walk but there’s more that could but won’t.” – Teacher in MRD



“Our kids can’t walk or bike to school. Look at the road, it isn’t safe. And some of these kids come from really far away – they spend almost an hour on the bus to get here.” – School staff, Appalachia





“Calling home. That’s one of our biggest problems. Getting kids here and keeping them here. If they miss the bus then they miss school. And they often don’t have anyone at home encouraging them to be here.”

– School staff, Appalachia

Built Environment

■ Neighborhood

- Increases ability to walk to school
- Some sidewalks
- Connected roadways
- Few recreational areas/parks near school and homes
- Safety issues
 - Lack of sidewalks
 - Stray animals

■ Remote Locations

- Impossible to walk/bike to school
- Little/no destinations
- No interconnected roadways
- Fast “highways”

Family Survey

- Examples:
 - Active commuting
 - 0% of children in SC/KY walk to school
 - Screen time
 - Over 75% of children have a TV in their bedroom
 - MS/SC/KY – over half of homes have 3+ TV's
 - Parental involvement
 - Families use sport PA as recreational activity – <50% reported doing so often/frequently
 - Physical environment – little/no variability for some items
 - Region specific
 - Social environment
 - More variability by region (safety, social cohesion, etc.)

Active Living in Rural Maine



Environmental Audits

- Conducted environmental audits to gather information about the natural and built environment and the density, diversity and design in each town.

Environmental audit:

- Land use
- Recreational facilities
- Parks
- Paths/Trails
- Sidewalks/Shoulders
- Roads/Speed Limits
- Landscaping in parks/trails
- Safety and maintenance
- Location of schools

Key Informant Interviews

- Key Informant interviews with:
 - Town planners/officials
 - School personnel
 - Clinicians/community health practitioners
 - Recreation planners/directors
 - Transportation officials
 - Parents

- Key informants asked to describe:
 - features of the community available to youth for PA
 - the level of PA among youth in their community
 - the general health of community members
 - physical or programmatic barriers to activity

Focus Groups

- Six focus groups in each town, broken down by grade level (grades 5-6, 7-8, 9-12) and gender.
- Student participants:
 - Must live in the selected town
 - Must be eligible for free/reduced lunch (low SES)
- Students were asked about:
 - Their general PA habits throughout the 4 active living domains
 - Barriers to PA in their community
 - Desired opportunities for PA
 - Knowledge of PA programs in their community
 - What adults they see being physically active in their community.

Final Conceptual Model Elements

SOCIAL

SES
Gender
Culture
Social Support
Safety/Trust

PHYSICAL

Density
Design
Diversity
Perception

PROGRAMMATIC

Policy
Transportation
Land-Use/Zoning
Community Devp't
School
Safety/Crime
Programs
School based
Community based

- How do these elements influence the 4 domains of active living: Recreation, Transportation, Occupation (school), and Household?

Social Environment

➤ Socioeconomic status:

- *“My brother and I both wanted to do the YMCA, but my mom could only afford for one of us to go.”*

➤ Family/Parental Role Models:

- *“I watch TV because my mother is too lazy to go anywhere.”*

➤ Crime:

- *“There are basketball courts, but druggies go there so I stay away from there.”*
- *“...Most of the time my mom says ‘you don’t need to do that’...maybe because she’s afraid of sex offenders. There’s one who lives right up the street.”*

Physical Environment

- Distance and isolation create unique barriers:
 - *“The general layout is not conducive to everyday PA. It is very spread out, so you have to drive everywhere.”*

- Investment in traditional/diverse town centers:
 - *“There’s not much reason to go into town – people live far away and there is no park or community area. To shop, people go to Walmart in Rockland or Augusta.”*

- School and recreational facility location:
 - *“They are building the new middle school right next to the high school, way out of town... There is no real way for kids to walk/ride to the high school.”*
 - *“I don’t feel safe walking to school and walking back because there’s no sidewalks...you’re like walking in the middle of the road.”*

- Natural environmental features not always accessible:
 - *“There are really good trails all through town...but people don’t walk on it because there’s a lot of turns and sledgers fly through the trails.”*

Policy and Programmatic Environment

➤ Transportation Policies:

- *“For practices there are no late buses...I have to get a ride.”*
- *“I wanted to do track but my mom won’t let me because she doesn’t want to drive me.”*

➤ School Policies/Programming:

- *“They should put a playground near the school – we have nothing to do! It’s just like a parking lot and a field...”*
- *“The school needs a real track – running on that dirt hurts!”*
- *“There should be a janitor at the school gym on the weekends so we could use it.”*

➤ Community Programs:

- *“(We need) more family events that get younger people involved in doing things they can continue doing as teenagers and beyond.”*
- *“There’s a rec program – that but that’s for kids under 14. Once you get into high school it ends though...”*

The Active Living Ecological Model

➤ Transportation:

- Provide safe, affordable, and convenient transportation options for youth

➤ Occupation (school settings):

- Prioritize finding ways to increase opportunities for physical activity at schools for students of all ages

➤ Recreation:

- Reach rural youth with appropriate recreational opportunities for physical activity that are accessible to youth regarding transportation, cost and diversity

➤ Household:

- Educate parents about how to be healthy family role models
- Need for family-friendly venues for parents to engage in safe physical activities with their children



Rural as a “Priority Population”

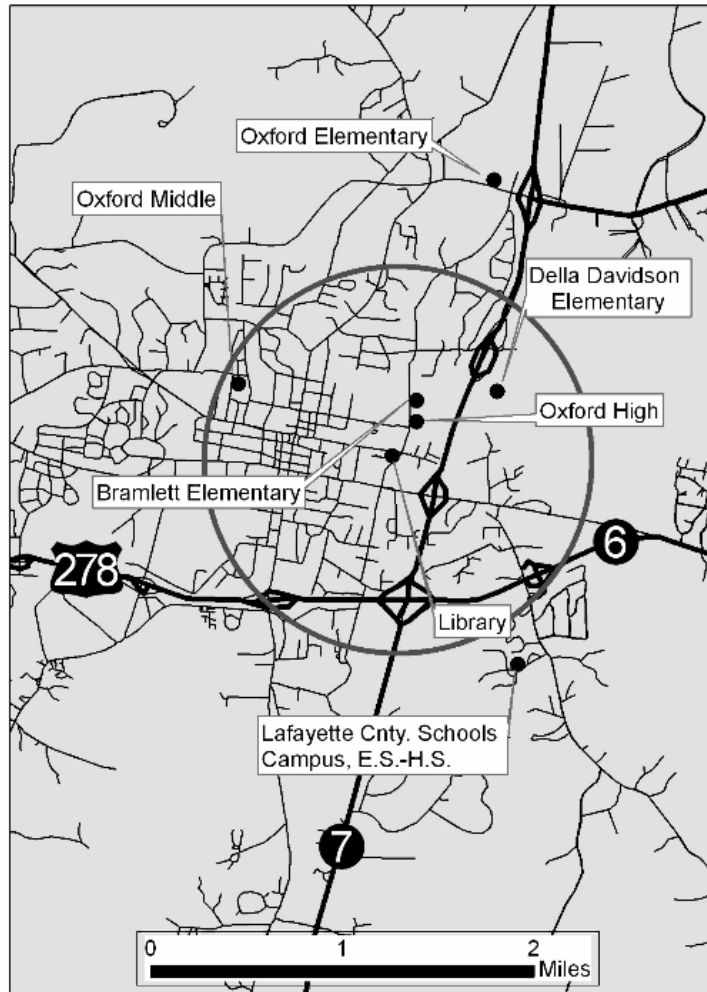
- Rural communities are sufficiently different from urban communities and require special considerations for assessing and enhancing the relationship between the physical environment and active living.
- Given the higher obesity rates in rural areas, and the unique challenges that rural communities face it is clear that efforts to stem the tide of childhood obesity must consider rural residents a priority population.
- A one-size approach to PA promotion will not fit the needs of rural children and their communities. More research, interventions and evaluations on the best ways to promote rural physical activity are critically needed.

Active Living in Rural Mississippi & Alabama

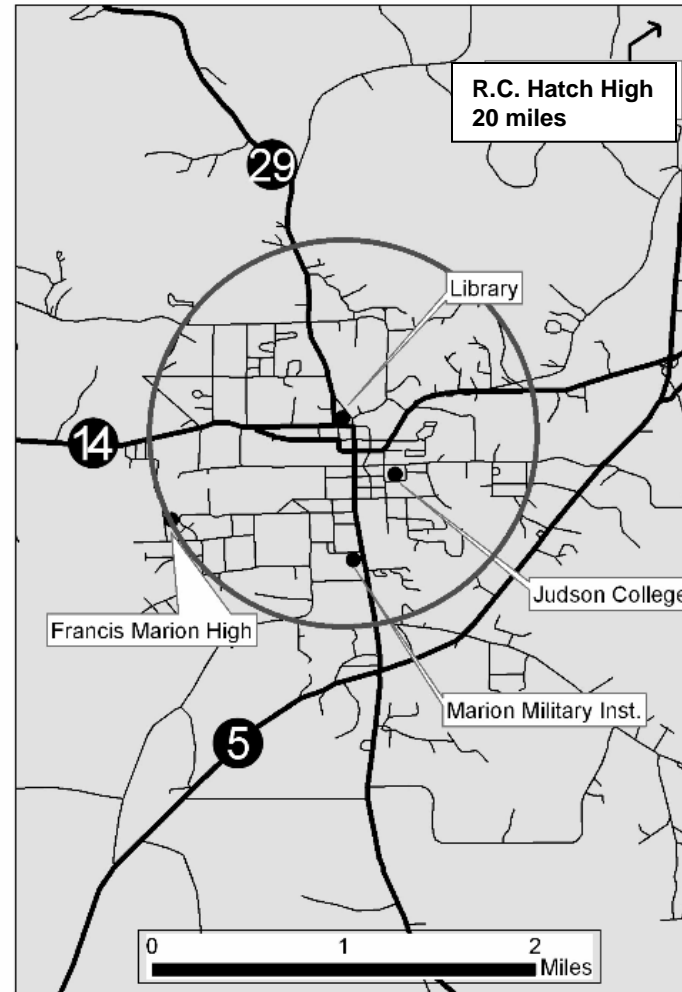
Lafayette County, MS
Perry County, AL



Oxford, MS



Marion, AL



Methods

- Focus Groups
- In-depth Interviews
- Environmental Audits
- Surveys



Focus Groups

- Adolescents – H.S.
 - 9th & 10th Grade Girls
 - 9th & 10th Grade Boys
 - 11th & 12th Grade Girls
 - 11th & 12th Grade Boys
- Middle-age Adults
 - Parents
 - H.S. Teachers & Staff
- Older Adults
- Disparity
- SES differences
- Awareness of PA
- Lack of resources & activities
 - AL – actual
 - MS – perceived
- Organized sports
- Safety
- Single parent homes
- Transportation

In-depth Interviews

- State-level
 - PA Coordinator
 - Rural Health
- County
 - Sheriff - attempted
 - Commissioner
 - DOT
- City
 - City rep
 - Parks rep
 - Police
- School
 - PE teacher
- Communication
- Lack of resources
- Lack of awareness
- Safety
- Adolescent Apathy



Environmental Audits

- PARA (Physical Activity Resource Assessment)
- SPACES - rural (Systematic Pedestrian and Cycling Environmental Scan)
 - Walkability of Street Segments
 - Strongly agree
 - Agree
 - Disagree
 - Strongly disagree
- Perry County
 - 107 segments
 - 60% of segments “not walkable”
- Lafayette County
 - 85 segments
 - 76% of segments “not walkable”
- PARA
 - Schools, churches, parks, private facilities, higher ed

Surveys

- Adolescent High School Students
- Parents
- Teachers
- Older Adults
- 7 d PAR
- 2-item PA (Prochaska et al.)
- GPAQ
- NEWS abbreviated
- Active Where - 21 items
- Demographics
- 2 items based on F.G.

Next Steps: Rural Environments and Physical Activity



Next Steps: Rural Environments and Physical Activity

■ Background

- Three Active Living Research Rural Environment and Physical Activity Projects
- Measurement challenges
 - Rural-specific observational instrument
 - Rural-specific self-report instrument
 - Dissemination of instruments and results

Next Steps: Rural Environments and Physical Activity

- Rural-specific observational instrument
 - Current instruments and instruments modified for use in rural environments do not provide the specificity for rural environments in the context of physical activity.
 - Modified SPACES for Rural Environment Audit Tool
 - Modified Irvine-Minnesota Audit Tool
- Create rural-specific instrument and test in multiple rural environments

Next Steps: Rural Environments and Physical Activity

- Observational Instrument
 - Create and refine instrument
 - Create manual (codebook)
 - Validity and Reliability studies
 - Multiple settings
 - Access inter-rater reliability and test-retest reliability
- Produce an instrument for general use in rural communities

Next Steps: Rural Environments and Physical Activity

- Instrument to be tested with self-report instrument
- We will be able to provide insight as to what rural design features, programs, and policies are correlated with physical activity
- This will help researchers and interventionist design more effective physical activity programs for rural environments

Next Steps: Rural Environments and Physical Activity

- Self-report environmental instrument for rural areas regarding physical activity support
 - Current instruments and instruments modified for use in the rural environment do not provide the specificity for rural environments in a physical activity context
 - Create a self-report instrument for rural environmental support for physical activity across the lifespan and in multiple geographic areas

Next Steps: Rural Environments and Physical Activity

- Three phase approach
 - Phase I
 - Create item pool from all three teams
 - Phase II
 - Rural health experts
 - Expert panel review
 - Cultural appropriateness
 - Phase III
 - Field and Pilot testing

Next Steps: Rural Environments and Physical Activity

■ Dissemination

- Inform research and allow for evidence-based interventions.
 - Policy
 - Environment
 - Social norms
- Integrated conceptual model
- Rural-specific environmental measures with corresponding protocols

Next Steps: Rural Environments and Physical Activity

- Key messages delivered to:
 - Researchers
 - Non-profit organizations
 - Community stakeholders
 - Transportation planners
 - Rural health policy offices
 - Local, state, federal policy makers

Next Steps: Rural Environments and Physical Activity

■ Challenges

- ❑ Time frame to develop and disseminate work
- ❑ Relevancy and measurement of environmental features across lifespan

■ Strengths

- ❑ Collaborative relationship of grantees
- ❑ Work scope of each center focuses on skills and experience of grantees

