



# MOUNTAIN elements

A MountainWise Health Impact Assessment for Western North Carolina

MOUNTAINWISE.ORG

# Executive Summary



The future of Western North Carolina depends on the health and prosperity of its youth. MountainElements defined health beyond the traditional definitions related to access to care and physical activity to delve into a variety of health and wellness topics for this regional Health Impact Assessment.

MountainElements is a first-of-its-kind, eight-county health impact assessment (HIA). This assessment has helped merge interests of health and planning professions in order to help the region share its success stories and preserve the area for future generations. MountainElements has evaluated proposed actions related to planning and policy around the built environment, with recommendations based in the region's context and heritage. The goal of the MountainElements Project is to merge the conversations about planning and health to identify policies, plans, programs, and projects that create a healthier region, one that builds capacity through counties, cities, and towns. MountainElements is focused on economic growth, job creation, mobility, access to nature, creating healthy conditions for citizens of all ages and abilities, and making sure future generations have a place to grow and prosper.

To carry out such tasks, the MountainElements approach includes:

- ◆ Conducting a Health Impact Assessment on proposed plans and policies related to Comprehensive Plans, Transportation Plans, Parks and Recreation Plans for all eight counties in the MountainWise area.
- ◆ Developing Health & Wellness elements for Comprehensive Plan integration in all eight counties.
- ◆ Evaluating built environment planning and policy through the lens of seven dimensions of health and wellness - physical, emotional, social, environmental, spiritual, intellectual and economic.
- ◆ Training to build capacity in the region for better integration of public health needs into comprehensive planning, as well as transportation planning and economic development strategies.
- ◆ Policy gap analysis
- ◆ "Hot spot" analysis to identify pockets of poor health within the region

Through the assessment, the project team unearthed seven major health impact themes.

1. Local Food and preservation of agricultural land may improve nutrition
2. Income disparities will fuel health inequalities
3. Federal funding reliance may have future negative repercussions
4. Active transportation can improve physical activity rates
5. Education level attainment levels may hinder future health improvements
6. Land use planning is a key component to healthy living
7. Access to care leads to early detection, prevention of disease

The assessment phase revealed many opportunities to integrate health into planning. The project team organized and prioritized recommendations into a single, primary recommendation that would cut across and benefit all counties in the region and a menu of other recommendations tailored to each county, from which the counties could pick and choose what made sense for them in advance.



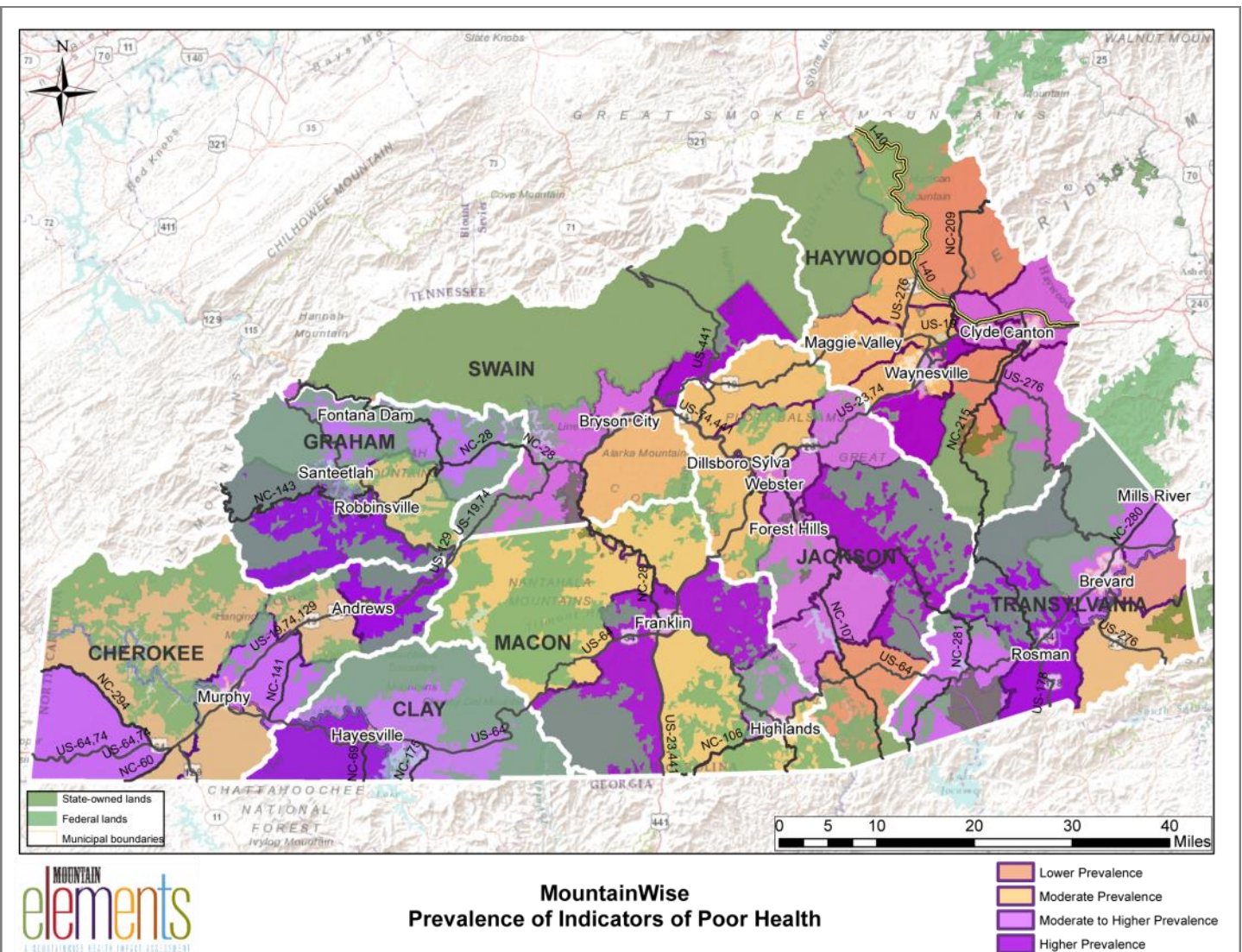
## Hot Spots of Poor Health Conditions

The MountainElements hot spot analysis both highlights current issues and concerns and establishes a baseline condition for the region. This visual approach makes it easy to understand where the pockets of poor health exist, and helps decision makers and policy creators craft recommended interventions and prioritize them.

Regionwide, there are 58 Census Tracts, which were ranked in terms of prevalence of poor health conditions. All told, there are

- ◆ **13 High Prevalent tracts** (worst conditions/highest need)
- ◆ **20 Moderate to High Prevalent tracts,**
- ◆ **19 Moderate Prevalent tracts,** and
- ◆ **6 in the Low Prevalent category** (best conditions/lowest need)

The regional map below illustrates how the various counties within the region compare to one another. Individual County-specific maps, with a summary of hot spots for each county and factors that contribute to its rating as a hot spot, are included along with the summary of plans for that county.



## Recommendations

The principal recommendation unearthed in the HIA is that the region, each county, municipalities and partnering stakeholders begin the process for meaningful food system planning. The aim of such an action is to secure locally grown crops, that harvesting and delivery to market be made as efficient as possible to maintain competitiveness, to ensure healthier and less processed foods be made available to regional residents, and that the food production culture that is so important to the region is preserved for future generations.



### Transylvania County Farmers Market



Since 2012 the City of Brevard has funded the Market Manager position. With this, along with numerous local businesses and individuals, and grants such as MountainWise, the Market has grown into a busy and successful Saturday farmers market. With more than 70 vendors in 2014, the market increased its customer base to 400 to 600 customers per week with 800 to 1,200 on event days, totaling more than 25,000 attendees in 2014. The market operates 38 weeks of Saturday morning markets that include 12 events and a variety of healthy cooking demonstrations, product taste testing, gardening & kitchen skills demonstrations, exercise & fitness classes, activities for kids & families. We have live, local music every week and have become a place not only for our local residents and visitors to shop for healthy local food and products, but also a place for entrepreneurs to start their business and the community to gather and spend time socializing with neighbors.

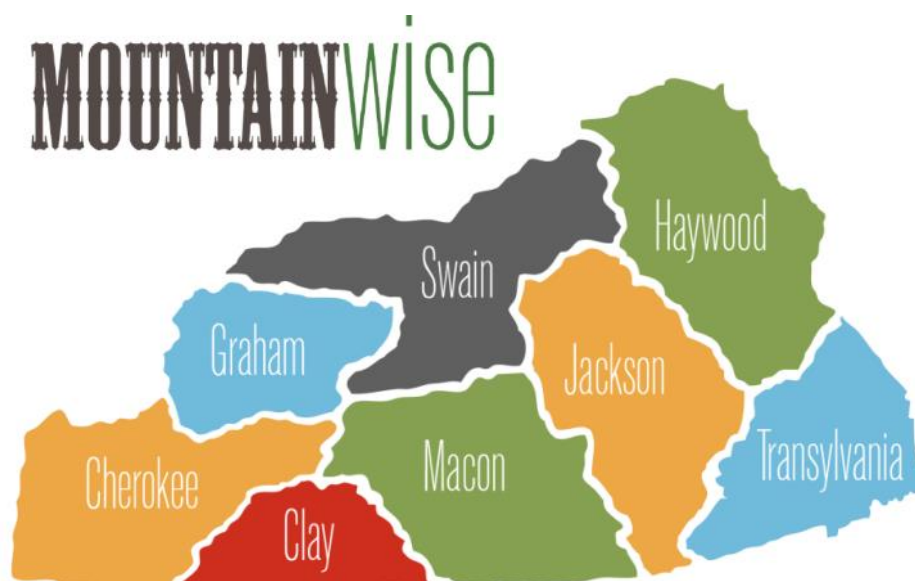
Other findings and recommendations include:

- ◆ **Growing local food initiatives and preservation of agriculture land may improve nutrition-** By understanding the nutritional needs of residents, steps can be taken to boost production for local consumption.
- ◆ **Agricultural land preservation & focused land use planning are keys to healthy food systems-** Related to the primary finding but requires a combination of voluntary or regulatory steps to make possible.
- ◆ **Income disparities will fuel health inequalities-** By taking steps to reduce living costs and increasing the number of better paying jobs, citizens can improve health due to access, affordability and lifestyle options like food choice, recreational participation, and preventative care.
- ◆ **Continued federal funding reliance could have negative repercussions-** Steps are needed to shore up financial outlays with local sources to reduce federal exposure.
- ◆ **Active transportation options can improve physical activity rates-** Making walking, bicycling and transit use accessible increases physical activity and participation.
- ◆ **Education attainment levels may hinder future health improvements-** Key to economic competitiveness and wages improving higher education attainment rates is vital to regional health.
- ◆ **Communities are in need of local, small town and rural community activity hubs-** Such hubs promote quality of life and can improve all aspects of health, not just physical or emotional.
- ◆ **Limited access to care prevents early detection and prevention-** attracting medical professionals and assisting with residents' access existing regional outlets is key for preventing future significant and costly medical issues.

## Table of Contents

1. Introduction.....	1
2. Screening .....	4
3. Scoping .....	6
4. Assessment.....	18
5. Recommendations & Monitoring.....	52
6. Reporting & Evaluation.....	68
Links & Resources .....	72

This report and its appendix are available online at [www.mountainwise.org](http://www.mountainwise.org)





# Acknowledgments



SOUTHWESTERN COMMISSION

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- ◆ Cherokee County Department of Public Health
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- ◆ Jackson County Department of Public Health
- ◆ Graham County Department of Public Health
- ◆ Haywood County Department of Health and Human Services
- ◆ Transylvania County Department of Public Health
- ◆ Cherokee County Economic Development
- ◆ Clay County Economic Development
- ◆ Graham County Economic Development
- ◆ Graham Revitalization Economic Action Team (GREAT)
- ◆ Stecoah Valley Center
- ◆ Swain County Economic Development
- ◆ Jackson County Planning Department
- ◆ Holly Springs Baptist Church
- ◆ Healthy Carolinians of Macon County
- ◆ Macon County Planning Department
- ◆ Town of Franklin Planning Department
- ◆ Town of Highlands Planning Department
- ◆ Transylvania Planning Department
- ◆ City of Brevard Planning Department
- ◆ Transylvania Farmers Market
- ◆ The Glorious Jackson County Farmers Market
- ◆ Haywood County Planning Department
- ◆ Healthy Haywood
- ◆ MANNA Foodbank

## Project Consultants



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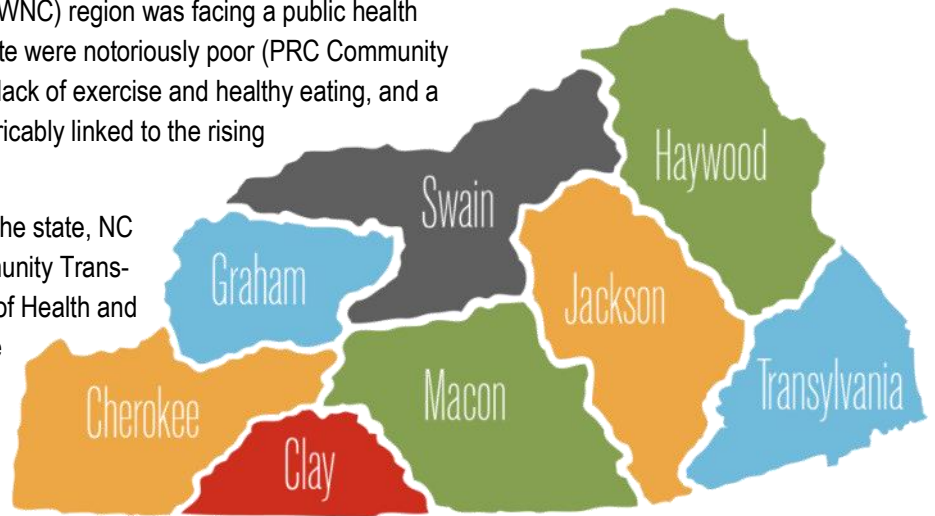
Made possible with funding from the North Carolina Community Transformation Grant Project and the Centers for Disease Control and Prevention

# 1. Introduction

## Western North Carolina's Public Health Crisis

Two years ago, the Western North Carolina (WNC) region was facing a public health crisis. Health outcomes in this area of the state were notoriously poor (PRC Community Health Assessment 2012). Obesity, due to a lack of exercise and healthy eating, and a generational addiction to tobacco, were inextricably linked to the rising rates of cancer, diabetes, and death.

To address these and other health issues in the state, NC applied for and received a \$7.4 million Community Transformation Grant (CTG) from the Department of Health and Human Services and the Centers for Disease Control and Prevention (CDC). Grant funds were intended to lead communities through the process of creating public health changes at the systems, or policy, level.



The residents of the eight counties that make up the WNC region are deeply independent and resilient, and pride themselves on living off the land. Any public health campaign needed to honor the knowledge, traditions, and heritage that exist among the people of the region, without implying a lack of skills necessary to become and remain healthy.

North Carolina took that seriously, and invited WNC residents into the branding process, which resulted in the creation of the MountainWise (MW) brand. The initiative became known as simply MountainWise.

## Definition of a Health Impact Assessment

A critical, future-facing next step was to undertake a Health Impact Assessment (HIA) for the region. Such a large-scale effort would ensure future public planning truly looked out for the health of the people of the region.

As early as the 19th century, public planning was rooted in public health. Gradually, however, the one became decoupled from the other. Comprehensive plans—the long-range guides to future community building and improvement—were being created that did little more than inventory health services, largely due to a lack of funding.

Similarly, public health professionals conducted health fairs that happened in a vacuum. Public planners and public health folks were working at cross-purposes.

### HIA

**“...a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects.”** *(National Research Council)*

In other words, sprinkling good public health practices on top was much less effective than baking it into the comprehensive plan from the beginning.



Places like downtown Sylva would be considered a marvel of modern planning if they were built today. So, how can we re-create cohesive, healthy communities like many of Western North Carolina's downtowns? This was the purpose of MountainElements—to examine the tools needed to preserve the people and places of our mountains.

Since the turn of the 21st century, a new tool has been bringing health back into planning. The health impact assessment (HIA) is a tool that integrates a health lens into the planning process. It evaluates any proposed action to best determine how it may have an impact on the human health of a given population. An HIA works best when it is developed at the same time the comprehensive plan is being developed. Recommendations can then inform and be folded into the comprehensive plan.

More specifically, the National Research Council (2011) defines HIA as:

“...a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects.”

The MountainWise initiative came at a great time. Some of the counties were updating their comprehensive plans, or were preparing to, and others were interested in taking a deep dive into the health and wellness themes to create addendums to existing plans.

MountainElements is the name of the entire process of integrating health into planning. An HIA, conducted under the MountainElements/ MountainWise umbrella was one way to successfully do so. The name MountainElements reflects the seven dimensions of health and their essential nature in planning and community building. The MountainElements process would evaluate proposed plans and policies related to comprehensive plans, transportation plans, parks and recreation plans in the eight county, rural Appalachian MountainWise area. This HIA would identify opportunities to embed the primary tenets of MountainWise (increased physical activity, access to healthy foods, tobacco-free living, and access to services for chronic disease management) into plans at the ground floor.

## The Six Steps of Health Impact Assessment

As prescribed by National Resource Council, an HIA must be conducted through integration of a six-step model that includes:

- ◆ **Screening**, which determines if an HIA would be useful or relevant to a particular planning effort.
- ◆ **Scoping**, which identifies the project's goals, how the assessment will be conducted, what tools and outreach methods will be employed, and what data is available.
- ◆ **Assessment**, where the determination of potential impacts, both qualitative and quantitative, takes place. Assessment tools include interviews and evidence-based research.



- ◆ **Recommendations**, which are the suggested action steps to improve the proposed planning effort.
- ◆ **Reporting**, which is how the HIA will be communicated to the public, agencies, or other interested parties.
- ◆ **Monitoring/Evaluation**, which identify periodic scans to ensure the recommendations are being carried out, and in evaluation, to examine the process by which the HIA was developed and learn from successes and issues.

This document is a reflection of the MountainElements process in western North Carolina. Each of the six steps and the specific actions taken are included in order to highlight a realistic application in a rural setting.

## Planning + Public Health

The cornerstone of MountainElements is linking planning to public health via the Seven Dimensions of Health and Wellness, illustrated at right surrounding the common themes of Comprehensive Planning.



## 2. Screening

### SCREENING

In the screening phase of HIA the HIA in consultation with stakeholders and experts sets out to determine whether an HIA for a given policy or project proposal is warranted and feasible.

The screening process for the MountainElements HIA was conducted to specifically assess the following:

- ◆ How the HIA process itself could inform policy decisions, and how current and future comprehensive plans could integrate MountainWise themes
- ◆ The level of interest from local health directors in acting upon the MountainElements recommendations and bringing them into future decision-making.
- ◆ Whether MountainElements could be completed within available budget resources and schedule requirements as outlined in MountainWise's CTG funding cycle.

Screening then followed several steps. First, MountainWise leadership, whose membership is comprised of one health director from each of the eight counties, determined the likely role of the regional government through the Southwestern Commission Regional Council of Government, which covers seven of the eight counties under the purview of MountainWise (Transylvania County being the exception).

Regionalism is a new concept in WNC, and not one that is wholly embraced.

WNC residents are very community centric, and traditions vary accordingly. MountainWise learned during its discovery process not to paint the WNC region with a broad brush. And yet, reaching across geographic boundaries was critical to long-term success.

Getting the only regional planning entity, the Southwestern Commission, involved brought in resources and support. The Southwestern Commission was also spearheading a parallel regional visioning effort involving citizens, leaders, and planners in the area.

The value of carrying out an HIA was determined through an assessment of the values and virtues of MountainWise and the statewide CTG, which identified its year-three focus area for all of North Carolina to be integrating health into comprehensive planning.

After the merits of conducting an HIA were determined to align with the initiatives of MountainWise, a series of goals and objectives was created for the HIA itself. Those goals have been condensed into one statement, reflected here.

**MountainElements Goal:** Merge the conversations about planning and health to identify policies, plans, programs, and projects that create a healthier region, one that builds capacity through counties, cities, and towns.

MountainElements is focused on economic growth, job creation, mobility, access to nature, creating healthy conditions for citizens of all ages and abilities, and making sure future generations have a place to grow and prosper.

To further expand on the end goals of the HIA conclusions and recommendations, additional subtasks under the umbrella of the MountainWise mission were executed. The

tasks fulfilled not only build HIA capacity and collaboration amongst regional stakeholders, but also contribute health-specific themes, policies, and endeavors within the Comprehensive Plans themselves.

To carry out such tasks, the MountainElements approach includes:

- ◆ **Conducting a Health Impact Assessment** on proposed plans and policies related to Comprehensive Plans, Transportation Plans, Parks and Recreation Plans for all eight counties in the MountainWise area.
- ◆ **Developing Health & Wellness elements for Comprehensive Plan integration** in all eight counties.
- ◆ **Evaluating built environment planning and policy** through the lens of seven dimensions of health and wellness - physical, emotional, social, environmental, spiritual, intellectual and economic.
- ◆ **Training to build capacity in the region for better integration of public health needs into comprehensive planning**, as well as transportation planning and economic development strategies.

## Opt-In Effort Yields a Regional Vision

Concurrent to the start of MountainElements, the Southwestern Commission in partnership with the Appalachian Regional Commission and the North Carolina Department of Transportation began their Opt-In effort, which was aimed at producing a regional vision for seven of the MountainWise communities (not Transylvania County). Opt-In was predicated on evaluating the regional utility of a major highway corridor but included generation of Countywide Comprehensive Plans and Comprehensive Transportation Plans in Graham and Cherokee Counties.

Due to the intended approach of MountainElements to evaluate Comprehensive Plans, it was determined by MountainWise and Southwestern Commission leadership that the two efforts would be conjoined for purposes of public outreach in Graham and Cherokee Counties in order to inform health elements of their respective Comprehensive Plans.

MountainElements would also use the pillars of the regional visioning efforts in all seven counties as the foundation on which to measure portions of the HIA's Assessment phase. Economic development is the driving theme of the regional vision and its relationship to public health is present in many of its overall principles.



Through Screening it was determined that a Health Impact Assessment on Comprehensive Planning aligned with MountainWise work with the eight westernmost counties of North Carolina to provide opportunities for physical activity, access to local fresh fruits and vegetables, provide support for tobacco-free places and access to services for chronic-disease management.



## 3. Scoping

### Scoping

Scoping establishes the foundation under which the health impact assessment is conducted; it is about designing and planning the HIA.

The scoping phase of MountainElements was extensive. Scoping allows those involved to get a “lay of the land” in terms of figuring out what data are and aren’t available for assessment, and which questions the HIA will answer.

Data were in abundance for this project. The State of North Carolina provided to MountainWise data from the US Census and the North Carolina State Center for Health Statistics to generate the baseline data for geographic analysis. To bolster these data, the research team identified additional resources consisting primarily of already-complete plans and health related studies, inclusive of:

- ◆ Local County Health Assessments (CHA);
- ◆ WNC Healthy Impact Survey;
- ◆ County Health Implementation Plans (CHIP);
- ◆ County and municipal Comprehensive Plans;
- ◆ County and municipal parks/recreation, transportation, and economic development plans;
- ◆ County health rankings;
- ◆ Stakeholder interviews; and
- ◆ Public meetings and workshops.

Next, the team created a logic framework by which they would surface the questions for the HIA to answer. The MountainElements framework combined two different models for understanding healthy people and thriving communities.

### The Seven Dimensions of Health

“Health” is commonly understood as one of two things: health care, and physical activity. While important, these two aspects of health do not fully address the health of an individual or a community.

In WNC, the health conversation was predominantly about access to care. Other, equally important health themes received less attention. To balance its approach, MountainElements incorporated what is known as the Seven Dimensions of Health and Wellness, as developed by researchers at the University of Wisconsin at Stevens-Point in the 1960s.

The Seven Dimensions lend themselves well to public planning efforts as planning encompasses much more than the physical realm of health. Planning contributes to overall community and individual health in a variety of ways—through policies, projects and programs that stem from the findings and recommendations that are part of Comprehensive Plans and other related efforts.

The seven dimensions and how planning influences them are outlined in the illustration on the next page.

# THE SEVEN DIMENSIONS OF HEALTH



## Physical Health

the ability to maintain a healthy quality of life such that we can complete daily activities without excess fatigue and stress. Planning can impact an individual's ability to find places to improve physical health.

## Emotional Health

the ability to understand ourselves and cope with the challenges life can bring. Planning contributes to emotional health by promoting safety and general welfare of the population.



## Social Health

the ability to relate to and connect with other people in our world and our ability to establish and maintain positive relationships. Planning helps communities develop places to interact with family, friends and co-workers

## Economic Health

the ability to pursue a variety of occupational vocations and achieve personal fulfillment in our careers. Economic development is a stated goal, and oftentimes primary goal, in most Comprehensive Plans.



## Environmental Health

the ability to recognize our own responsibility for the quality of the air, water, and land that surrounds us. Planning helps improve the environment through land use policy, preservation of open space and water quality requirements.

## Intellectual Health

the ability to open our minds to new ideas and experiences, learn new concepts, improve skills and seek challenges. Identifying how schools, colleges and other institutions can contribute to the long range goals of a community links planning and intellectual health.



## Spiritual Health

the ability to establish peace and harmony in our lives, develop congruency between values and actions and to realize a common purpose that binds humanity. Planning improves spiritual health by allowing for places where people can develop their spiritual health through faith or simply being.

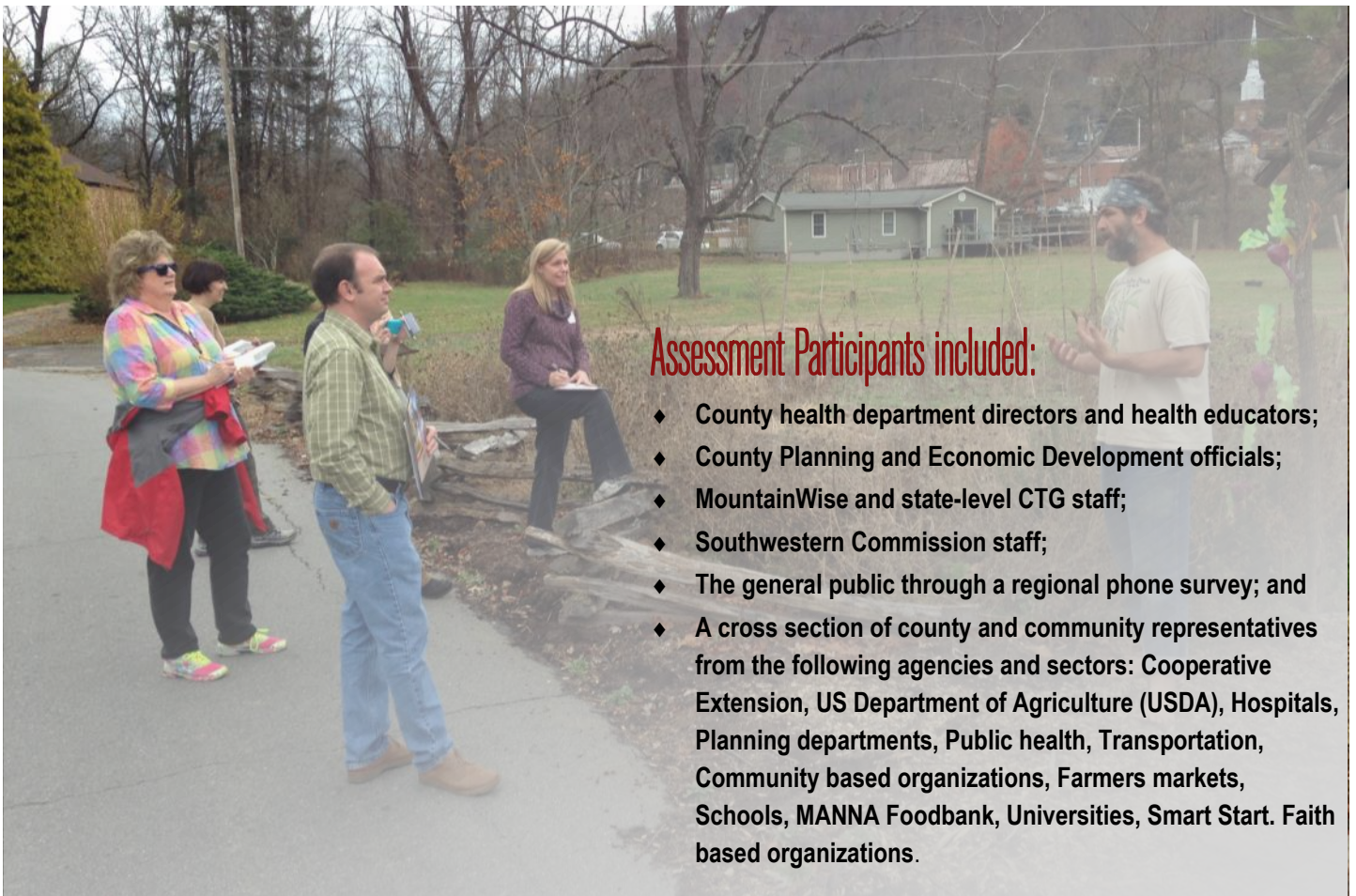
## Other Health Themes: Opt-In and MountainElements Find Common Ground

Simultaneous to the MountainElements HIA was another regional visioning and scenario planning effort for seven of the eight MountainWise counties (excluding Transylvania). County-by-county workshops and interviews with key stakeholders to define their vision for the economic, transportation, and environmental future of the region, were conducted.

The common themes from the effort were: healthy places, economy, transportation, and quality of life.

By combining Comprehensive Plan elements, the seven dimensions of health, and the regional visioning effort results, the research team had laid a substantial – yet simple – foundation by which it would conduct the HIA.

If that weren't enough, the MountainElements HIA is also ambitious in that it combines an evaluation of the health impacts of Comprehensive Plans in different stages of development with various subject-area plans comprising a county's planning history. People involved in the comprehensive plans were invited to engage.



### Assessment Participants included:

- ◆ County health department directors and health educators;
- ◆ County Planning and Economic Development officials;
- ◆ MountainWise and state-level CTG staff;
- ◆ Southwestern Commission staff;
- ◆ The general public through a regional phone survey; and
- ◆ A cross section of county and community representatives from the following agencies and sectors: Cooperative Extension, US Department of Agriculture (USDA), Hospitals, Planning departments, Public health, Transportation, Community based organizations, Farmers markets, Schools, MANNA Foodbank, Universities, Smart Start. Faith based organizations.



## Assessment Tools

The team selected the assessment tools listed below during the scoping phase:

- ◆ Stakeholder meetings;
- ◆ Health department interviews;
- ◆ Document review;
- ◆ State regulations review;
- ◆ Financial review;
- ◆ Independent evaluation;
- ◆ Regional public survey; and
- ◆ Evidence-based research.

## County-Specific Dashboards

The research team organized the data into county-specific dashboards developed for MountainElements. These dashboards served as snapshots of where each county stood with regard to four common health indicators found in Community Health Assessments from 2012-2013.

The four health measures include:

- ◆ Reported health
- ◆ Physical activity levels
- ◆ Household income
- ◆ Prevalence of obesity

The following pages illustrate how each county stacks up against one another and compared to North Carolina averages. .



**Success  
Stories**

## Holly Springs Baptist Church



Macon

**Holly Springs Baptist Church (HSBC) plays an important role in both the spiritual and physical health of its community. For HSBC, however, they are one and the same thing: taking good care of your body is as important as taking good care of your spirit. Obesity is a common challenge in rural communities, and Macon County is no exception.**

**A lack of faith was not the issue. Most obese people know they'd be healthier if they could lose weight, but ordinary diets that held them to unrealistic expectations almost always backfired. A diet that linked healthy eating and exercise to spiritual practice was just what the congregation needed.**

**HSBC partnered with Macon County Public Health Department and began utilizing the Faithful Families Eating Smart & Moving More Program. The program promotes healthy eating and physical activity in communities of faith by focusing on environmental and policy changes while using educational sessions to promote behavior change. It focuses on changes at the individual, group and organizational levels. HSBC did more than bring healthy foods and healthy cooking to its congregation. They made connections between spiritual and physical health in a program that fostered deeper connections between its members. Exercise and healthy eating are now the natural choices for its members.**

# Cherokee County



**Cherokee County**, the westernmost of the state's 100 counties, encompasses the communities of Murphy, the county seat, Andrews and Brasstown (also known to be located in a portion of Clay County, NC). Located in the southern tip of the Great Smoky Mountains, Cherokee County is bordered by the states of Tennessee and Georgia and within two hours driving distance from four major metropolitan cities. This county of 27,444 people is rich in natural beauty with many lakes, rivers, streams and mountains.

## Health Priorities:

1. Physical activity and nutrition
2. Tobacco use
3. Chronic disease control and prevention

## Dashboard Results

- ◆ **Reported health:** Very Good/Excellent
- ◆ **Physical activity levels:** 57.8% of residents reported meeting physical activity standards
- ◆ **Household income:** Average median income is 84% of state average and 101% of the WNC mean
- ◆ **Prevalence of obesity:** 31.7% of residents report being obese

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CHEROKEE COUNTY Health Info

Source: 2012 PRC Community Health Assessment



# Clay County

With a population of 8,775 people, **Clay County** is ideally located within two hours from Asheville, North Carolina; Greenville, South Carolina; Atlanta, Georgia and Chattanooga and Knoxville, Tennessee. Hayesville, the county seat, is nestled in the Hiwassee River basin and is set against a backdrop of the Tusquitee Mountains, which were called "Great Blue Hills of God" by the Cherokee. Nearby Lake Chatuge, which is actually a reservoir, has more than 130 miles of shoreline, most belonging to Tennessee Valley Authority.



## Health Priorities:

1. Increased access to healthier food options
2. Chronic disease control and prevention
3. Oral Health

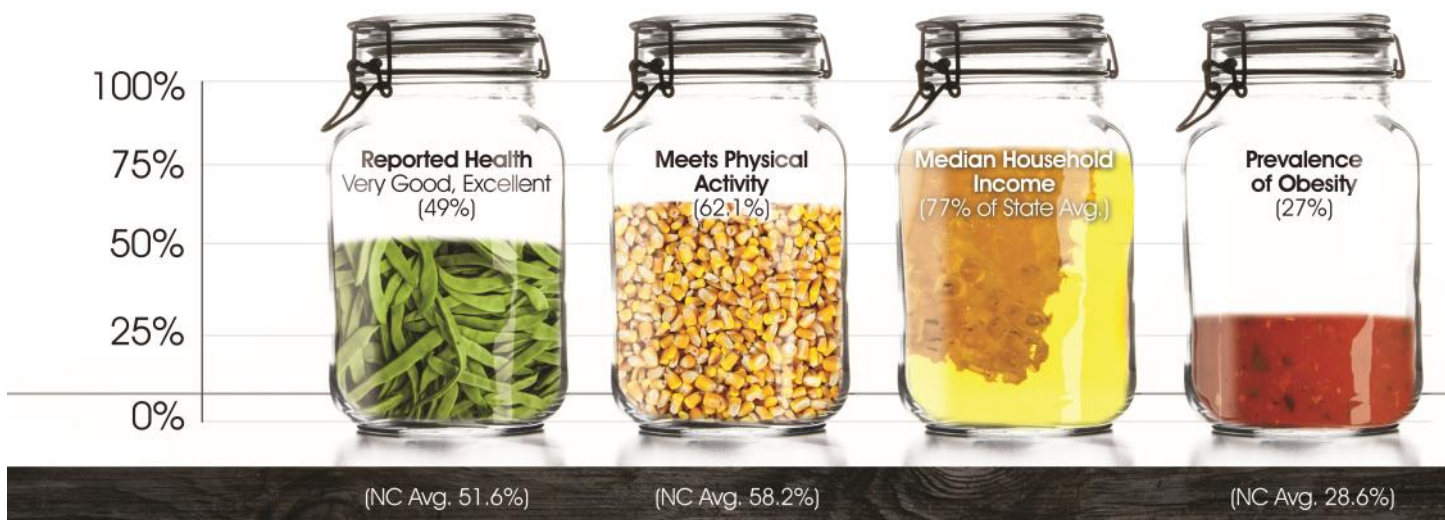
## Dashboard Results

- ◆ **Reported health:** Very good/excellent
- ◆ **Physical activity levels:** 62.1% of residents reported meeting the physical activity standards
- ◆ **Household income:** Average median income is 77% of state average and 93% of the WNC mean
- ◆ **Prevalence of obesity:** 27% of residents report being obese

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# CLAY COUNTY Health Info

Source: 2012 PRC Community Health Assessment





# Graham County



With almost 8,000 people, **Graham County** is located in the far reaches of Western North Carolina in the majestic Great Smoky Mountains of the southern Appalachians.

The county seat is Robbinsville. The region is home to some of the highest and most remote mountains east of the Mississippi with elevations ranging from 1,177 to 5,560 feet. Graham County is nestled among hundreds of thousands of acres of wilderness full of stunning mountain landscapes and many breathtaking views. The Nantahala National Forest comprises two-thirds of the county. Fontana Lake, an impoundment of the Little Tennessee River, forms the northern border of the county, with the Great Smoky Mountains National Park on the other side of the lake.

## Health Priorities:

1. Obesity and diabetes
2. Access to health care
3. Substance abuse

## Dashboard Results

- ◆ **Reported health:** Very Good/Excellent
- ◆ **Physical activity levels:** 60.2% of residents reported meeting the physical activity standards
- ◆ **Household income:** Average median income is 62% of state average and 75% of the WNC mean
- ◆ **Prevalence of obesity:** 36.1% of residents report being obese

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GRAHAM COUNTY Health Info

Source: 2012 PRC Community Health Assessment



# Haywood County



Established in 1808, with a population of 57,000 people, **Haywood County** includes four towns — Canton, Clyde, Maggie Valley and Waynesville. Haywood County is the third largest county in Western North Carolina after Buncombe and Henderson Counties, and its county seat, Waynesville, has garnered several honors and recognition, including being voted as a “low-cost Eden,” best undiscovered town, best Main Street town, best small town, and best mountain town in the third edition of America’s 100 Best Places to Retire, as published in Where to Retire magazine.

## Health Priorities:

1. Substance abuse
2. Physical activity and nutrition
3. Chronic disease control and prevention

## Dashboard Results

- ◆ **Reported health:** Very good/Excellent
- ◆ **Physical activity levels:** 59.6% of residents reported meeting the physical activity standards
- ◆ **Household income:** Average median income is 91% of state average and 109% of the WNC mean
- ◆ **Prevalence of obesity:** 27.5% of residents report being obese

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HAYWOOD COUNTY Health Info  
Source: 2012 PRC Community Health Assessment



# Jackson County

Formed in 1851, **Jackson County** contains a portion of the Qualla Boundary, the tribal lands of the Eastern Band of Cherokee Indians, which is subject mostly to tribal/federal laws rather than county or state laws. Sylva is the county seat. Tuckasegee River is viewed as a fly-fisherman's paradise, and beautiful mountain lakes along the river's East and West forks provide opportunities for boating and other outdoor recreation. Western Carolina University and Southwestern Community College call the county home.



## Health Priorities:

1. Healthier food options in the community
2. Physical activity in adults (with a subcomponent of fall prevention with seniors)
3. Substance abuse in adolescents

## Dashboard Results\*

- ♦ **Reported health:** Very good/Excellent
- ♦ **Physical activity levels:** *Not available.*
- ♦ **Household income:** Average median income is 83% of state average and 100% of the WNC mean
- ♦ **Prevalence of obesity:** 30% of residents report being obese

\*Jackson County 2011 Community Health Assessment, earlier and in a different framework than the other seven counties. Physical activity level was not a survey question.

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# JACKSON COUNTY Health Info

Source: 2011 PRC Community Health Assessment





# Macon County

With a population of approximately 34,000 people, **Macon County** is just over two hours from many major Southeastern metro areas including Atlanta, GA, Knoxville, TN, along with Greenville & Spartanburg, SC. Its county seat is Franklin. Of the 519 square miles in Macon County, almost half (46.1%) are federal lands that lie within the Nantahala National Forest and are administered by the US Forest Service. The county's largest natural water supply is the Cullasaja River. Macon County boasts a number of breathtaking waterfalls that delight county residents and visitors alike.



## Health Priorities:

1. Obesity prevention
2. Recruitment and retention of primary care physicians and dentists
3. Cancer prevention and support

## Dashboard Results

- ◆ **Reported health:** Very good/Excellent
- ◆ **Physical activity levels:** 53.4% of residents reported meeting the physical activity standards
- ◆ **Household income:** Average median income is 85% of state average and 102% of the WNC mean
- ◆ **Prevalence of obesity:** 35.3% of residents report being obese

MOUNTAINwise

MACON COUNTY Health Info  
Source: 2012 PRC Community Health Assessment



# Swain County



With a population of 13,000 people, **Swain County** is located in the western part of North Carolina in the Great Smoky Mountains and boasts the largest proportion of the Great Smoky Mountains National Park than any other county in North Carolina or Tennessee. The county seat is Bryson City, home to the Great Smoky Mountain Railroad. With 53 miles of track, two tunnels and 25 bridges, the Great Smoky Mountains Railroad takes passengers on a memorable journey through a remote and beautiful corner of North Carolina. The highest point in the county is Clingmans Dome, elevation 6,643 feet, near the NC/TN border. This mountain is the third highest peak in North Carolina.

## Health priorities:

1. Tobacco use
2. Obesity

## Dashboard Results

- ◆ **Reported health:** Very good/Excellent
- ◆ **Physical activity levels:** 61% of residents reported meeting the physical activity standards
- ◆ **Household income:** Average median income is 77% of state average and 93% of the WNC mean
- ◆ **Prevalence of obesity:** 37.7% of residents report being obese

# MOUNTAINwise

## SWAIN COUNTY Health Info

Source: 2012 PRC Community Health Assessment



# Transylvania County

**Transylvania County** has a population of 33,000 people with over 250 waterfalls in the county is widely known as the Land of Waterfalls. This county is the wettest county in the state, receiving over 90 inches of rain annually. The Blue Ridge Parkway traverses through parts of the county, affording spectacular views of the Appalachian Mountains, which reach over 6,000 feet (1,800 m) elevation in the county. The highest point, Chestnut Knob, 6,025 feet (1,836 m), lies northwest of the county seat, Brevard. Though colonies of populations of white squirrels are somewhat rare, North Carolina is host to two such locations—the most notable being Brevard.



## Health priorities:

1. Physical activity and nutrition
2. Substance abuse
3. Oral health

## Dashboard Results

- ◆ **Reported health:** Very good/Excellent
- ◆ **Physical activity levels:** 61% of residents reported meeting the physical activity standards
- ◆ **Household income:** Average median income is 86% of state average and 104% of the WNC mean
- ◆ **Prevalence of obesity:** 23.9% of residents report being obese

MOUNTAINwise

TRANSYLVANIA COUNTY Health Info

Source: 2012 PRC Community Health Assessment





## 4. Assessment

The heart of an HIA is the assessment phase. This phase is where proposed actions found in either the Comprehensive Plans or health department initiatives are analyzed and thought through to determine the potential impacts to the health and wellbeing of residents. From there, the project team can identify how to either minimize negative impacts, or strengthen positive impacts.

### ASSESSMENT

During the assessment phase, evidence is gathered on the effects of the policy or program on health determinants and health outcomes.

The MountainElements assessment phase was as extensive as the scoping phase. There was a lot of information to review. The potential reach of so many different planning efforts was virtually immeasurable. Instead of attempting to assess nearly endless possibilities stemming from such a complex series of topics, the project team chose instead to identify major themes rather than holistically assess every proposed action.

Land use planning is a good example of this. It's a broad topic and linking outcomes from it can be challenging to forecast or quantify. MountainElements instead chose the more direct topic of agriculture to assess.

Prioritization was also important to the assessment phase. To identify the most pressing impacts resulting from planning initiatives, the project team:

- ◆ Interviewed planners and health professionals;
- ◆ Reviewed numerous plans and policies;
- ◆ Compiled data at the county and Census tract level;
- ◆ Reviewed an abundance of evidence-based research; and
- ◆ Reviewed data and geospatial information systems (GIS), to draw out stakeholders' health impact claims and determine conclusions.

The MountainElements project team conducted the assessment through a four-pronged effort focused on the factors below.

- ◆ **Hot Spots Identification.** In an HIA, hot spots are areas with significant and concentrated poor health conditions. The team identified these areas based on data from the US Census and the State Center for Health Statistics (SCHS). Census tracts were evaluated based on 13 factors related to determinants of health, and causes of death. Census tracts were divided into quartiles to illustrate those geographic areas that had a high prevalence of poor health conditions, moderate to high prevalence, moderate prevalence and lower prevalence.
- ◆ **Plan Review.** Health themes were identified in the goals, objectives, and recommendations of each county and municipal planning document. These health themes were identified based on their applicability to one or more of the seven dimensions of health and wellness. Best practices or important themes were identified for other communities to consider replicating in their future planning efforts.
- ◆ **Financial Analysis.** The team reviewed county budgets (Comprehensive Annual Financial Reports) to examine how funds were being expended and health issues were being addressed.

- ◆ **Policy Analysis.** Using documents produced by the state of North Carolina regarding integrating health and comprehensive planning, the team evaluated current state and local planning capacity provided through regulatory means. Existing planning-related ordinances (zoning, subdivision, and regulatory) were examined to identify gaps and opportunities in both state and local policy.

The results of this four-pronged effort were then put through an evaluation process to determine likely health outcomes. This included:

- ◆ Using evidence-based research to assess the reality of health impact claims made by stakeholders and interviewees;
- ◆ Collecting stories on the many initiatives, trends and emerging issues from counties and the region; and
- ◆ Quantifying the necessary household income to meet the assessed needs for a healthy household.

## Primary Finding

The project team unearthed six major health impact themes. A brief description is given here, but greater detail is provided in subsequent sections.

### LOCAL FOOD and preservation of agricultural land may improve nutrition

Numerous local food initiatives are underway in WNC to curb poor nutrition and improve the diet of local residents. Healthy corner store vending and an increase in the number of farmers markets, roadside stands, and gleaning groups are increasing the quantity and quality of food options. Land use tools such as farmland preservation and the promotion of mixed-use developments patterns could help reduce the conversion of agricultural land to other, less productive uses. If successful, results of such efforts will likely show up in reduced rates of obesity, diabetes, and oral health disease. Encompassing this topic are principal topics related to:

- ◆ **Increasing the local food system,** that is increasing the amount of food supply generated and then sold locally, resulting in a decreasing reliance on the national and global food systems and increasing investments locally; and
- ◆ **Increasing food security.** Food security can be increased by ensuring that all have access to food that is nutritional, environmentally sustainable, and accessible by all economic classes. Food system planning can also address the need for emergency food planning and creating food reserves for times of crisis.



There exists great momentum in the region—at many policy and program levels—to improve access to and conditions for growing local food. It is an important historical trail for Western North Carolina that is seeing a renaissance through farmers markets, agricultural preservation policies, social service programs and economic development initiatives.

## Other Major Findings

### INCOME DISPARITIES will fuel health inequalities

Income is a significant indicator of health due to its direct relationship with safe housing, healthy food options, prevention and care, stress, and other key indicators of health.

Low income can have dire consequences for a region. Indeed, many of the documents and interviews surfaced many initiatives and programs aimed at bolstering income lev-



## Success Stories

### Hayesville Evening Market



The Hayesville Evening Market “On The Square” was created to offer the community a wide variety of local, high quality, fresh produce and farm products. The market assists producers, artists, crafters, businesses and organizations by providing a consumer source in an organized, attractive, efficient, and cost effective setting.

The market maintains a 50% ratio of farmers to arts and crafts. All products are produced locally within 50 miles of Clay County, NC. Producers must grow or raise a minimum of 50% of their products for sale. Visitors can find produce, flower, canned goods, baked goods, arts and crafts, prepared foods and more.

Major accomplishments of this effort include increasing access to local foods, economic development to local businesses, and sustaining local farms. To accomplish this, the market’s partners have faced budget restrictions and challenges related to a predictable supply of local products.

els by attracting new businesses. In each of the eight counties, annual household income is lower than the state average which includes all 100 counties. The counties in WNC range from 62%-91% of state household income averages.

#### **FEDERAL FUNDING** reliance may have future negative repercussions

Federal funding for transportation, SNAP, WIC, Medicare, Social Security, and economic development continues to fluctuate, limiting predictability. Budgets for such pivotal programs exist under a persistent threat of being cut. This is a continual challenge due

to employment conditions and property values which are still recovering from the recent global economic downturn. A review of county-level budgets and expenditures indicate a significant reliance on Federal funding programs. The uncertainty of Federal decision-making, and limited state and local revenue sources, makes for uncertain reliability of these safety net programs for already vulnerable residents.

#### **ACTIVE TRANSPORTATION** can improve physical activity rates

Biking, walking, and transit use, all considered active transportation, can lead to improved health for those who choose to engage in such activities. Each of the eight counties have either direct or indirect planning efforts aimed at improving access to and safety of active transportation. The continued push toward improving infrastructure for active transportation, like walking trails and bike lanes, will incentivize biking and walking, thereby increasing physical activity rates and the associated health benefits.

#### **EDUCATION** attainment levels may hinder future health improvements

Education attainment, or high school and college completion, translates into earning power. It’s a leading indicator of economic health for a given area. In 2011, the average income of a college graduate was \$45,000, a high school graduate was \$33,000, and a non-high school graduate was \$22,900 for young adults aged 25-34. (<http://nces.ed.gov/fastfacts/display.asp?id=77>). The high school graduation rate in the WNC region ranges from 68%-93%. Roughly four out of five graduate from high school, or 83%, which is close to the state average of 84%.



The disparity shows up in higher education. College graduates represent on average 20.5% of the regional population, 6% lower than the state average of 26.8%. For counties to attract business or incubate local business, education must become a priority. It's important to note, however, that technical or vocational programs, and not necessarily college degrees, can markedly improve the marketability of young adults and attract new businesses simultaneously.

## LAND USE PLANNING is a key component to healthy living

A recent trend in land use in WNC is the loss of agricultural lands to sprawling subdivisions and overall population growth patterns, both of which are threatening the rural natural environment held dear by area residents. Each county has identified varying degrees of concern over this trend. To combat its ill effects, counties have identified several strategies to encourage or regulate future development. Strategies include preserving land through taxing vehicles, promoting mixed use land patterns, increasing density to minimize land consumption, and increasing transportation connectivity to minimize travel distances and promote active transportation.

## ACCESS TO CARE leads to early detection, prevention of disease

The final major finding is the lack of access to medical and dental providers. Due in large part to the rural nature of the counties and dispersed population, attracting willing and able medical and dental professionals is a challenge. Residents then have to travel greater distances for checkups or exams if they don't forgo them altogether. The impacts from this situation are significant: stress in either making or forgoing a doctor or dentist visit, increased costs for accessing care in a region with minimal discretionary income, and an absence of local well-paying professional jobs which connects to the wages and household income issue discussed above. Nearly all of the eight counties have as a central tenet in their plans and initiatives to attract and retain talented health professionals.

## Food Systems Planning & The Logic Framework

Based on input from workshops and analysis of trends across the region, it was determined that a regionwide effort aimed at food system planning is the best method by which to integrate planning and health for long-range positive impacts.

To further evaluate the likely impacts, the HIA process led to a Logic Framework, also known as causal models or pathway diagrams. The Logic Framework is a method to map the many pathways by which health effects may occur resulting from a proposed action (food system planning, in this instance). Pathway diagrams may be thought of as plausible scenarios for what may happen to population health if particular decisions are made.

The diagrams on the following page showcases how the proposed actions related to Food System Planning are likely to impact long-range health conditions in the community. It will also help local decision makers, advocates, non-profits, planners and other more directly illustrate how the proposed actions related to Food Systems Planning will impact public health.

## LOGIC FRAMEWORK

If we plan...



People are healthier

A Logic Framework, or pathway diagrams is used in the public health practice to describe how environmental and social conditions as well as risk and resilience factors influence health outcomes. In general, this approach describes effects directly related to the proposal (such as changes in air emissions) and traces them to health determinants (such as air quality) and finally to health outcomes (such as asthma). The first step in the framework is typically a determinant of health, such as air pollution, traffic, employment or noise. Often pathway diagrams are used to support the design of public health research as well as considering potential interventions. Pathway diagrams can also be used as part of stakeholder engagement to develop a shared understanding of how a project will develop and the outcomes that can be expected.

# LOGIC FRAMEWORK

## Possible Strategies

## Resulting Changes to Systems or Built Environment

### Food Systems

Regional Network offers educational opportunities to small and large producers.

Regional Network tackles compliance issues and regulatory barriers to production, value-added processes, and distribution.

Regional Network develops and markets a buy local campaign.

Increase community development opportunities based on agricultural growth.

- ◆ Increased knowledge of how to grow things, manage a farm, care for livestock, build hoop houses/ beds, etc.
- ◆ Context sensitive structures are built in the appropriate locations
- ◆ More acres in production- greater number of and larger farms/ gardens/ hoop houses etc.
- ◆ More acres protected- fewer farms lost to development
- ◆ Fewer barriers to institutional purchasing
- ◆ Agri-tourism opportunities and facilities built
- ◆ Increased community awareness and appreciation of the benefits to growing and buying local
- ◆ New private/supporting businesses developed

### Food Systems & Food Security

Make local farming a viable economic opportunity.

Provide incentives to low-income populations to buy locally grown food.

Provide support to low-income populations for growing local foods.

Make buying local foods more convenient to low-income populations.

- ◆ More farmers stay in farming/new farmers start- more farms
- ◆ Farmer markets and other places selling local food are set up to accept vouchers/ EBT/ SNAP
- ◆ Increase in the number of community gardens, households doing container gardening, hoop houses
- ◆ More produce trucks/ CSAs/food delivery
- ◆ Transit routes changed or better advertised for their access to healthy/ local foods
- ◆ More produce stands in high foot traffic areas/ workplaces
- ◆ Corner/ convenient stores equipped with facilities (cold storage) and produce needed to offer healthy, local options

### Food Security

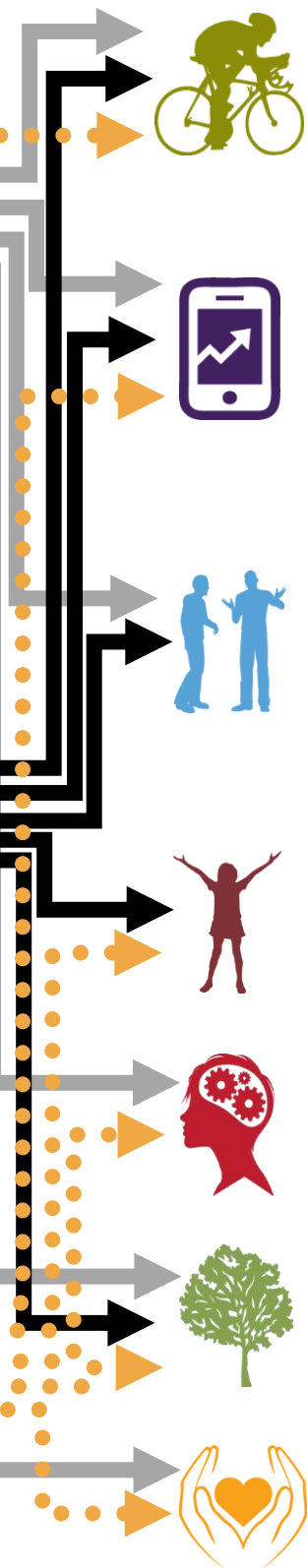
Provide food to children during summer months or out-of-school hours.

Increase gleaning opportunities and the amount of food in food pantries.

- ◆ Programs are in place for providing hungry children food
- ◆ Farms are gleaned and area churches have food to distribute
- ◆ Food pantries are stocked

## Behavioral Changes

## Long-Term Health Impacts



- ◇ Children eat healthier and adequate amounts of food
- ◇ Adults eat healthier
- ◇ Adults get physical activity farming, gardening, or gleaning
- ◇ Less likely to abuse drugs if employed in legal activities
- ◇ Less likely to abuse others if not stressed

- ◇ Greater number of jobs
- ◇ More income/ greater number of sales
- ◇ Greater financial security/ less risk
- ◇ Expansion of farms or facilities
- ◇ More efficient production and distribution

- ◇ Greater interaction between farmers, customers, businesses, agencies, volunteers, food distributors, gleaners, instructors, etc.
- ◇ Opportunities to contribute to society/ give back
- ◇ Social cohesiveness as low-income populations more likely to shop in farmer's markets/ grocery stores
- ◇ Greater sense of place

- ◇ Less stressed over financial concerns or access to food
- ◇ Higher self-esteem or self-efficiency as grow own food or help others
- ◇ Stigma of being poor or needing assistance

- ◇ Learn better if not hungry
- ◇ Learn more about where food is coming from and how produced/ prepared

- ◇ More sustainable agricultural practices
- ◇ Less air pollution as rely more on locally produced food
- ◇ Concerns about water quality with greater production

- ◇ Increase of faith-based organizations participation and biblical tenants of gleaning and helping others
- ◇ Heritage and spiritual connection to working the land

### Reduced levels of obesity and associated health risks

- ◆ Type 2 Diabetes
- ◆ Heart Disease
- ◆ Stroke
- ◆ Sleep Apnea/ Fatigue

### Increased levels of physical activity and associated health benefits

- ◆ Weight Management
- ◆ Reduced risk of Type 2 Diabetes
- ◆ Reduced risk of Heart Disease
- ◆ Reduced risk of Stroke
- ◆ Reduced risk of Some Cancers
- ◆ Strengthened bone and muscles
- ◆ Greater flexibility/ fewer falls
- ◆ Longer life expectancy
- ◆ Stress Reduction

### Improved nutrition and associated health benefits

- ◆ Weight Management
- ◆ Reduced risk of Type 2 Diabetes
- ◆ Reduced risk of Heart Disease
- ◆ Reduced risk of Stroke
- ◆ Reduced risk of Some Cancers
- ◆ Healthy childhood development
- ◆ Strengthened bone and muscles

### Mental Health Benefits

- ◆ Less Stress/ Depression
- ◆ Sense of Belonging
- ◆ Sense of Support/ Security
- ◆ Fewer Suicides
- ◆ Higher Self-Esteem
- ◆ Less Stigmatism
- ◆ Less substance abuse



## Observations on Major Findings, by Category

**Food Systems Planning.** Evidence suggests that people in the U.S. widely support the protection of agricultural lands, citing access to local food, protection of the environment (wildlife habitat, flood control & contribution to water quality), scenic views and contribution to local economy.<sup>1</sup> High quality evidence supports many of these components. Limited evidence is available to directly link farmland protection and specific health outcomes.



Significant evidence indicates positive economic impact of local food efforts. The cost of fresh fruits and vegetables is important but higher costs of this produce is identified as a barrier to access, even in areas with adequate grocery infrastructure.

The evidence directly linking local food initiatives to health outcomes is very limited and sometimes contradictory.<sup>2</sup> Significant evidence indicates positive economic impact of local food efforts. Cost of fresh fruits and vegetables is important. Higher cost of fruits and vegetables is identified as barrier to access even in areas with adequate grocery infrastructure<sup>3</sup>; it is also linked to childhood overweight.<sup>4</sup>

**Income Inequality.** Income is one of the strongest predictors of health outcomes in the research literature.<sup>5,6</sup> Income instability is linked to depression.<sup>7</sup> Unemployment and underemployment are strongly linked with poor health outcomes, including cardiovascular disease, depression and suicide. The research base remains unclear on health costs and benefits of specific economic policies.<sup>8</sup> Gaining health insurance is strongly linked to improved health outcomes, particularly among the most common preventable diseases: type 2 diabetes and cardiovascular disease.<sup>9</sup> Individuals with full-time employment demonstrate the least damaging health behaviors.<sup>10</sup>

**Federal/State Funding.** Federally funded social safety net programs provide significant health benefits. The approximately 35,000 people in Region A who receive SNAP benefits have improved food security, which is linked to reduced risk for obesity, particularly among women.<sup>11</sup> SNAP benefits also contribute \$43.9M, annually, to the regional economy.<sup>12</sup> Medicare has been shown to reduce mortality for beneficiaries. See the notes in the Income Inequality section for the likely impact of programs that improve the employment and economic outlook for the region.

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12 SNAP time series data from the USDA Economic Research Service, 2010 and 2011.

**Active Transportation.** Overall, the body of research linking active transportation to increased physical activity is limited in its strength, but suggests a positive association.<sup>13</sup> Significant findings include: (1) even low levels of active transportation are associated with decreased cardiovascular disease risk in adults<sup>14</sup>; (2) students using active transportation method for travel to school are more physically active; (3) bicycling to school is positively linked with cardiovascular fitness<sup>15</sup>; and (4) adolescents walking or cycling for functional reasons achieve higher levels of moderate to vigorous physical activity.<sup>16</sup> The literature identifies the need for intervention studies to strengthen the body of evidence. This is especially true for evidence specific to rural environments.

**Education.** Educational attainment is well-documented to predict health outcomes. Education appears to impact health across many factors: increased income, better access to health insurance, uptake of better health behaviors, i.e. not smoking and engaging in vigorous exercise, and benefiting from improved medical technology.<sup>17,18</sup> The connection between educational attainment and health persists throughout life. The gap in life expectancy between the most and least educated females is 10 year—14 years for men<sup>19</sup>. Additionally, Americans without a high school diploma or GED have more than twice the rates of diabetes than those with college degrees; those with lower educational attainment are six times more likely to be sad, “most or all of the time.”<sup>20</sup> The link continues with subsequent generations, as babies whose mothers do not complete high school are almost twice as likely to die before their first birthdays as babies whose mothers completed 16 years or more of schooling.<sup>21</sup>

**Land Use Planning.** Land use and community design can significantly impact many of the social determinants of health: local air quality, affordable housing, water quality and supply, traffic safety, access to physical activity and local foods. Mental health and quality of life are also impacted by planning (or lack of planning) and its impact on work commutes and the availability of green spaces.<sup>22</sup> Significant evidence supports the link between specific built environment features—mixed land use, neighborhood walkability, density and proximity of non-residential destination—and increases in walking for both transportation and recreation.<sup>23,24,25,26</sup> The literature identifies the need for more rigorous research to quantify the direct health impacts of changes in the built environment. This is especially true for evidence specific to rural environments.



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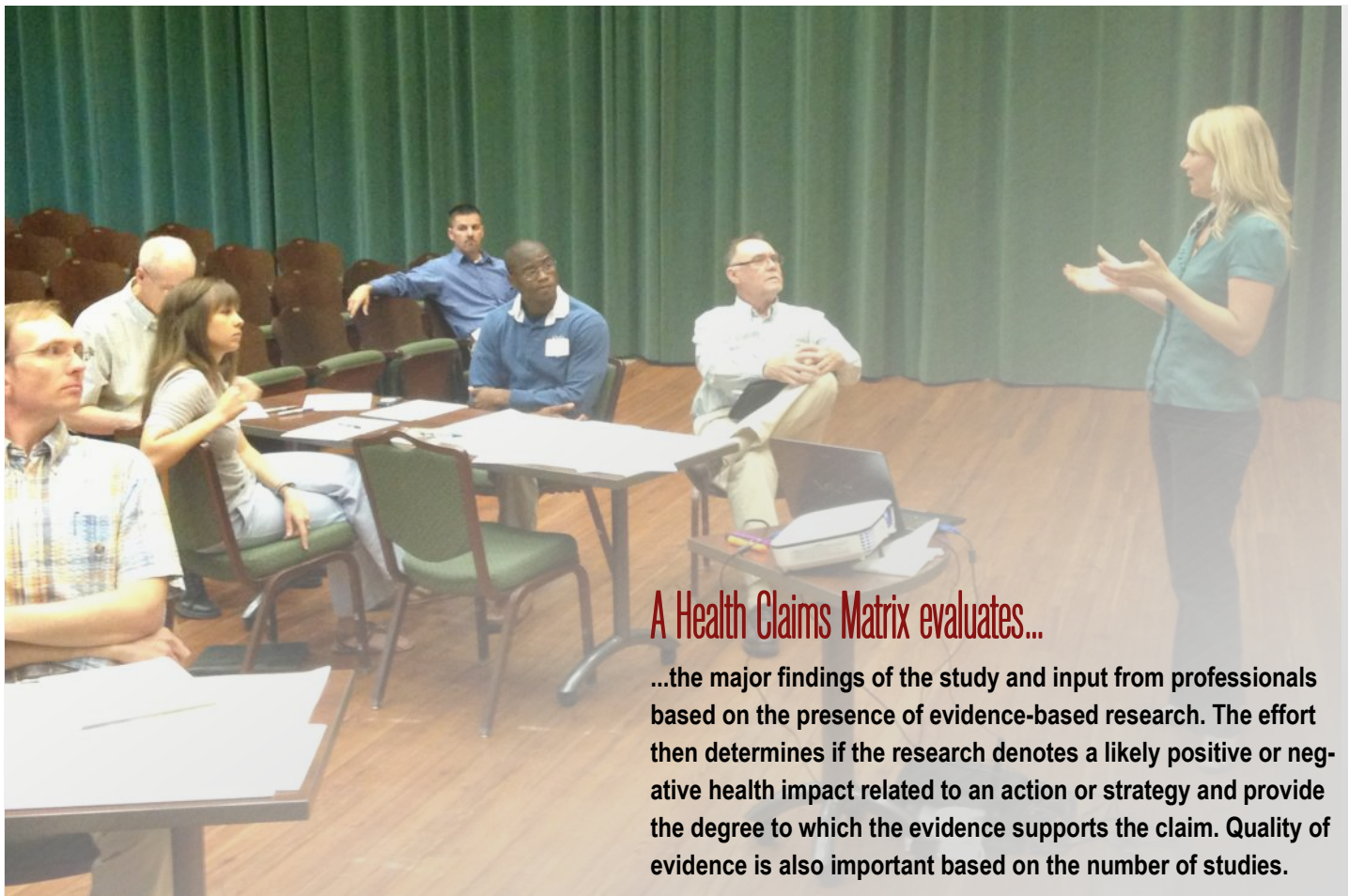


## Health Claims Matrix

Testing the health claims posed by the various inputs to MountainElements is a key cornerstone of any HIA effort. Various studies, professionals and the public may pose a health impact, but an HIA must ask: Is there evidence to support that claim? Potential impacts on health for MountainElements were collected using two principal methods.

1. **WNC opportunity for public comment.** Via Opt-In, hundreds of public comments were given as to what was important to WNC residents regarding the future conditions of their respective community. Comments germane to the five themes from the regional visioning effort were organized accordingly.
2. **MountainElements workshops with the county health department staffs and other stakeholders.** The team met with these groups to collect their expertise on how they believed the comprehensive planning process could have an impact on human health.

The MountainElements team used the comments from both public engagement opportunities to assess the types of documented effects each of the major findings has on human health based upon established research and academic or professional studies.











### A Health Claims Matrix evaluates...

...the major findings of the study and input from professionals based on the presence of evidence-based research. The effort then determines if the research denotes a likely positive or negative health impact related to an action or strategy and provide the degree to which the evidence supports the claim. Quality of evidence is also important based on the number of studies.



# Health Claims Matrix

Major Findings	Judgment of Magnitude & Direction of Impact	Quality of Evidence	Mountain Elements
<b>Income Inequality</b>			
Income disparities will fuel health inequalities.	▼ ▼ ▼	High	
<b>Federal/State Funding</b>			
Federal funding reliance could have future negative repercussions on health outcomes in the region.	▼ ▼	Low	
<b>Healthy Food Options</b>			
Preservation of agricultural land may improve nutrition.	▲ ▲	Low	
Growing local food initiatives may improve nutrition.	▲ ▲	Low	
<b>Active Transportation</b>			
Active transportation options can improve physical activity rates.	▲ ▲	Medium	
<b>Education</b>			
Low education attainment levels may hinder future health improvements.	▼ ▼ ▼	High	
<b>Land Use Planning</b>			
Land use planning is a key component to healthy living.	▲ ▲ ▲	Medium	
<b>Access to Care</b>			
Increasing the number and access to health care professionals will improve overall community health.	▲ ▲ ▲	High	

**Judgment of Magnitude & Direction of Impact**

▲ = positive impact  
▼ = negative impact  
Range of 1-3 marks, where 1=low impact and 3=a significant impact.

**Quality of Evidence**

**High** = many strong studies; **Medium** = one or two good studies  
**Low** = no clear studies, but generally consistent with principles of public health;  
**None** = no clear studies and not aligned with public health principles



## Cashiers & Cullowhee Small Area Planning



Jackson County is emerging as a model for 21st Century governance for counties in rural and small town contexts. The county is building greenways and maintaining sidewalks while taking a proactive approach to planning. Recognizing that countywide zoning and subdivisions regulations may not be necessary or politically palatable, Jackson County has focused its planning and land use regulations in communities that were desirous of it or where the County sees it necessary to help protect the local context.

In Cashiers, an unincorporated area in southern Jackson County, the local planning committee assists the county in the review of land use decisions. A small area plan and subsequent set of zoning requirements for the Cashiers Planning Area were developed in lieu of countywide zoning.

The impact on land use development in the Cullowhee community due to the growth of Western Carolina University also prompted Jackson County to conduct a Vision Plan as a precursor to an area-specific zoning ordinance to help better manage demand for student housing.

Jackson County also provides planning management services through agreements with Sylva and Webster.

## Hot Spot Analysis, Baseline Conditions

The Hot Spot analysis both highlights current issues and concerns and establishes a baseline condition for the region. This visual approach makes it easy to understand where the pockets of poor health exist, and helps decision makers and policy creators craft recommended interventions and prioritize them.

The hot spot identification process includes several steps, including: Collecting data and/or statistics, specifically the strongest social determinant factors of health; layering each factor and the associated data; and organizing the data into quartiles and shading the tracts accordingly. Both countywide and local data are needed to accurately identify hot spots for planning purposes. For MountainElements, countywide data came from Community Health Assessments and the like. This data include information tract-level data obtained from the Census and State Center for Health Statistics:

### Census data:

- ◆ Population
- ◆ % Below Poverty
- ◆ % High School Graduate or Better
- ◆ % of Pop. Spending more than 30% of their Income on Rental Housing
- ◆ % of the Households on Food Stamps
- ◆ Population Density
- ◆ Health Care Workers
- ◆ % with Low Access to Grocery Stores
- ◆ % African American & % Hispanic

### State Center for Health Statistics:

- ◆ Heart Disease Mortality Rate per 100,000
- ◆ Cerebrovascular Disease (Stroke) Mortality Rate per 100,000
- ◆ Lung/Bronchus/Trachea Cancer Incidence Rate per 100,000

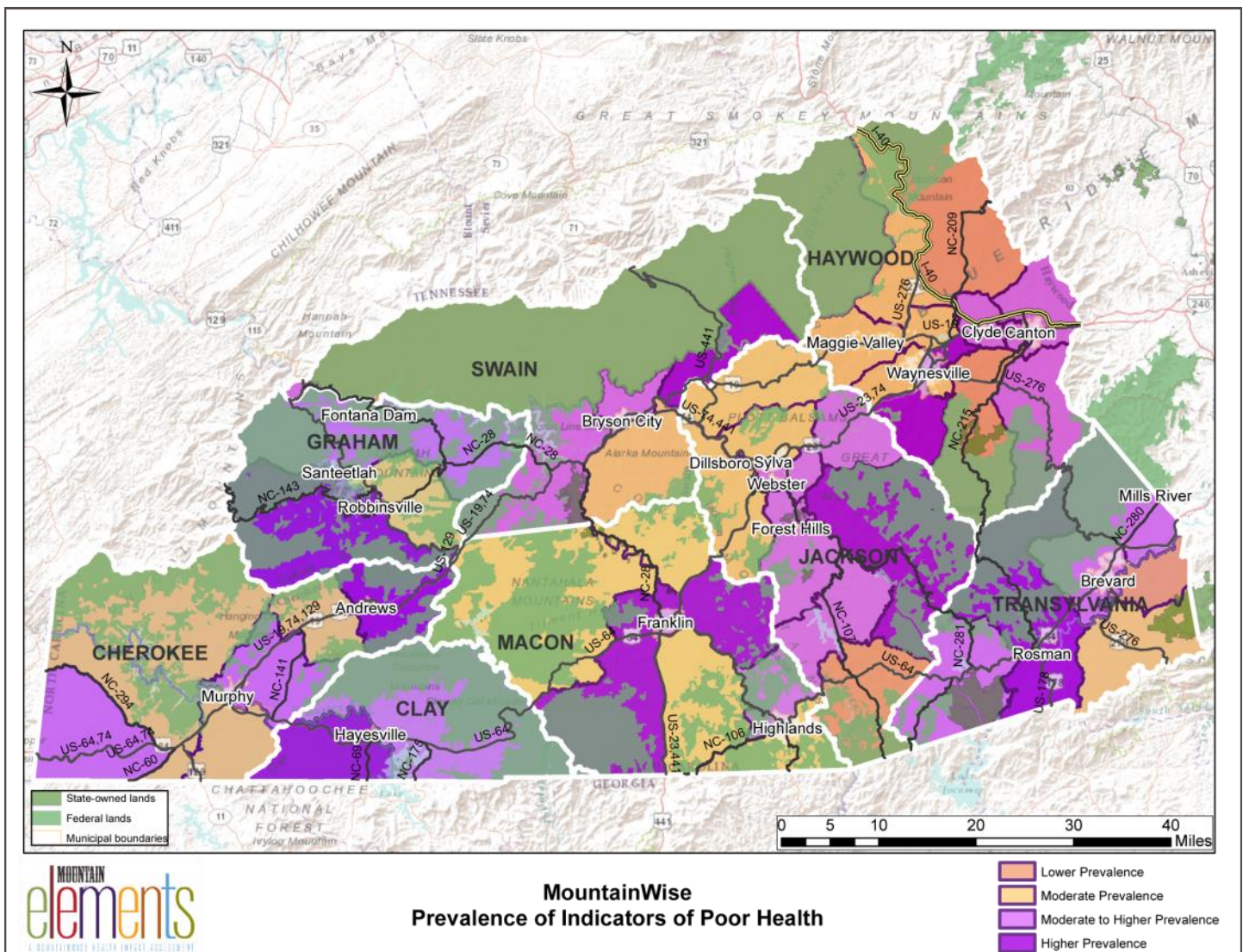
The Hot Spot analysis then screened unpopulated areas from the counties (primarily federal and state lands) to provide a more precise illustration of where people live, what the data tell us are their prevailing health conditions, and where county and municipal governments have authority to shape future planning efforts.

# Regional Hot Spot Analysis

Regionwide, there are 58 Census Tracts, which were ranked in terms of prevalence of poor health conditions. All told, there are

- ♦ **13 High Prevalence tracts** (worst conditions/highest need)
- ♦ **20 Moderate to High Prevalence tracts,**
- ♦ **19 Moderate Prevalence tracts,** and
- ♦ **6 Low Prevalence tracts** (best conditions/lowest need)

A regional map is shown below to illustrate how the various counties within the region compare to one another. Individual County-specific maps, with a summary of hot spots for each county and factors that contribute to its rating as a hot spot, are included along with the summary of plans for that county. Details about the datasets used are summarized in Appendix A.



Maps are available for download at: <http://mountainwise.org/mountainelements/>





## Cooperative Extension High Tunnels Partnership

Cherokee



The Cherokee Cooperative Extension in partnership with the county of Cherokee and the Sheriff's department was awarded a TVA grant in 2013 to build two "high tunnels" for growing produce. One is being used for demonstrational purposes for the public and Cooperative Extension continues to offer classes for anyone who is interested in crop production using a high tunnel.

The public gets hands on experience to grow in a high tunnel and lease a spot in the demonstrational tunnel for a very small fee. The other high tunnel is used by the Sheriff's department and serves as a learning garden for county inmates. The inmates work the garden and most of the production goes into the prison kitchen and is used in meals for the inmates. When there is an abundance of produce harvested from the garden, it is donated to the senior center to supplement meals for the seniors. One of the minor hurdles faced is that there was a shift in leadership and a new sheriff was elected in 2014. Recently however, the new sheriff announced that he would like to continue the high tunnel program and inmates will get to continue tending to the garden and contributing to their nourishment. Another minor challenge that the partnership faces is grant funds running out and having to fund garden necessities from other local budgets.

## Plan Evaluation

The project team reviewed existing planning documents produced by County, City and Town governments to identify health themes from each as they relate to the Seven Dimensions of Health. Plan types were understandably not consistent across counties. Five of the eight counties had adopted Comprehensive Plans at the start of the HIA. Two counties—Graham and Cherokee—had Comprehensive Plans developed during the HIA as part of the Opt-In project. Haywood County does not have a Comprehensive Plan.

The review consisted of adopted planning documents that provide a policy framework and working objectives to elected officials and agency staff. In some cases plans are recent in draft or revisions, while others have been in place for a number of years. The types of planning documents reviewed included those in the areas of:

- ◆ Comprehensive Plans
- ◆ Comprehensive Transportation Plans
- ◆ Farmland Protection Plans
- ◆ Pedestrian and Bicycle Plans
- ◆ Economic Development Plans
- ◆ Small Area Plans
- ◆ Parks, Recreation and Open Space Plans

The tables below present the connections made between specific plans and their initiatives, objectives or guidelines. The links to the seven dimensions of health are indicated under **Major Findings** in each table.

# Cherokee County

## CHEROKEE COUNTY HOT SPOT TRIGGERS



Higher than average number of people receiving food stamps



Lower than average High School graduate percent of population



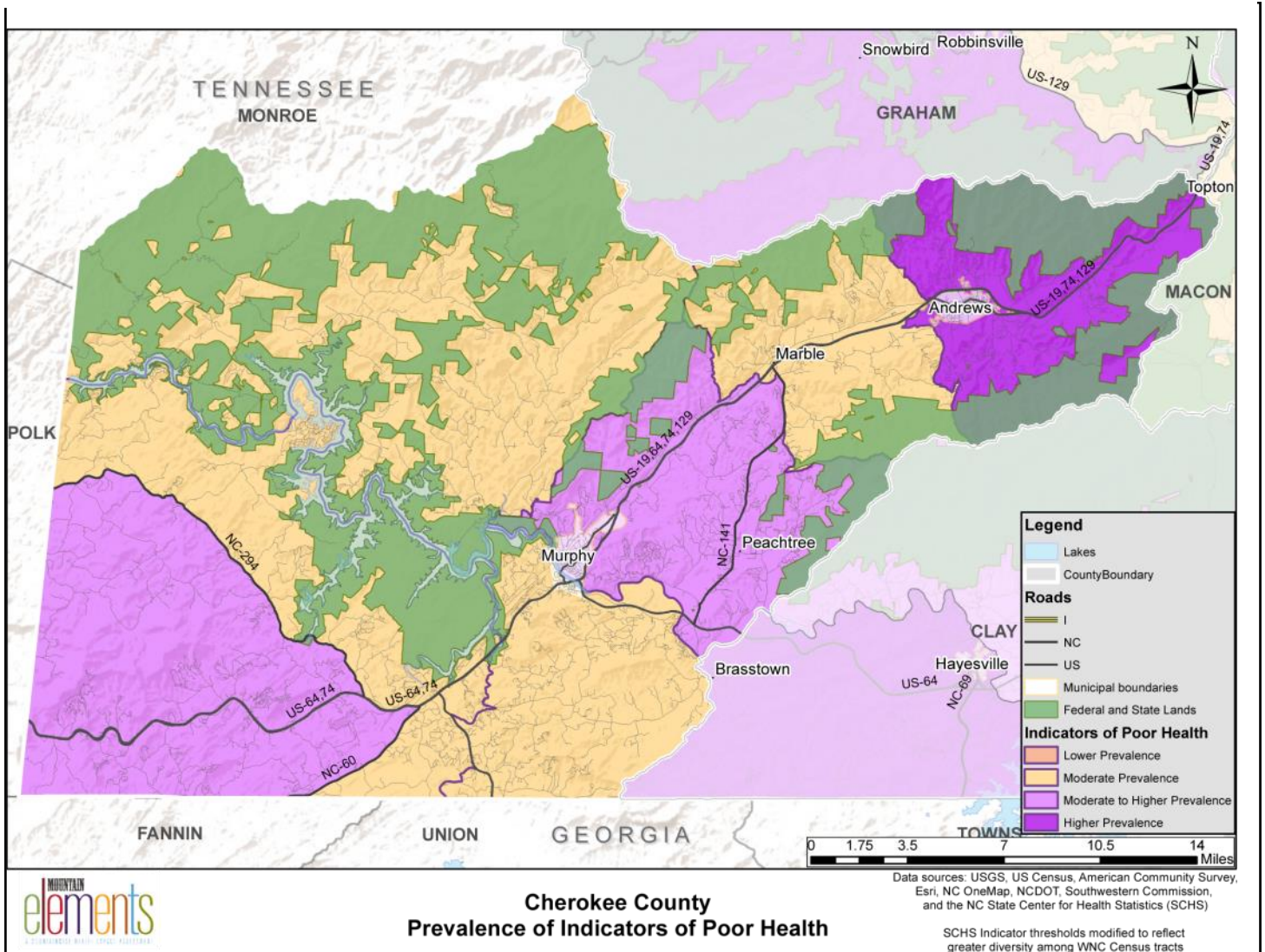
Above average percent of Hispanic population



High rates of heart disease mortality


















High rates of mortality from stroke





## Plans in Cherokee County

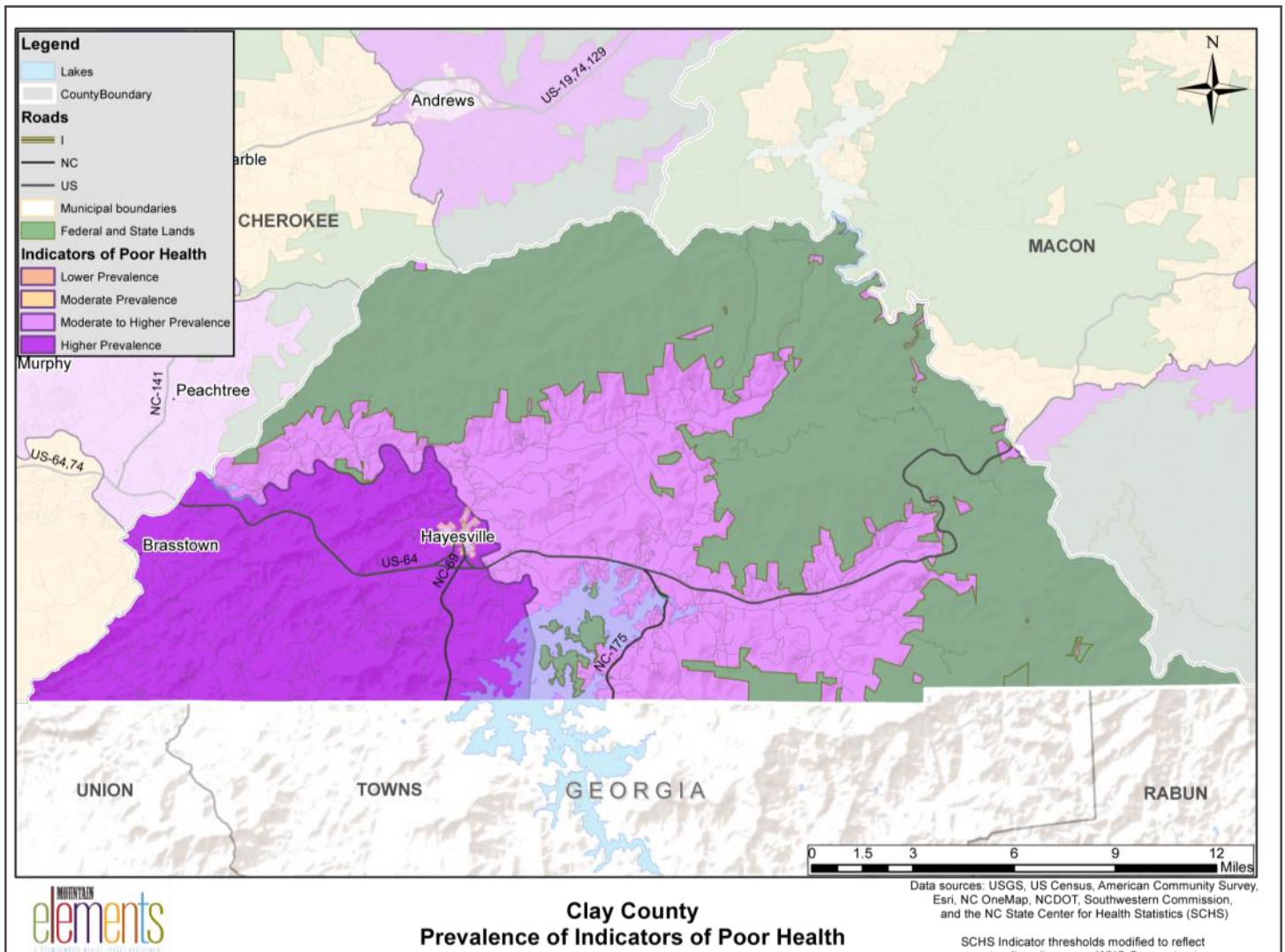
Planning Document, by type and year	Initiatives, objectives or plan guidelines	Major Findings	Mountain Elements
<b>Cherokee County, Peachtree-Martins Creek Local Watershed Plan, 2007</b>	Addresses causes of poor water quality and proposes solutions for restoring the watershed.	Land Use Planning	
	Impaired waters are a major concern and can drive costs of treating drinking water and decrease the quality of fisheries and water recreation.	Land Use Planning	
<b>Cherokee County, Farmland Preservation Plan, 2008:</b>	Encourages the passing of land through generations for preservation.	Land Use Planning Local Food	  
	Addresses the need for agency/ governmental collaboration to conserve prime farmland.	Land Use Planning Local Food	  
	Seeks investment in local food system by collaborating with schools/health centers in developing a Community Supported Agriculture (CSA) program.	Local Food	 
<b>Cherokee County Heritage Plan, 2008</b>	Identifies projects that conserve and promote heritage and have an economic development impact	Land Use Planning Income Disparity	 
	Projects examples include a regional heritage visitor center, development of regional trails, and opportunities to revitalize the towns of Murphy and Andrews.	Land Use Planning Active Transportation Income Disparity	  



# Clay County




















## CLAY COUNTY HOT SPOT TRIGGERS

-  Below average number of health care workers
-  High rates of mortality from stroke
-  Higher percent of population living below poverty line
-  Higher portion of households spending <30% on rent
-  High rates of mortality from lung cancer





## Plans in Clay County

Planning Document, by type and year	Initiatives, objectives or plan guidelines	Major Findings	Mountain Elements
<b><i>Clay County Heritage Plan, 2008</i></b>	Includes initiative to expand the Mountain Valley Farmer's Market	Land Use Planning Local Food	  
	Calls for a 15-mile trail called the Jack Rabbit Biking and Hiking Trail.	Active Transportation	
	Preserve cultural icons like Spike Buck Indian Mound Preservation & Trail	Land Use Planning Active Transportation	 
<b><i>Clay County Farmland Protection Plan, 2010</i></b>	County will seek to use Voluntary Agriculture Districts and Enhanced Voluntary Agriculture Districts, as well as changing zoning to protect prime agricultural lands.	Land Use Planning Local Food	  
	Need actions to curb economic issues which lead to land sales to developers which often result in increased parcelization.	Land Use Planning	
<b><i>Clay County Comprehensive Plan, 2010</i></b>	Ensure all residents and groups are served with park, recreation, and open space facilities. Parks and greenway planning are to be integrated in future decision-making regarding land-use and development.	Land Use Planning Active Transportation	 
	Form "rural pathways" and "rural cross-roads." Which already include focused areas for commercial use but may also include public open green space and conservation developments.	Land Use Planning Active Transportation	 
	Seeks protection of pristine waterways and protection of steep slopes and flood plains	Land Use Planning	
	Revitalization of downtown buildings to help attract visitors and promoting the area through branding to "capture loop tourists."	Land Use Planning Income Disparity	 
	Suggestions for integrating community pathways through historic Hayesville.	Land Use Planning Active Transportation	 

# Graham County

## GRAHAM COUNTY HOT SPOT TRIGGERS



Below average number of health care workers



High rates of mortality from heart disease



Higher percent of population living below poverty line



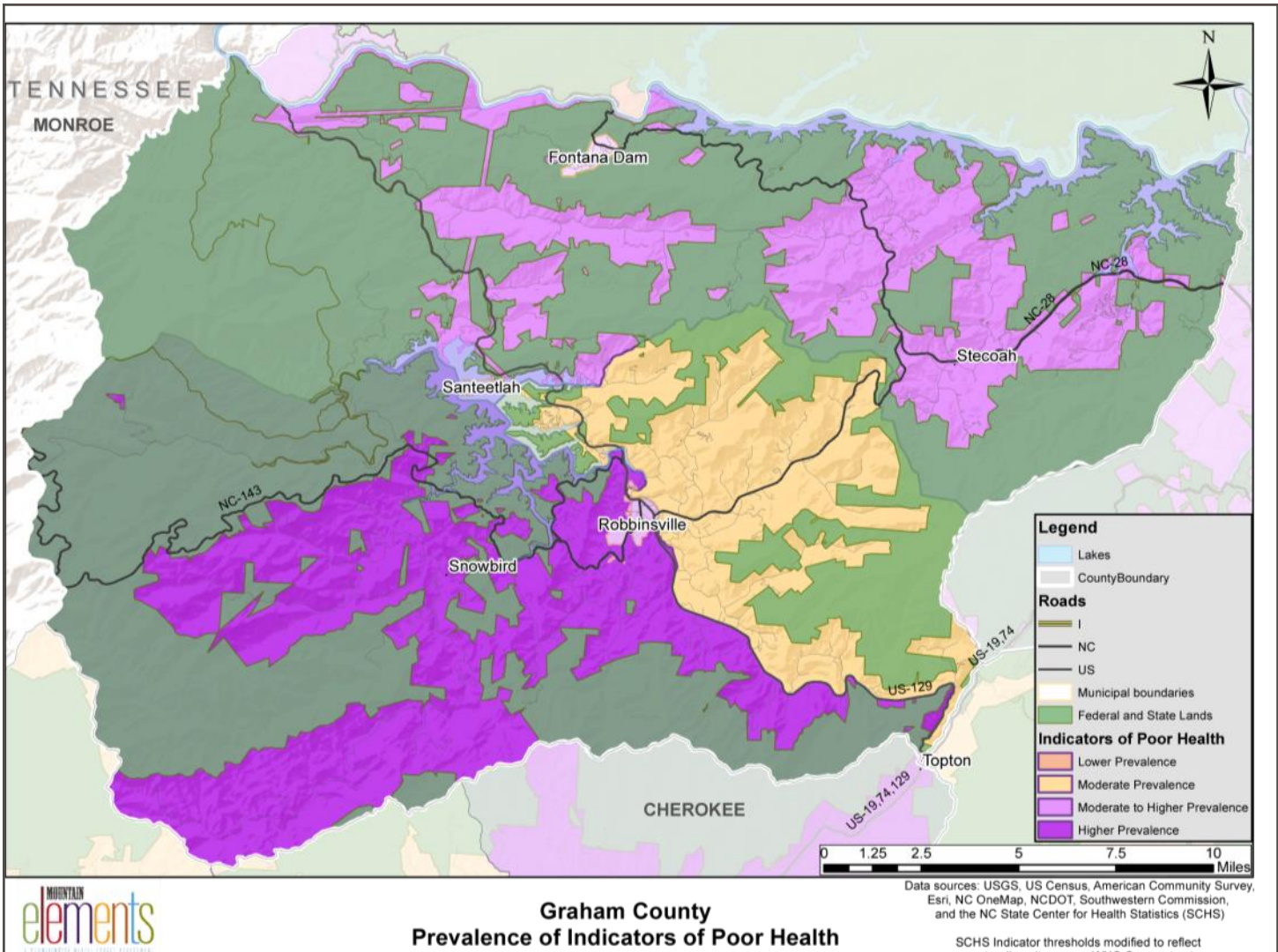
Higher portion of households spending <30% on rent



Lower than average High School graduate percent of population



















Higher than average number of people receiving food stamps







## Plans in Graham County

Planning Document, by type and year	Initiatives, objectives or plan guidelines	Major Findings	Mountain Elements
<b><i>Graham County, Floodplain Ordinance, 2012:</i></b>	Precludes septic tanks and treatment plants in the floodplain and other development controls, thus preventing water contamination.	Land Use Planning	
<b><i>Graham County, Watershed Protection Ordinance, 2010:</i></b>	Ensures that impacts (stormwater, impervious surfaces, sanitary waste systems, etc.) do not detrimentally affect the county's drinking water.	Land Use Planning	
<b><i>Graham County, Reimagining Robbinsville, 2012 and Town of Robbinsville NC STEP Plan:</i></b>	Numerous recommendations and suggested projects for the development of greenways, parks, and a more thriving downtown, including beautifying downtown.	Land Use Planning Active Transportation Income Disparity	  
<b><i>Graham County, The GREAT Strategic Plan, 2013:</i></b>	Improving health in the community through physical activity outlets, access to various form of medical care and improving overall education achievement.	Local Food Active Transportation Education Attainment Care Access	   
<b><i>Graham County, Robbinsville Pedestrian Connectivity Plan, 2013:</i></b>	Addresses the need for a more walkable connected community.	Land Use Planning Active Transportation	 
	As Robbinsville works to revitalize downtown, this plan serves as a guide to create cohesiveness and improved health.	Land Use Planning Income Disparity	 
<b><i>Graham County, US 129 Streetscape Plan, 2012:</i></b>	Plans seeks to improve community overall appearance.	Land Use Planning	
	Promote walking along the US 129 Rodney Orr Bypass.	Active Transportation Land Use Planning	 

# Haywood County

## HAYWOOD COUNTY HOT SPOT TRIGGERS



High rates of mortality from heart disease



High rates of mortality from lung cancer



Above average percent of African American population



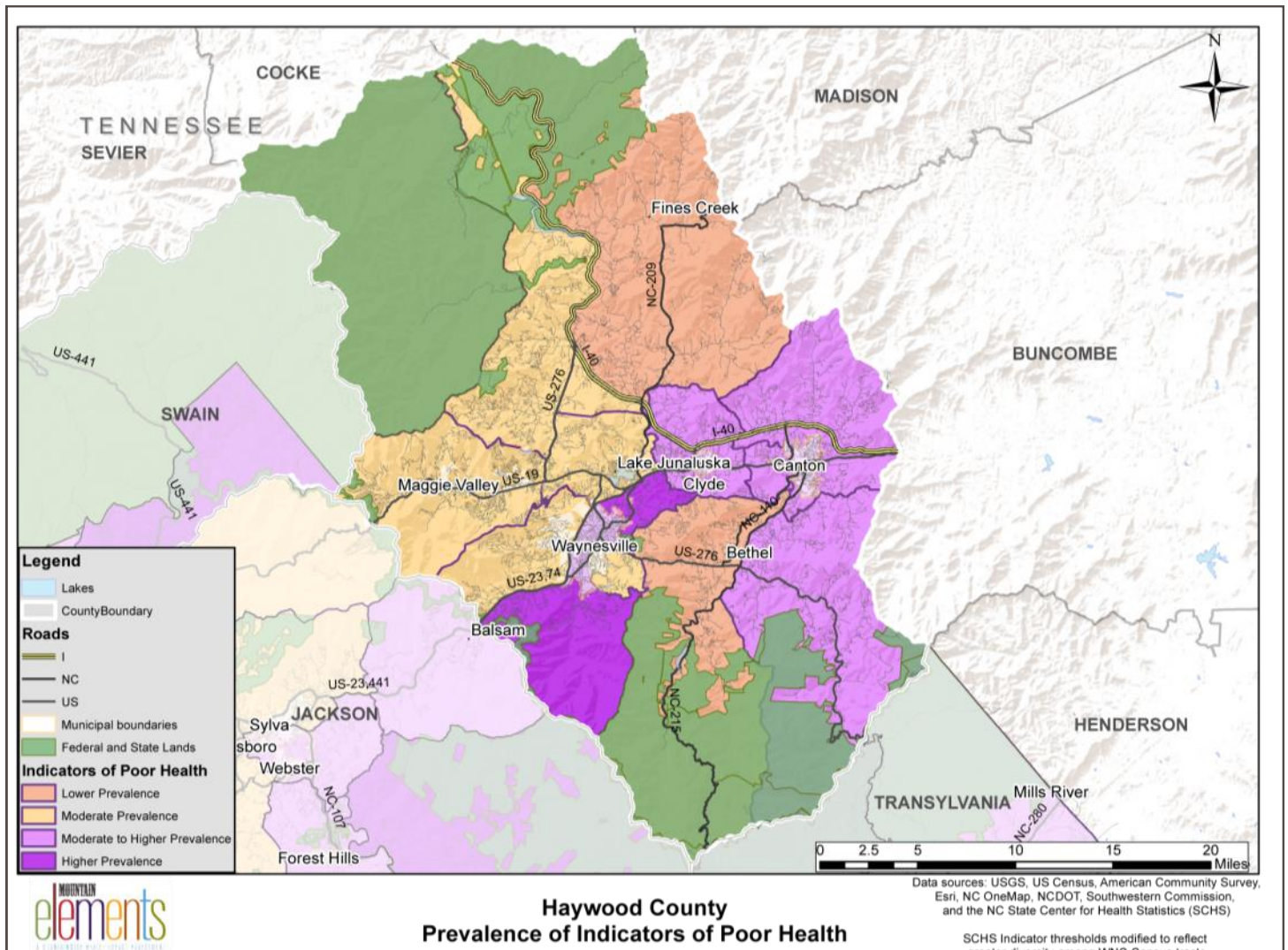
Higher than average number of people receiving food stamps



Higher portion of households spending <30% on rent











Lower than average High School graduate percent of population


















## Plans in Haywood County

Planning Document, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<i>Haywood County, Canton Economic Development Plan, 2011</i>	Support businesses and entrepreneurs including professional development and training opportunities.	Income Disparity Care Access Education Attainment	
	Improve aesthetics of downtown, and surrounding areas.	Land Use Planning	
	Develop area around I-40 perhaps with the creation of an Expo Center and shopping to attract tourists and residents.	Land Use Planning Income Disparity	
<i>Haywood County Heritage Plan, 2006</i>	Projects include a cultural heritage museum at Ghost Town, promotion of musical traditions and youth education.	Land Use Planning Education Attainment	
<i>Haywood County, Maggie Valley Land Use Plan, 2007</i>	Encourage walking and biking to destinations to help relieve traffic congestion, suggests additional lighting and/or signage might be needed to increase safety.	Land Use Planning Active Transportation	
	Establish a "town center" as a pedestrian-oriented area to dine and shop to allow a break from the car-centered layout and provide a place for residents and/or visitors to congregate.	Land Use Planning Active Transportation	
<i>Haywood County, Waynesville Land Development Plan, 1999</i>	"Promote the development... by preserving and improving existing neighborhoods, creating more attractive commercial centers, maintaining strong downtown area, reducing sprawl & protecting the natural beauty of the community."	Land Use Planning Income Disparity	
	Provides a range of housing opportunities and neighborhoods. Uses "creative zoning to allow accessory dwellings, duplexes, and affordable housing alternatives."	Land Use Planning Income Disparity	
<i>Haywood County Comprehensive Bicycle Plan &amp; Health Impact Assessment</i>	The first HIA completed in North Carolina, the plan integrates health as a theme behind prioritizing the Haywood Hub bicycle route. The plan identifies other priorities through the lens of health impacts.	Active Transportation Income Disparity	
	The Plan utilized CHA findings and BMI data to tie these findings to how bicycling can improve health.	Active Transportation	



Planning Document, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<b>Waynesville Land Development Plan, 1999</b>	"Create a safe, efficient and environmentally sensitive multi-modal transportation system throughout the community."	<b>Active Transportation</b>	
	Creating an urban services boundary for water and sewer to help create denser development while containing sprawl.	<b>Land Use Planning</b>	
	Provide resources needed for high quality recreation, cultural & economic activities.	<b>Active Transp. Local Funding</b>	
	Preservation of agriculture and open space as well as maintaining air quality and water health throughout the region.	<b>Land Use Planning Local Food</b>	
	"Maintain/strengthen broad-based economy comprised of vibrant & expanding manufacturing, retail, agricultural, services, governmental & construction."	<b>Income Disparity Local Food Land Use Planning</b>	
<b>Haywood County Parks and Recreation Master Plan, 2007</b>	"Commitment of funding for maintenance of new facilities should be a priority."	<b>Local Funding</b>	
	Assesses current recreation facilities and anticipated needs including: Greenway, youth activities, ADA compliance, lighting and improving existing facilities	<b>Land Use Planning Active Transportation</b>	
	Land acquisition a priority in the early years of planning period.	<b>Local Funding</b>	
<b>Clyde Land Use Plan, 2012</b>	Provide a land use mix and that provides appropriate locations for people to live, work, shop, go to school, attend church, recreate, etc..	<b>Land Use Planning Income Disparity</b>	
	Develop an efficient multi-modal system by increasing connectivity, sidewalks, greenways, and bicycle infrastructure.	<b>Active Transportation</b>	
	Goals address water quality, flood risk, and steep slope development by education & encouragement & some incentives for homeowners/developers to preserve sensitive areas as open space.	<b>Land Use Planning</b>	
	Help the economy grow, through education & resources, market analysis, & linkages with "buy local" initiatives	<b>Income Disparity Education Attainment</b>	
	Strategies include increasing density while preserving small town feel & historic buildings/neighborhoods. Protect ag land and "treating the Pigeon River as a community asset".	<b>Land Use Planning</b>	

# Jackson County

## JACKSON COUNTY HOT SPOT TRIGGERS



Higher percent of population living below poverty line



Lower than average High School graduate percent of population



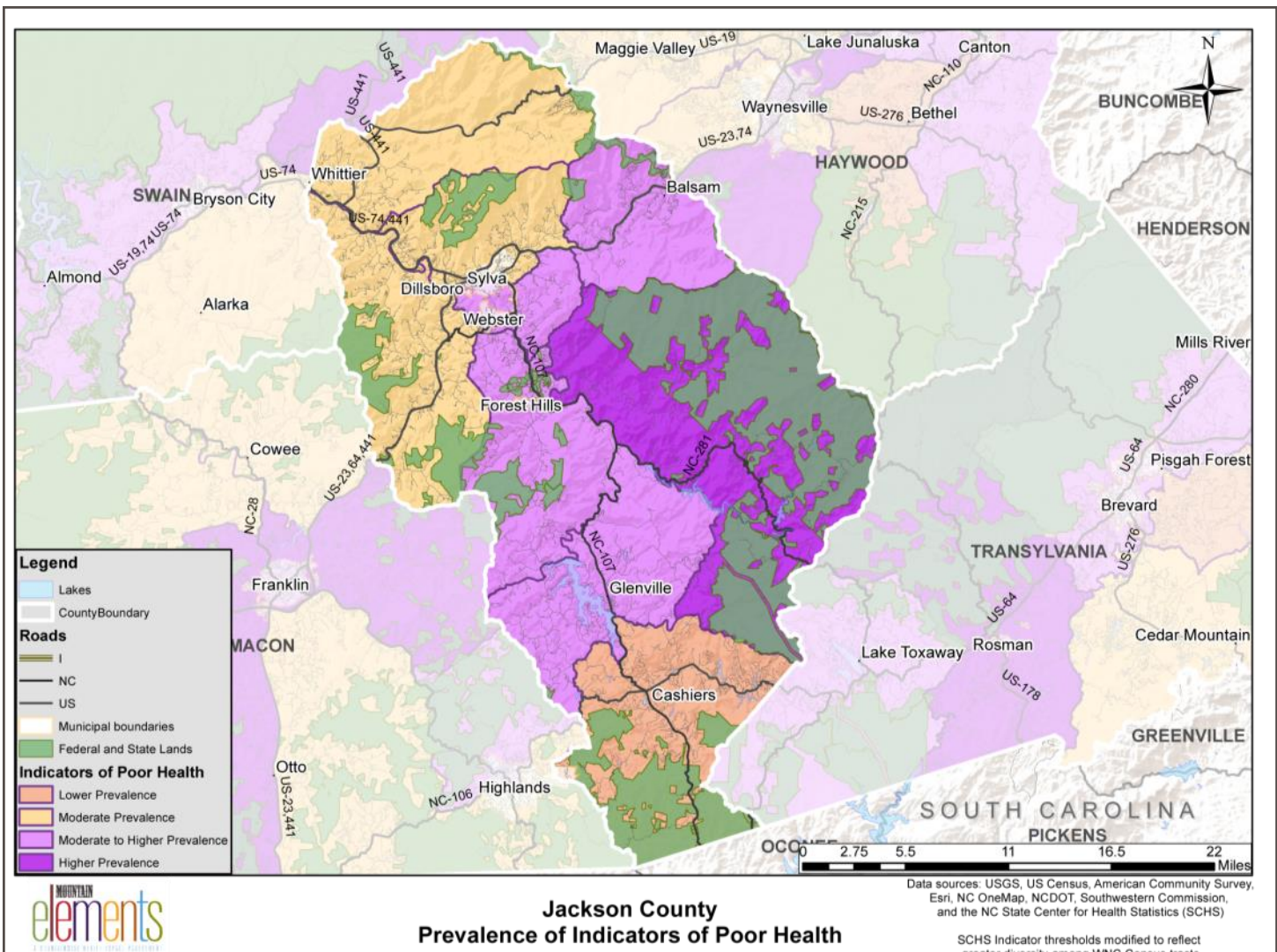
Higher portion of households spending <30% on rent



Below average number of health care workers











Above average percent of Hispanic population





## Plans in Jackson County

Planning Document, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<b><i>Jackson County Land Development Plan, 2006</i></b>	Sylva looks to "accommodate growth," including encouraging mixed-use developments, preservation of environmentally sensitive areas, improving street connectivity, and encouraging multi-modal options between residential areas and destinations.	<b>Land Use Planning Active Transportation</b>	
	Webster's plans included goals to build community and cultivating a sense of place, "enhance public places" to civic buildings, streets, sidewalks, and parks. Also "encourage green spaces that preserve the river and the mountains."	<b>Land Use Planning Active Transportation</b>	
	To ensure safety for all users when roadway expansion or widening projects are being considered, encourage roadway designs other than 3 and 5-lane undivided highways.	<b>Active Transportation</b>	
	Western Carolina University and Southwestern Community College are very influential in Jackson County.	<b>Land Use Planning Income Disparity</b>	
	Education and tourism are both growing and Jackson County has thriving health-care institutions such as Harris Regional Hospital, which employs over 1000 people.	<b>Land Use Planning Income Disparity</b>	
<b><i>Jackson County Heritage Plan, 2008</i></b>	The Jackson County Greenway consists of four sections of greenway that link hubs (Dillsboro, Sylva, WCU and others) as part of a long-term conservation plan.	<b>Active Transportation</b>	
	The Cashiers Village Corridor Plan addresses needs within the community. Planned Cultural Center will expand arts programming available as well as provide additional meeting rooms and classrooms. The Village Green includes pavilions and shelters for picnicking, a boardwalk and bird sanctuary, and a playground for children called the "Village Play." Also included in the plans is a community center, with recreational facilities.	<b>Land Use Planning Education Attainment</b>	
	Judaculla Rock Preservation and Interpretation project.	<b>Land Use Planning</b>	



# Macon County

## MACON COUNTY HOT SPOT TRIGGERS



Above average percent of Hispanic population



Lower than average High School graduate percent of population



High rates of mortality from lung cancer



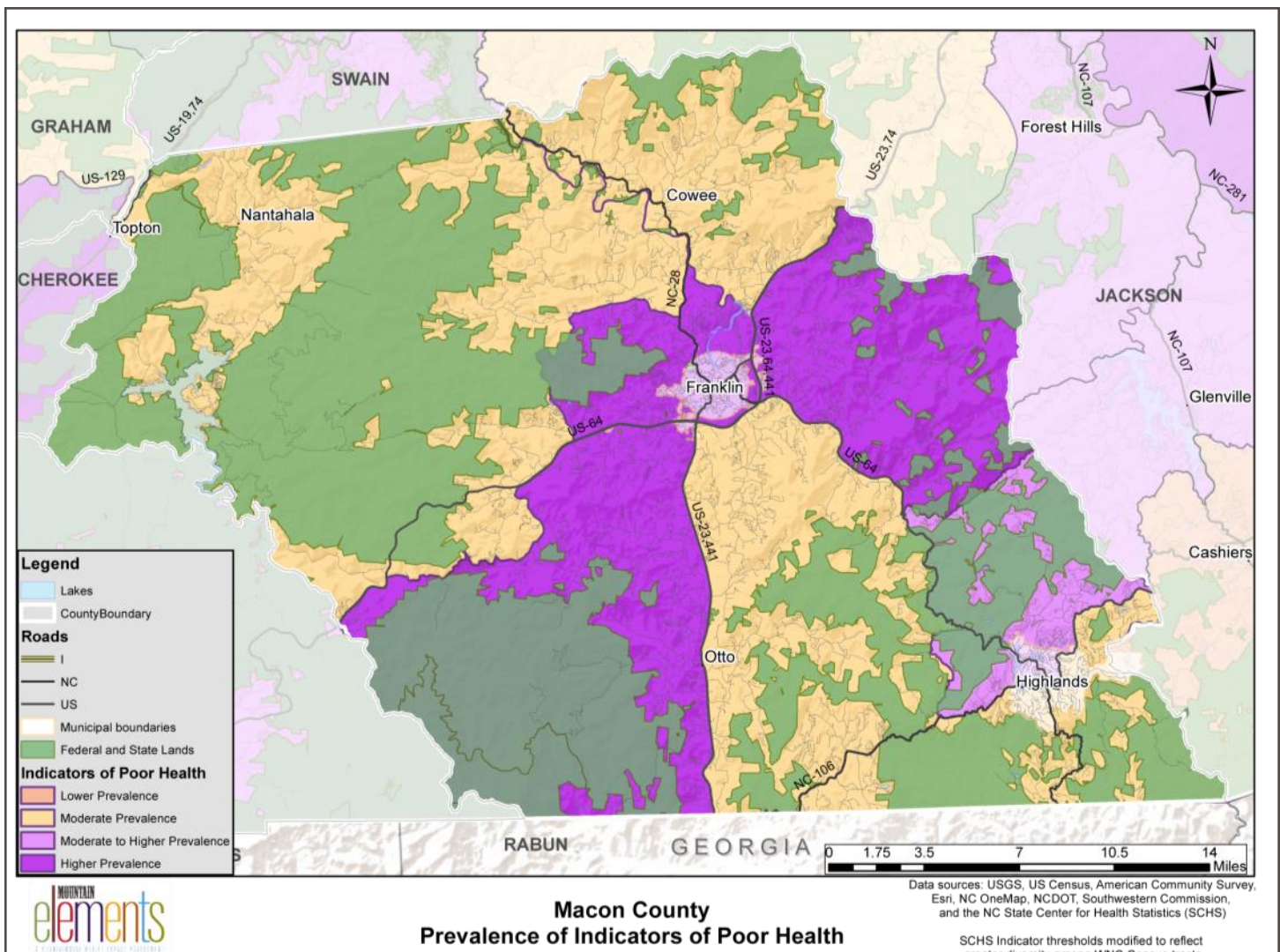
Higher portion of households spending <30% on rent



Higher than average number of people receiving food stamps











High rates of mortality from heart disease





## Plans in Macon County

Planning Document, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<b><i>Macon County Comprehensive Plan, 2011</i></b>	Protect and encourage existing agriculture by having the Economic Development Commission include agriculture in economic development plans, promoting agriculture education (in schools and for farmers), promoting VADs, estate planning, and establishing a Farmland Protection Fund.	Land Use Planning Local Funding Local Food Education Attainment	
	Recommendations for improving senior health include creation of a "Healthy Active Environment" by building Active Living Communities (including more sidewalks and bike routes) and to be sure to consider seniors when planning for recreation locations and activities, including senior-specific exercise classes with reduced rates for seniors.	Land Use Planning Active Transportation	
	Recommend preservation of open space and expanding and connecting greenway systems.	Land Use Planning	
	Protect the natural environment. "Sense of place" is tied forever to the quality of our rivers and mountain landscapes.	Land Use Planning	
	Create walkable neighborhoods, directing development towards existing communities, maintaining transportation options, and mixing land uses.	Land Use Planning Active Transportation	
	Seek partnerships between Macon County Health Services and the Macon County Parks and Recreation Department (MCPRD), including nutrition education and programming and increased opportunities for family recreation.	Local Food Active Transportation Local Funding Education Attainment	
<b><i>Macon County Recreation Master Plan, 2005</i></b>	Facilities such as greenways and fishing piers allows families and friends to socialize and recreate in a safer environment.	Land Use Planning Active Transportation	
	Seek funding sources for future land acquisition, planning, and development of recreational facilities and grounds.	Land Use Planning Local Funding	



# Swain County

## SWAIN COUNTY HOT SPOT TRIGGERS



Higher percent of population living below poverty line



Lower than average High School graduate percent of population



Higher portion of households spending <30% on rent



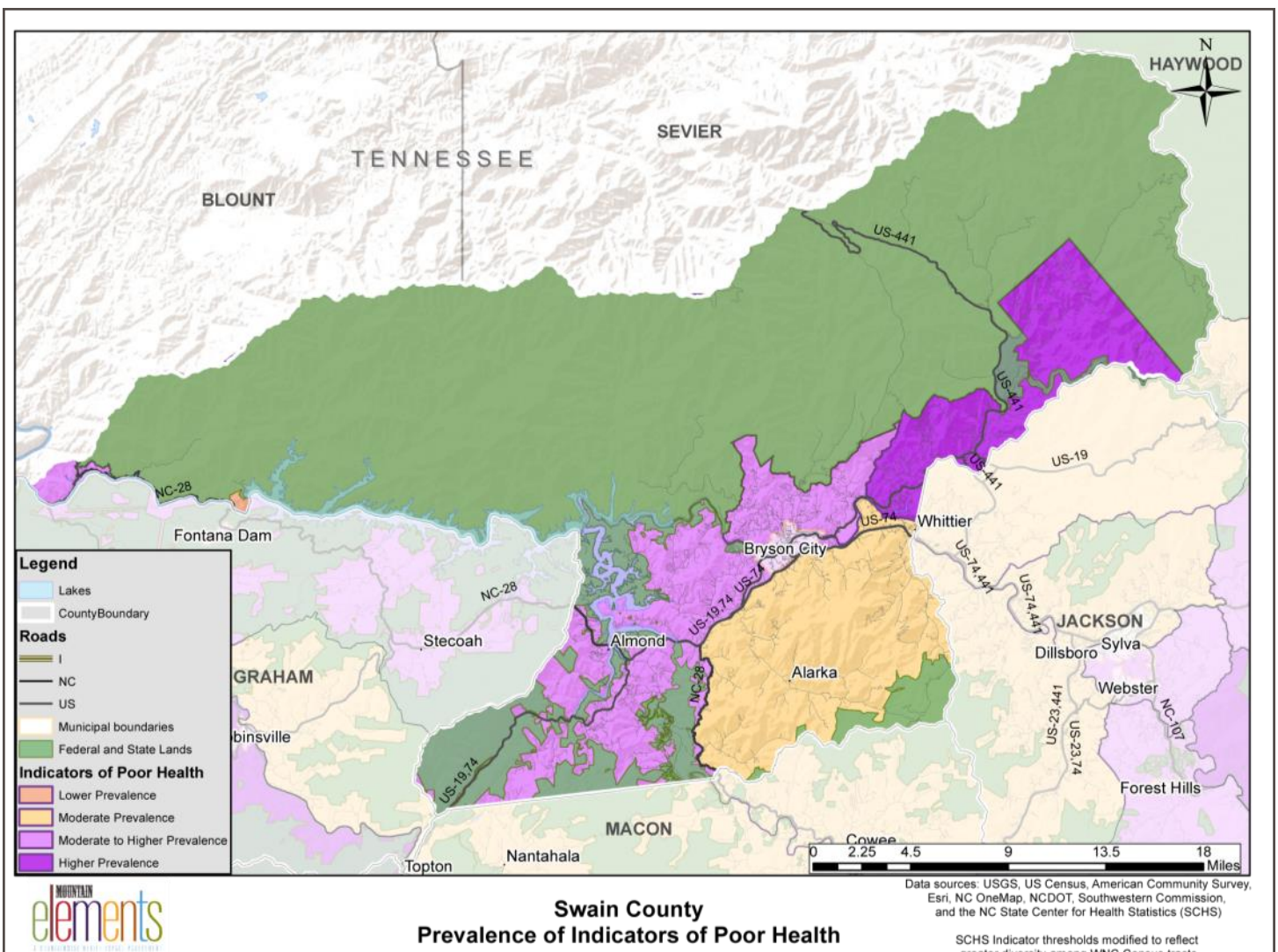
Below average number of health care workers



Above average percent of Hispanic population





















Higher than average number of people receiving food stamps







## Plans in Swain County

Planning Document, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<b>Swain County Land Use Plan, 2010</b>	Discourage development in the floodplains and encourage "low intensity uses such as open space, recreation, and adequately buffered agricultural activities."	Land Use Planning	
	"Needs to be strong interdependence between rural community's natural resources & economy." Potential of their natural amenities through better stewardship & promotion of nature-based recreation and tourism.	Land Use Planning	 
	2009 Ordinance is to "encourage the voluntary preservation and protection of farmland from non-farm development."	Land Use Planning Local Food	 
	Principles include clustering of housing and encouraging commercial districts rather than sprawling patterns.	Land Use Planning Income Disparity	 
	Transportation goals includes designing for connectivity and encouraging multi-modal transportation, especially alternatives for pedestrians and bicyclists.	Active Transportation Land Use Planning	 
<b>Swain County, Franklin to Fontana Watershed Plan</b>	Recommend reducing contamination by implementing agricultural best management practices, keeping livestock out of streams, develop waste management plan for livestock, & investigate sewer collection system.	Land Use Planning	
	Implement stormwater and agricultural BMPs, adopting steep slope ordinance, and stabilizing eroding banks.	Land Use Planning	
<b>Bryson City Community Assessment, 2011</b>	Recommendation to create a downtown farmer's market	Land Use Planning Local Food	 
	Pedestrian improvements such as a park and a greenway on the north side of the river.	Active Transportation	
	Calls for new and revitalized "gathering spaces," and includes facade improvements on buildings and historic preservation.	Land Use Planning	
<b>Bryson City Land Development Plan, 2007</b>	Recommends using zoning to positively influence economic growth and development in Bryson City and Swain County.	Land Use Planning Income Disparity	 
	Approximately 75% of land in Swain Co. is owned/controlled by federal government and other entities. A result of so much land being preserved in national parkland is that air and water quality are both very good.	Land Use Planning	

# Transylvania County

## TRANSYLVANIA COUNTY HOT SPOT TRIGGERS



Below average number of health care workers



High rates of mortality from stroke



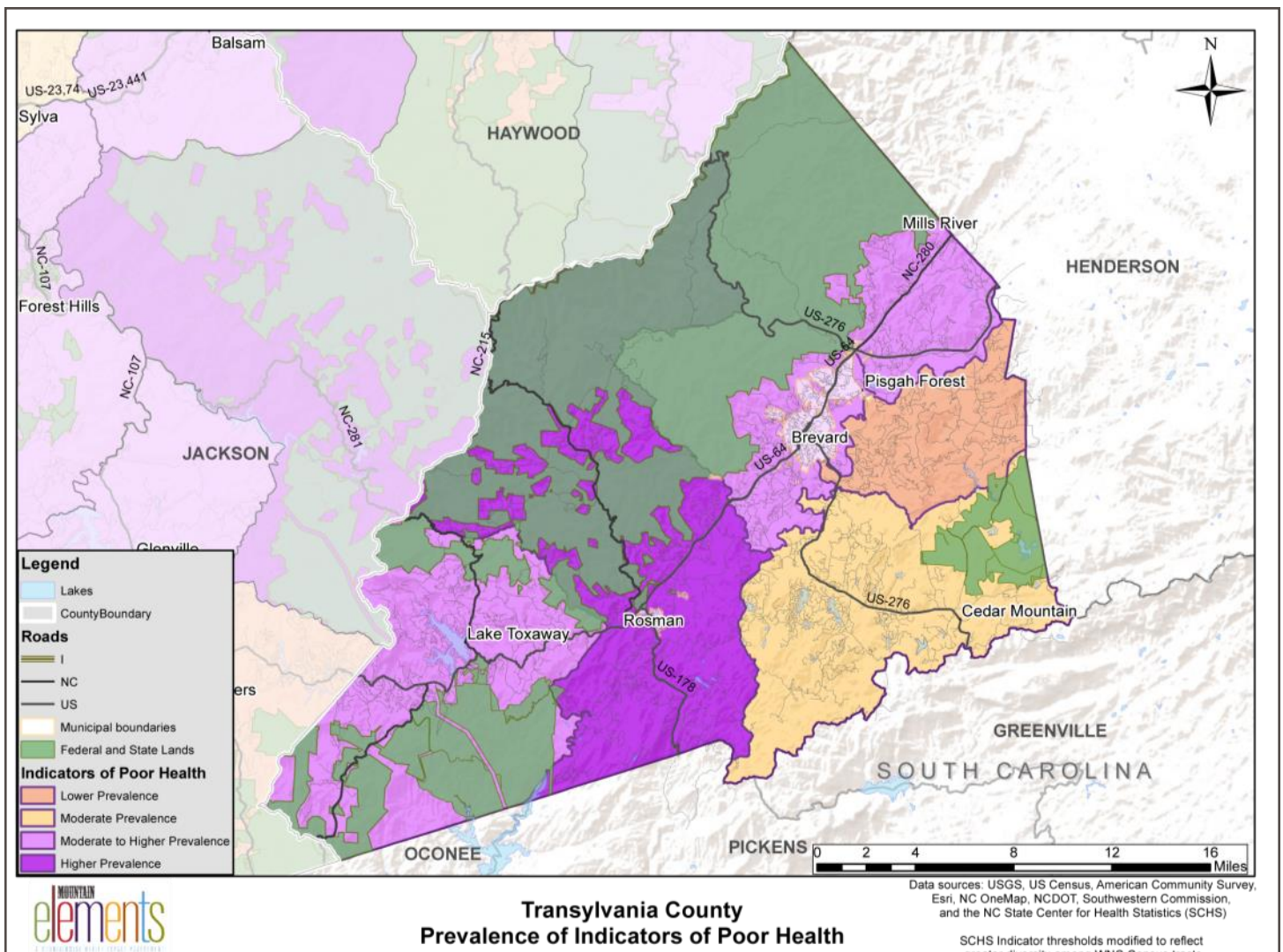
Higher percent of population living below poverty line



Higher portion of households spending <30% on rent

























High rates of mortality from lung cancer





## Plans in Transylvania County

County Plan, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<b>Transylvania County Comprehensive Plan, 2005</b>	Promote the best use of land while protecting citizen's property rights.	Land Use Planning	
	Preserve Transylvania County's distinctive rural character, mountain heritage, natural environment and ambiance, while promoting proactive planning and economic growth.	Land Use Planning	
	Collaborate with NCDOT to provide the best possible roads and promote alternative transportation. Examples include installation of sidewalks and bike lanes, and addition of climbing lanes where needed.	Active Transportation	
	Supply reliable, safe drinking water, wastewater treatment & solid waste disposal.	Land Use Planning	
	Promote affordable, safe and adequate housing for all residents.	Land Use Planning Income Disparity	  
	Plan and provide appropriate public facilities and services for County residents and businesses.	Land Use Planning Local Funding	 
<b>Brevard Comprehensive Plan, 2014</b>	Maximize City's growth through mixed-use development & density in order to grow within the natural constraints .	Land Use Planning Local Food	 
	Ensure an economic viable community through strategic partnerships, cultivating an environment that encourages investment.	Land Use Planning Income Disparity Local Funding	  
	Promote community character through neighborhood interconnectivity to services and amenities.	Land Use Planning	
	Encourage a diverse housing mix which offers viable housing options to citizens of all in-	Land Use Planning Income Disparity	  
	Offer and promote healthy lifestyles through accessibility to exercise options and local,	Local Food Care Access	  
	Develop, enhance, & promote physical & programmatic connections to cultural resources that are available to visitors and residents.	Active Transportation	





## Plans in Transylvania County

Planning Document, by type and year	Initiative, objectives or plan guidelines	Major Findings	Mountain Elements
<b><i>Brevard Comprehensive Plan, 2014 (cont'd)</i></b>	City's recreation policy to provide diverse recreation opportunities for all citizens and visitors in order to enhance quality of life and attractiveness for new growth.	Land Use Planning Active Transportation	
<b><i>Transylvania County, Comprehensive Parks and Recreation Master Plan, 2008</i></b>	Proposed expansions to grounds and facilities at the Transylvania Activity Center.	Land Use Planning Active Transportation	
	Acquisition and development of land for a new district park located in the vicinity of the Town of Rosman, Aquatic center and greenways.	Land Use Planning Active Transportation Local Funding	
<b><i>City of Brevard, Railroad Avenue, Small Area Plan 2014</i></b>	Support the development of financially literate, financially self-sufficient citizenry.	Income Disparity Local Funding Education Attainment	
	Increase funding of the City's existing Affordable / Workforce Housing Trust Fund, and employ the fund to incentivize affordable housing development	Land Use Planning	

## MountainElements: Notes from Stakeholder Meetings

A series of face-to-face interviews and workshops were held throughout the HIA study area to gather additional information on plans or initiatives specific to each county or the region. This was done in conjunction with the plan review effort since not all plans or initiatives are explicitly described or memorialized in a Plan or governing document. The comments gathered and organized by “current” and “emerging” issues are contained herein.

The intent of the meetings and workshops were to better understand current initiatives, unearth unknown initiatives, and understand the potential linkage with elements typical of comprehensive planning. Additionally, the discussions were helpful in getting a baseline condition with regard to health issues and to better understand some of the emerging problems facing the communities. With regard to the emerging issues, these are the topics that when tied back to Comprehensive Planning initiatives are most suitable to assess for potential future impacts.

The County Health Department staff is often times the eyes and ears of a given population as it has the greatest day-to-day exposure to the general public as well as various population cohorts. The staff of such agencies are generally on the front lines of policy implementation and knowledgeable to a given health climate. Capturing their experiences, summarizing their impressions and forecasting the possible trends developing from current situations are what make up a significant portion of this HIA. The following section is used to highlight some of the existing issues in each county and share what some of the likely issues developing in each County will be in the near term, according to health departments and workshop participants. In addition, the section is intended to share initiatives which aim to make inroads in various sectors or topics.

Details of these inputs sessions are included in Appendix B.



### SUCCESS STORIES

## Haywood County Fitness Challenge



The Fitness Challenge began in 2002 and is a 6-week opportunity that includes recreation facilities, schools, hospital facilities and private gyms. These diverse partnerships allow individuals to try out these facilities and fitness centers through support from the Healthy Haywood program. Gyms in each of our four towns—Canton, Clyde, Maggie Valley and Waynesville—participate. Part of the revenue generated through the Challenge are used for small grants to help promote physical activity and nutrition in Haywood County. One of 2013 grants was given to Buy Haywood for their "Cooking Local Together" project. In 2014 more than 3,000 people signed up to participate and interest has grown each year. This growing interest allows the Haywood County Health Department to provide small grants for physical activity and nutrition programs. One challenge has been the need to change the time of year of the event to better accommodate fitness centers and their needs.



## SUCCESS STORIES

### Swain County WIC Produce Nutrition Vouchers



The purpose of the Swain County Produce Nutrition Voucher Program is to introduce produce vouchers to WIC participants for use at local farmers markets, roadside stands and local farms and increase their fresh fruits and vegetables consumption. This program, which includes a \$5,000 commitment from the County, addresses several of the MountainElements findings related to local conditions, integration of health themes and impacts of income on one's abilities to lead a healthier lifestyle.

The Swain County WIC Produce Nutrition Program Vouchers (PNPV) helps enhance the diet of low income families, increase awareness of local produce outlets in Swain County, increase sense of community among WIC clients and produce stands that often serve as community centers, increase money spent locally and increase support of local produce outlets in Swain County. There was a 6.17% increase in fruit and vegetable consumption of three to four times a day in the pilot program. The county hopes to increase this percentage in coming years with the continued success of this program.

## Regional Income Rate Comparison

Household income is one of the most important indicators of health in America. A person or family's income is linked to the ability to live in a safe, hospitable environment, personal stress and access to healthy food options. It can also impact recreational time and means, a person's transportation options and access to health care. Using a livable wage calculator, each county was examined for typical expenses experienced by residents and compared

with household income reported through the Census. The inputs of the wage calculator include basic household necessities such as: Food, Child Care, Medical Expenses, Housing, Transportation, Taxes and Other expenses.

Five of the eight common living situations in North Carolina can be financially accommodated given household averages (detailed tables are in Appendix C). However, three of the common situations cannot be financially accommodated according to the data. An important figure is discretionary income, or the balance between the costs of living and the average household income. This amount usually allows for flexibility in areas like food access, recreation, enriching experiences, and other quality of life-related components.

- ◆ **Cherokee County.** Cherokee County household income levels cover five of the eight living conditions, though in the case of three conditions the margins are fairly slim. At 84% of state averages, Cherokee County has figures comparable to state averages.
- ◆ **Clay County.** Clay County shows three of the eight living conditions falling below median household income, meaning according to data, the majority of scenarios included cost more than average income levels would provide. Clay has 77% of the NC state average income.
- ◆ **Graham County.** With average annual household income at 62% of the state average, Graham shows two of the eight living conditions being affordable, though nearly one. With six of the eight being out of reach according to figures, this represents the largest gap in WNC.
- ◆ **Haywood County.** At 91% of state household income averages, Haywood is the closest to achieving state norms of the WNC counties.



Currently, five of the eight living conditions are inside the county income averages with a sixth very near being included.

- ◆ **Jackson County.** Households in Jackson annually earn an average of 83% of the state average. The annual amount would afford three of the eight included living conditions with two (2 Adults, 2 Children and 1 Adult, 1 Child) being very nearly included.
- ◆ **Macon County.** Macon represents average conditions for the study area and draws an annual household income total that is roughly 85% of the state average. Currently, the data shows that five of the eight living conditions are attainable given area wages.
- ◆ **Swain County.** Household income in Swain currently equals 77% of the North Carolina state averages. The amount affords area residents to achieve three of the eight conditions included in the calculator.
- ◆ **Transylvania County.** Transylvania is at the regional average in terms of household income. At 86% of the state average, residents can afford three of the eight living conditions.

## County Budgets

Budgets are a significant indicator for how a local government aims to improve or at least address the health of its residents. Investing dollars in prevention cannot only help residents lead fuller, more productive lives, it can also prevent much costlier spending on cures or treatments.

Haywood County far outspends the other counties in terms of total government spending on health-related expenditures. On a per capita basis, all of the counties expend very nearly the same amounts in total on health-related activities; however there are substantial differences in educational expenditures, and Haywood County does not spend as much on Public Safety or Human Services compared to some other counties. The approximate ordering of expenditures, controlled by the number of persons in each county under the federal poverty line, resembles that of total expenditures, with the notable exception of Graham County, which spends disproportionately more on Public Safety and Human Services.

When the number of elderly (aged 65 and older) is used as the control total for expenditures, the results very nearly seem to randomize, with Swain becoming the leading provider, particularly in the area of Human Services. Jackson County also spends disproportionately more on the elderly than some of its counterparts.

Additionally, it should be observed that the individual counties seldom finance projects entirely on their own. Programs like SNAP (Supplemental Nutrition Assistance Program) are matched with federal dollars; Graham County, for example, spent \$111,016 in FY 2011-2012 all of which was matched dollar-for-dollar by federal monies. The recent, much-publicized reduction in the federal assistance to SNAP/Food Stamp programs will certainly have an impact in rural communities like these that already struggle to find the necessary budget to match the remaining federal funding. More detailed information is contained in Appendix D.

### What Makes Us Healthy



### What We Spend On Being Healthy



It is important to keep perspective on the types of things that actually make communities and individuals healthier as Western North Carolina pursues projects, programs and policies to improve public health. There is a major imbalance in the United States between what makes us healthy and what we spend on being healthy.

Source: *Lots to Lose: How America's Health and Obesity Crisis Threatens our Economic Future* (2012)

## 5. Recommendations & Monitoring

Once all of the data have been gathered and analyzed, the next steps of an HIA are to:

- ◆ Develop specific and achievable recommendations in the form of strategies, action steps, champions, and timelines to address each assessment finding
- ◆ Craft monitoring steps to ensure adequate and accurate information is collected, discussed with stakeholders, and reported on.

### RECOMMENDATIONS

The HIA points the way to decisions that protect and promote health. This step includes actions required to integrate an HIA's analysis and recommendations into a decision-making process.

### Recommendations

The assessment phase revealed many opportunities to integrate health into planning. The project team, however, knew it wasn't realistic to expect all 30 municipalities in the WNC region to enact each of the recommendations. Instead, the team organized and prioritized their recommendations:

- ◆ A single, primary recommendation that would cut across and benefit all counties in the region
- ◆ A menu of other recommendations tailored to each county, from which the counties could pick and choose what made sense for them to advance

### Primary HIA Recommendation: Food Systems Planning

As the MountainElements process unfolded, healthy eating emerged as a primary area of concern across sectors. The project team heard from individuals and stakeholders from the public, non-profit, faith-based, and private sectors about the many initiatives ongoing or proposed in WNC related to local food and food systems.

Health and food are inextricably linked. Much of WNC is food insecure for the simple reason residents cannot easily access healthy foods.

The rate of poverty and unemployment in the region further compounds the issue. Fifty to 69% of children receive a subsidized or free lunch. This is often an indicator of food insecurity at home, which can have significant impacts on childhood development.

Local food system planning can be a major force in improving community health through actions that remedy food insecurity and poor nutrition causing medical conditions like diabetes, heart disease, and obesity.

Food systems planning was also attractive as a public planning issue because it:

- ◆ Had sizeable, region-wide interest
- ◆ Was apolitical in nature
- ◆ Would offer the greatest opportunity for success
- ◆ Act as an entry point for other, related planning opportunities, such as transportation and land use

### MONITORING

Monitoring tracks indicators that can be used to inform process, impact and outcome evaluations.

MountainElements recommended food systems planning at three levels: regional, countywide, and community/municipal.

Food system planning is broad enough that it is unlikely that each community will be able to undertake a full-scale evaluation. Instead, MountainElements offers a “menu” of themes of food systems planning for the region, a county, government, or non-profit organization can pursue in a manageable way.

**What is Food System Planning?** Community food system planning, as defined by the American Planning Association, is “the collaborative planning process of developing and implementing local and regional land-use, economic development, public health, and environmental goals, programs and policies to:

- ◆ Preserve existing and support new opportunities for local and regional urban and rural agriculture;
- ◆ Promote sustainable agriculture and food production practices;
- ◆ Support local and regional food value chains and related infrastructure involved in the processing, packaging, and distribution of food;
- ◆ Facilitate community food security, or equitable physical and economic access to safe, nutritious, culturally appropriate, and sustainably grown food at all times across a community, especially among vulnerable populations;
- ◆ Support and promote good nutrition and health, and;
- ◆ Facilitate the reduction of solid food-related waste and develop a reuse, recovery, recycling, and disposal system for food waste and related packaging.”



### Food System Planning is...

...the collaborative planning process of developing and implementing local and regional land-use, economic development, public health, and environmental goals, programs and policies to promote a variety of local and sustainable food production and food security practices.

- American Planning Association



There are two primary, communitywide desired outcomes:

1. **Increasing the local food system.** Increase the amount of food supply generated and then sold locally to decrease reliance on the national and global food systems and increase investments locally.
2. **Increasing food security.** Ensure everyone has access to food that is nutritional, environmentally sustainable, and accessible by all economic classes. Food system planning can also address the need for emergency food planning and creating food reserves for times of crisis.

Local food system planning can occur at scale and is a collaborative effort involving farmers, local governments, non-profits, for profits, faith-based organizations, and others. Local food system growth is dependent on complex and dynamic systems discussed below in the “The Food Systems Web.”

WNC has the benefit of an evolving collaborative called the Western North Carolina Food Policy Council (WNCFPC). Hosted by Western North Carolina University’s Public Policy Institute, the Council is a partnership of many, including:

- ◆ MANNA Food Bank
- ◆ Southwestern Regional Planning Commission
- ◆ Local governments
- ◆ Nonprofits such as the Appalachian Sustainable Agriculture Project (ASAP); and
- ◆ Other organizations.

WNCFPC developed policy issues that identify barriers for growth of the local food system and food security that occur at the local, state, and regional level.

## The Food Systems Web

The food system does not exist in a vacuum. Many other systems intersect with the food system, all of which can be addressed through public planning.

Food policy and planning should be considered as an integral part in all forms of planning, including comprehensive plans, emergency plans tourism planning, redevelopment plans, economic development plans, ordinances, environmental plans, and plans or goals of departments like parks and recreation, health, and transportation.

Governing bodies can also serve to facilitate and convene those that can play a role in expanding the local food system. More ideas on using planning to improve the local food systems are addressed in each aspect of the food systems web below and illustrated on the next page.

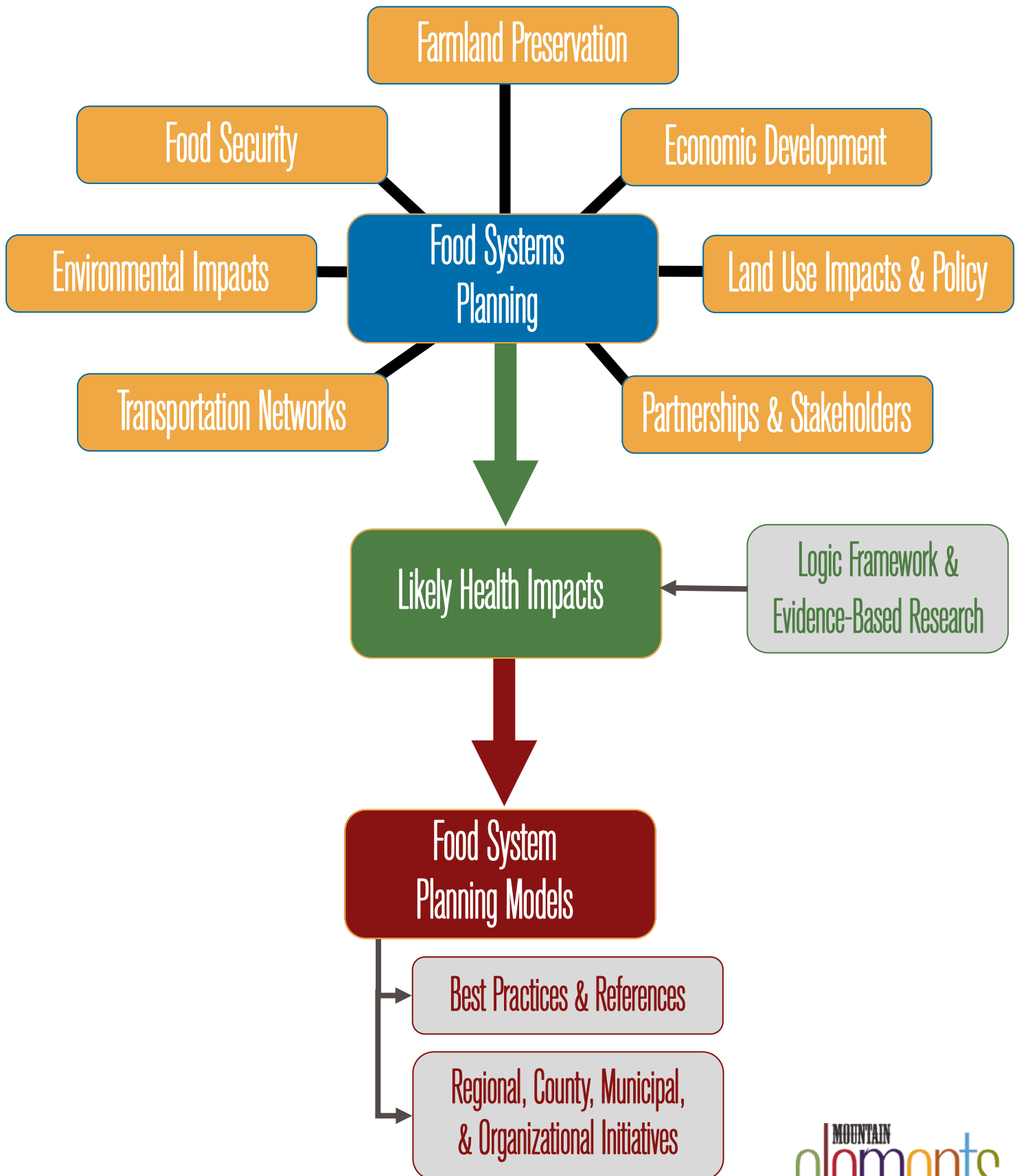
**Planning Element: Food Assistance Programs.** One program that can be used as a tool for increasing local food systems and food security are the



The WNC Food Policy Council was formed to advocate for the interests of the seven western counties of North Carolina in the areas of food security and agricultural development. A partnership of Western Carolina University, MountainWise, NC Cooperative Extension, the SWC Commission, the UNC School of Government and the NC Dept of Agriculture, the group focuses on acting as a resource for small farms, food security agencies, local governments, and community partners. The council’s focus is in these areas: policy advocacy and research; funding assistance; technical assistance; and networking among members and partners. The Council also acts as a representative group to monitor, research, and provide advocacy for the WNC region at the state and federal levels.

The Council has created internal networking and connections between stakeholders in different counties. It also serves as a funding conduit for small projects and represents the region in state and federal discussions about policy and funding. The group is working to build effective advocacy and representation at state and federal levels for improve food policy across the region.

# Food Systems Planning Web



Federal food assistance programs. These programs (SNAP and WIC) can be used to purchase local foods, but in many cases, users don't have access to retailers that sell local foods. Swain County has addressed these needs by supplementing federal WIC programs with local funding that provide vouchers for WIC clients to purchase fresh fruits and vegetables. These programs have transitioned away from the old food stamp program to EBT electronic cards which have their own barriers in purchasing local foods. Many local farmers markets struggle to be able to accept these EBT cards and many places that take EBT don't sell local products.



Jackson County Transit provides a circular route between Dillsboro, Sylva and the Southwestern Community College. The route operates once an hour (7 am to 4 pm) Monday through Friday. Identifying ways to expand service hours to serve the Saturday morning Sylva Farmers Market, for example, would integrate food systems planning with transportation services planning.

*Photo: Jackson County Transit*

The Appalachian Sustainable Agriculture Project has published a guide called *Farmers Markets for All: Exploring Barrier and opportunities for Increasing Food Access by Connecting Low-Income Communities with Farmers Markets*. This guide outlines how to integrate use of EBT as well as how to increase accessibility to and market to food-insecure populations. Jackson County's Farmers Market and Haywood Historic Farmers Market are examples of local markets that have navigated hurdles to accept EBT.

**Planning Element: Farmland Preservation.** Farmland preservation was originally designed to allow a family or farmer to continue working the land up until they no longer deemed the practice feasible. The modern approach is still focused on protecting farmland from development, but through increasing farmer financial security within the local food systems. Additionally, younger families are increasingly pursuing small-scale farming to increase their connection to their food and where it was grown.

Agricultural land is always at the greatest threat for development because they lay in much desired, flat areas. Common programs to preserve farmlands are through nonprofit land trusts and government programs. These programs work with farmers who voluntarily adopt some land use restrictions, or adopt sustainable practices to maintain farmland quality, in exchange for financial benefits to the farmer.

Seven of the eight study area counties have adopted Voluntary Agriculture Districts (excluding Graham Co.). To participate, farmers give up the right to develop for 10 years in exchange for benefits such as protection from nuisance laws. Farmers can withdraw from the program at any time. Enhanced Voluntary Agricultural Districts allow for even more benefits to the farmer, but are only available to farmers who will restrict development for 10 years without the ability to withdrawal from the program.

The preservation of farmland is critical to ensuring a supply of locally grown food that is accessible to the area's population. Any food systems planning effort should consider not only the preservation of farmland, but preservation of land that is most conducive to increasing local food options.

**Planning Element: Transportation and Consumers.** The NC Department of Health and Human Services has cited that transportation is one of the biggest barriers to healthy food access. The most food insecure populations often rely on public transportation. In rural areas it can be expensive to use because residents are dispersed and often far away from a cluster of food outlets in sometimes one small town per county.



Public transportation can help the food insecure by providing connections to farmers markets, grocery stores with produce, community gardens, food assistance programs, and food pantries. In Jackson County, local Hispanic populations wanted to go to the Sylva farmers market, but local transit services did not operate on Saturdays when the market was held.

Active transportation, e.g. walking and biking, is another important connection to food access. Any decrease or increase to the walkability and bike-ability of communities can also have an impact on food security.

**Planning Element: Transportation and Producers.** In WNC, transportation is one of the most limiting factors to food system growth. Many producers would like to expand their market but are limited by rural road systems and lack of a distribution system.

Another limiting factor is the inability to sell certain products across state lines in states that require certification. Since no USDA certification exists in this region, these products would need to travel up to two hours to Asheville, even though transportation better connects counties to Georgia, Tennessee and South Carolina.

To further compound the issue, the region lacks refrigerated distribution trucking companies and those that do come to supply the region with produce often return to places like Asheville with empty trucks. Food distribution centers could go a long way to remedying this situation.

**Planning Element: Economic Development and Security.** Economic development plans can grow local food systems by including tactics such as market development, farm diversification, infrastructure financing, and technical assistance to new or transitioning farmers.

These plans are done in conjunction with county farmland preservation plans. Once plans are developed, counties can apply for state funding for enterprise programs that can help expand the local food system.

Local food system growth often demands improved infrastructure like broadband internet and improved wireless phone



## Stecoah Valley Center, Graham County



Stecoah Valley Arts, Crafts & Educational Center, Inc., a non-profit corporation, was formed by a group of concerned citizens dedicated to restoring the historic school to its original role as the center of the community. The school property consists of the main school building, adjacent gymnasium building and grounds.

Growing from an abandoned school building just a few short years ago to the vibrant center of the community today, Stecoah Valley Cultural Arts Center now offers over 20 programs to approximately 10,000 people annually.

Graham County School students (K-8) now have after school programs at Stecoah. The children get a healthy snack and have academic, music/arts/crafts and recreation opportunities.

Stecoah Valley Food Ventures offers newly renovated kitchen and meeting facilities to support the development of food-related small businesses as well as providing a great space for community meetings, parties and other events.

service. Additionally, the region could be better served by distribution and/ or storage centers as well as food processing centers. Some counties in the state have sought funding and grants to help improve this infrastructure.

Another factor in economic development is technical assistance. Both Advantage West and County Agriculture Extension Offices provide assistance to producers. WNCFPC has voiced concerns that County Agriculture Extension staff can have some of the greatest impact by assisting producers and helping build networks, but are often short on funding for staff and programs.



MountainElements is only the start of what is meant to be a long-range set of strategies to engage stakeholders across the region in better planning for health. Even without a long-standing tradition of planning, the region found common ground on the top of food systems and their relationship to other types of planning.

**Planning Element: Marketing and market-based initiatives.** One of the largest movements within local food system planning is to tie producers with large local institutions, whether public or private. Public schools, colleges and universities, hospitals, jails/ prisons, and county facilities are all potential partnering institutions in purchasing from local food systems.

There are many barriers, however, preventing public institutions purchasing from local producers. For example, many institutions have agreements with larger distribution companies that do not use local products. WNC is in need of product marketing agencies/ distributors that are willing to work with local producers.

The nonprofit Appalachian Sustainable Agriculture Project (ASAP) covers WNC and beyond, providing market support for producers and connecting food service buyers, as well as marketing local food systems through food guides.

Agritourism is a fast growing sector of tourism and can be promoted in conjunction with county and regional tourism plans and activities. Haywood County has developed “Buy Haywood” to market the county’s food system through agritourism and connecting producers to distributors and consumers. “Buy Haywood” is a partnership of local farmers, Healthy Haywood, MountainWise, ASAP, the local NC State University Extension Office, the County Economic Development Commission, and others.

The Society of St. Andrew and its local gleaning committees are also working to better integrate various initiatives to reduce food waste. They are working with the Haywood County Pathways Center project in the Hazelwood community to involve residents of this halfway house and homeless shelter in the gleaning of local fields. This activity engages residents in a trade that can alleviate some of the cost burden of their transition and introduce them to future job opportunities.

## Community Engagement as Connective Tissue

Public planning can effectively change systems that create inequities. But without community engagement, the systems can’t have much impact. Colloquially put, WNC can create mobile farmers markets that bring residents local, fresh okra; but that okra can end up fried if residents don’t know how to prepare it in a healthy way.

A chief component of the Food Systems Planning recommendation for WNC is about pro-actively engaging and educating the community on how to sustain themselves.

Community engagement opportunity: Reversing the loss of knowledge on fresh food preparation. As WNC residents increasingly buy processed, ready-made foods, over time they lose collective knowledge on preparing meals made with fresh foods.

Counties, non-profits, the Eastern Band of Cherokee Indians, and the State all have programs to drive demand for fresh local foods.

MountainWise has worked in several communities to seek and obtain grants to supply community centers and health departments with commercial grade kitchen equipment that can be used to teach classes on food preparation.

Community engagement opportunity: Marketing to local populations. Local food can have an image problem with food insecure populations. In addition to lacking awareness of local food options, residents:

- ◆ See buying local food and preparing fresh meals as inconvenient;
- ◆ Perceive these foods as costing more money;
- ◆ Have difficulty purchasing local food because of transportation challenges and language barriers; and
- ◆ Are at the mercy of ineffective food assistance programs.

As a result, food insecure residents are unlikely to bother with local food.

Representatives from these at-risk populations must be incorporated into food system planning so that planners may better adapt. Incentive-based efforts have achieved varying levels of success, especially if some of the other barriers are first overcome. For example, counties and non-profits have already successfully provided matching dollars to increase consumer purchasing abilities for local foods through farmers markets and other local food retailers.

Community engagement opportunity: other partners and stakeholders. These are loosely grouped recommendations that are important, but not urgent and are as follows:

- ◆ Implement agricultural security districts and recruit farmers to participate
- ◆ Ensure that any ordinances do not restrict the ability of farmers to market or grow products. This includes restrictions on farming practices, size of farming, signage, and more.
- ◆ Support and help fund Cooperative Agriculture Extension programs.
- ◆ Work with producers, small business, and the health department to better navigate permitting, inspections and other hurdles. Provide education opportunities related to these areas to encourage cooperation.
- ◆ Provide resources for farmers markets. This includes use of land at no or low cost, expedited permitting, and promotion.
- ◆ Become a partner in the Western North Carolina Food Policy Council (WNCFPC).
- ◆ Implement “complete-street” programs at the County and municipality level that look at food access and pedestrian/ bike access barriers to healthy local food.
- ◆ Empower County Departments of Social Services to take the lead in solving issues related to food insecurity and identify ways to use local food systems planning to solve this issue.



Reversing the loss of knowledge on fresh food preparation is identified as a community engagement opportunity that also addresses a primary component of the Food Systems Planning: Pro-actively engage and educate the community on how to sustain themselves.



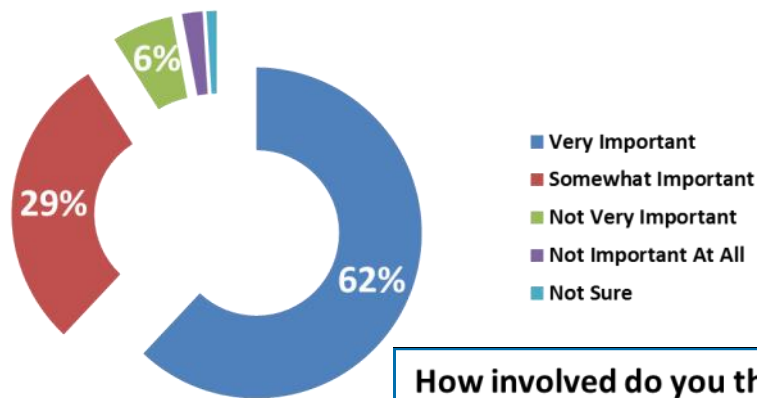
## HIA-specific Survey

Gathering consistent information from many people quickly is a challenge in every endeavor. HIAs with more robust budgets can spend considerable sums to gather intelligence, mailing lists, and identify target populations for further study. It was determined that MountainElements would benefit from a statistically-valid survey of citizens in the region to better understand how receptive they were to some of the emerging themes and recommendations in the HIA.

The HIA utilized automated call collection from a professional third-party company to conduct telephone surveys across the eight counties. This allowed collection of hundreds of respondents in a matter of a few days and within a week of initiating the survey there was cross-tabulated and succinct summary showing the impacts of health-related issues across a variety of age, income, and location strata.

The charts on this page represent two of the key outcomes of that survey as they pertained to local food and comprehensive planning.

### How important is it to you to buy locally grown food?

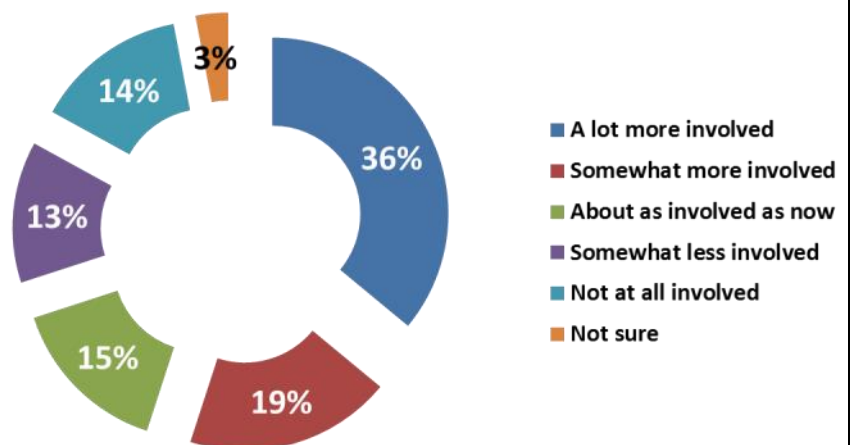


Other topics in the survey (details included in Appendix E) included:

- ◆ Perceived access to health care;
- ◆ Driving time to nearest hospital;
- ◆ Challenges to staying healthy;
- ◆ Attitudes toward initiative for job creation;
- ◆ Physical activity rates;
- ◆ Obstacles to walking and bicycling;
- ◆ Barriers to obtaining a college education; and
- ◆ Preferences for a variety of county-led initiatives.

A statistically-valid telephone survey was conducted in June 2014 to measure citizens' response to a variety of emerging themes and topics in the HIA. These two charts represent the results of questions related to local food and planning.

### How involved do you think the local governments should be in providing and preserving future land uses such as recreational space, residential development and design, and agricultural lands?



## Specific Recommendations and Monitoring for Food System Planning

### Growing local food initiatives and preservation of agriculture land may improve nutrition- (Local Food)

Priority Recommendations	Champion	Timeframe
Preserve existing and support new opportunities for local and regional urban and rural agriculture through land use policy, acquisition of lands via land trusts, or community gardening spaces.	Counties, Municipalities, Land Trusts	Continually
Promote resilient agriculture and food production practices through demonstration projects and education/outreach campaigns.	Cooperative extension, 4H, University Agriculture programs	Continually
Support local and regional food value chains and related infrastructure involved in the processing, packaging, and distribution of food.	County and regional economic development	Continually
Facilitate community food security, or equitable physical and economic access to safe, nutritious, culturally appropriate, and sustainably grown food at all times across a community, especially among vulnerable populations.	Counties, Municipalities, RPO, NCDOT, MountainWise, County Health Depts	Continually
Implement an agricultural advisory board and: <ul style="list-style-type: none"> <li>◇ Integrate food planning and agricultural preservation in county comprehensive plans.</li> <li>◇ Integrate agri-tourism opportunities into county tourism initiatives and marketing.</li> <li>◇ Integrate food system planning and marketing into county economic development initiatives</li> </ul>	MountainWise, County Planning Departments, Chambers of Commerce, Cooperative Extensions	Continually

**MONITORING-** The continual monitoring of food systems, dedicated agricultural space, and sustainable food production practices will not be an easy task. To pull off such an effort, collaboration between parties will be necessary including but not limited to: County Health Departments; Farmers Market Directors; Universities and Colleges; Farmer Co-Ops; and other related parties.

An annual report illustrating the state of regional food production, land availability or changes, project results and trends should be compiled and distributed throughout the region. The information should be presented to elected officials and policy makers who can implement ideas or employ either incentives or regulatory tools to complete the objectives of the recommendations.

Since food security is a primary objective to health, MountainWise would be the likely candidate to organize the effort.

## Growing local food initiatives and preservation of agriculture land may improve nutrition- (Local Food)

Secondary Recommendations	Champion	Timeframe
Identify local nutritional needs and determine how existing and future farmers markets can better serve populations in need due to lack of income, lack of transportation access.	County Health Departments	0-1 Year
Facilitate the reduction of solid food-related waste and develop a reuse, recovery, recycling, and disposal system for food waste and related packaging.	Cities	1-2 Years

**MONITORING-** On an annual basis, likely at the conclusion of the growing season, a countywide survey should be administered to help determine the needs and tastes of residents prior to the start of the following year.

Information gleaned from the survey can and should be shared with food system participants to better understand market demands, possible farming practices changes, and the economic conditions of the region.

MountainWise is seen as the primary surveyor in conjunction with other County Health Departments.



## Agricultural land preservation & focused land use planning are keys to healthy food systems - (Land Use Planning)

Priority Recommendations	Champion	Timeframe
Incentivize agricultural preservation	Counties, Municipalities, WNCFPC	0-2 Years
Bolster Sub-division Ordinance (where applicable)	Applicable Municipalities and Counties	Annually
Conduct small area intervention plans in Hot Spot communities. The goal should be understanding why the area was elevated as a hot spot and what types of land use, transportation, economic development and health policies are impacting the area or could be changed to improve the community's health conditions.	Counties, Municipalities	Continually until all Hot Spots have been addressed
<b>MONITORING-</b> Southwestern Commission is best positioned to compile any on-going efforts meant to strengthen land use policy and/or planning. By gathering updates from their local and county partners, SWC can collect information that pertains to what improvements have occurred, and new developments that fulfill the objectives of the recommendations, and showcase any planning efforts undertaken throughout the year to demonstrate value to the land use entities within the eight county region.		
Secondary Recommendations	Champion	Timeframe
Review and suggest amended school siting requirements so that if possible, fewer acres are needed in turn allowing for more centralized school locations	School Districts, Southwestern Commission, Health Depts	0-2 Years
Focus investment in cities and towns so that growth occurs in an orderly and anticipated fashion and not accommodated where services do not exist	Municipalities, Counties	Continually
<b>MONITORING-</b> MountainWise and Southwest Commission can assist School Districts with changing requirements for future school siting by providing best practice reports, policies, and other related materials. In areas with little growth pressures, this may not be urgent, but with growing population areas or burgeoning school districts, making the necessary changes is imperative to prevent sprawling campuses built in areas far removed from population centers. Monitoring investments can be made by Southwestern Commission through a review of annual budgets from the cities and counties. An annual report highlighting projects that either get to the heart of the issue or how some projects may exacerbate decentralized land use patterns should be created.		

## Other Recommendations

As was highlighted in the previous chapter, several key findings emerged from the HIA Assessment process. The seven Assessment findings run the gamut of social, political and economic issues in addition to the most obvious issue being health. Each of the key findings are listed on the following pages and include a simple table to describe the issue itself, the priority and secondary recommendations, the lead agencies or “champions” and an ideal timeframe for when the recommendation would be completed.

### Active transportation options can improve physical activity rates- (Active Transportation)

Priority Recommendations	Champion	Timeframe
Link recreational opportunities (parks, natural areas, campgrounds, trails, greenways, rivers) to communities via active transportation network.	Municipalities, Counties, Southwestern RPO, NCDOT	0-5 Years
Ensure new development constructs adequate active transportation infrastructure.	Municipalities, Counties, NCDOT	As needed
Collect baseline count information for pedestrian and bicyclists around key areas for future comparison.	Parks/Recreation Departments, Southwestern RPO, NCDOT	Annually

**MONITORING-** The collection and distribution of such data that is collected at the local level, should fall to a more regional body. That agency is likely Southwestern Commission with assistance from MountainWise, who both have the ability and resources to carry out writing an annual monitoring report on active transportation and the enhancements thereof to further inform local decision makers as to impact and systemic implementation.

Secondary Recommendations	Champion	Timeframe
Educate children about active transportation benefits and laws.	Area School Districts, Bicycle advocacy organizations	Annually
Ensure NCDOT follows ADA and AASHTO guidelines with all projects.	Municipalities, Counties, Southwestern RPO	As needed

**MONITORING-** To monitor outreach efforts specific to children and active transportation, the regional Safe Routes to School coordinator, should on an annual basis collect such information. Additionally, developing action plans based on the information would be a positive move to further the efforts over the course of subsequent school years.

To ensure that ADA and AASHTO guidelines are being adhered to, the rural regional planning organization, a transportation based entity housed within Southwestern Commission, should be tasked with collecting and disseminating pertinent information. Several new pedestrian facilities in Western North Carolina do not adhere to ADA standards that have been in place since the 1990s. Additionally, the county Health Departments should be tasked with collecting safety information and use through annual pedestrian and bicyclist counts. This information combined can be packaged to demonstrate how streets and facilities are being designed to meet standards and how they are being used by the general public.

## Other Recommendations

**Income disparities will fuel health inequalities- (Income Disparity)**

Priority Recommendations	Champion	Timeframe
Pursue a regional economic council, as identified through Opt-In: The purpose of such an arrangement is to pool resources and strengthen the ability to draw funding and attention to the eight county area. This council can utilize existing data and assets to tout how a healthy population leads to job creation.	Southwestern Commission & Member Agencies	0-2 Years
Collectively market the region and assets. Pooling resources to attract various interests that can bolster the regional economy would be a wise investment. If one county receives an influx of growth or industry, there exists an opportunity for neighboring counties to also see benefits.	Southwestern Commission & Member Agencies	0-2 Years

**MONITORING-** Southwestern Commission is the agency logically positioned to monitor advancement. On an annual basis, until results are achieved, the Commission should consider summarizing activities and impacts associated with the creation of a regional council and marketing efforts to illustrate the efforts and impacts.

Secondary Recommendations	Champion	Timeframe
Track Hot Spot conditions over time (e.g. 2010 to 2020 Census and SCHS data) to determine trends and potential influences on changes in conditions.	County Health Departments & MountainWise	Annual Assessment

**MONITORING-** Given their regional presence, Mountain Wise is the logical entity best suited to gather county health departments on an annual basis and report what changes are occurring within hot spots.

**Continued federal funding reliance could have negative repercussions- (Local Funding)**

Priority Recommendation	Champion	Timeframe
Thoroughly examine sustainable local funding mechanisms, and survey/gauge citizen support. Traditional and historic funding mechanisms continue to come up short of the documented needs of area citizens. Counties could explore special mechanisms similar to Georgia's Special Purpose Local Option Sales Tax to remain competitive with border counties to the south and exert more local control over decisions related to recreation, library, public safety and school facilities.	Regional Economic Council, when formed	2-3 Years

**MONITORING-** The Economic Council would be the ideal group to monitor such research. The group should not only determine what discussions are taking place on the matter, but also what is occurring at the State level to allow local governments opportunities to generate local funds.

Secondary Recommendation	Champion	Timeframe
Monitor and track annual local versus federal expenditures to gauge trends and changes.	City and County Budget/ Finance Departments & Southwestern Commission	Annually

**MONITORING-** As with the exploration of funding options, tracking and presenting to area stakeholders just how funds are being distributed will be a key role of the Economic Council. Contained within the same annual report as described above, the distribution of local versus federal funds should be displayed, including trends, moving into the future.



## Other Recommendations

### Education attainment levels may hinder future health improvements-(Education Attainment)

Priority Recommendations	Champion	Timeframe
Work with local colleges and universities to develop a new agriculture program to help grow the number of college graduates and possibly boost food system knowledge in the region.	Education Institutions	1-5 Years
Seek to implement additional satellite campuses for community colleges and Western Carolina University	Institutions and Counties/ Municipalities	1-10 Years

**MONITORING-** At the conclusion of each school year, WNC should report to MountainWise or the Economic Council any happenings with either recommendation. The report can be more of an update illustrating where in the process of additional curriculum and/or campuses activities stand, timetables to implement both, and eventually the response from students, area agriculture representatives, and the overall food system network representatives.

Secondary Recommendations	Champion	Timeframe
Create additional area scholarship and apprenticeship opportunities through farmers market and gleaning opportunities/networks	Private Sector	Annually

**MONITORING-** High Schools and their associated school districts should compile information annually on how many college credits are awarded through area high schools, the number of students who participated in the program and the grade level achieved to understand students' abilities. Included in the findings can be the compilation of scholarship awards both in real dollars and number given away.

### Communities are in need of local, small town and rural community activity hubs- (Mitigation of health inequities)

Priority Recommendations	Champion	Timeframe
Work to enhance community centers and school complexes as the central hub of a community for promoting healthy living in rural areas as well as in small towns.	<b>Municipalities/Counties</b>	<b>Continually</b>
Merge active transportation, recreation and health program themes into one cohesive planning effort (e.g. an Activity Connection Plan) to integrate these recommendations to address	<b>Municipalities/Counties</b>	<b>Continually</b>

**MONITORING-** A combination of SWC/County Health Departments and MountainWise should be tasked with compiling an annual report showcasing how communities centers have been enhanced each year through projects, policies, or plans. If a program of sub-area activity site plans is funded, creating a website clearinghouse would be an ideal way to collect and display the various city plans to the general public, stakeholders, and elected officials.

Secondary Recommendations	Champion	Timeframe
Working with large employers with unused property acreage to possibly allow public access to new physical activity outlets.	Municipalities/Counties	Continually

**MONITORING-** County Health Departments and Municipal/County representatives should attempt to identify probable candidates for such property sites and proceed with regularly held conversations with each property holder until all owners have been engaged. A semi-annual report describing the result of such meetings and future actions steps would then be made and presented to stakeholders such as County Commissioners or Mayors, Councils, and Managers.

## Other Recommendations

**Limited access to care prevents early detection and prevention- (Care Access)**

Priority Recommendations	Champion	Timeframe
Work with transit agencies to formalize shuttle services to medical hubs	Health Departments	0-2 Years
Conduct a survey of existing healthcare practitioners to understand what influences their decisions to locate and maintain their practice in Western NC.	Economic Council/Health Department	0-1 Year

**MONITORING-** At the end of each calendar year, each county Health Department should report on the status of any existing or pending MOUs with area transit providers. The update would be to allow stakeholders such as the Health Department, County Commissioners, Cities/Towns, and Hospital groups to understand how many citizens are impacted with such services, how many trips were taken, and the economic impact of such activities.

Monitoring for the survey is unnecessary unless follow up surveys are sought or the survey is administered on a fairly regular basis. The results of the survey should be disseminated immediately however, so that action steps can be established among communities and partnering groups.

Secondary Recommendations	Champion	Timeframe
Incentivize medical/dental space for roving practice	Health Departments/Hospital & Medical Groups	Continually
Promote Semi-monthly health screening clinics	Health Departments/Hospital & Medical Groups	Continually

**MONITORING-** An annual report documenting the results of the roving practice and screening clinics should be drafted. The document should identify how many people were seen, treated, the types of issues being treated, trends in regional conditions, and a quantification of impacts for the region and per household. This report should be given to stakeholders including the Health Department, County Commissioners, Hospital or Medical Group Boards, and Cities.

## 6. Reporting & Evaluation

### Reporting

This document represents the primary element in the reporting phase of MountainElements. The report is for use by MountainWise, the State of North Carolina, the Centers for Disease Control and Prevention to help frame future endeavors and pursue the recommendations contained herein.

Once complete, report dissemination will consist of posting it on the MountainWise website and distributing it to the many partners and stakeholders listed in the Acknowledgments. Each county will receive its own report containing information relevant to the HIA analysis conducted for the individual county. It is hoped that this county-specific document will be incorporated as the Health and Wellness chapter of already-adopted Comprehensive Plans (where they exist). In some counties, the report will serve as a starting point for Comprehensive Plan updates.

MountainWise intends to report on this HIA through various regional meetings and workshops, as well as at state and national conferences.

### REPORTING & EVALUATION

The final phase of HIA is reporting and evaluation. Reporting is generation and dissemination of HIA materials. Evaluation provides an examination of the HIA process and valuable guidance for future HIAs.

### Evaluation

The evaluation step of HIA helps inform those who contributed to and participated in the process to better understand what lessons were learned through the process and how that could inform future HIAs in the region or others conducted nationally on a similar topic. There are three different ways in which an evaluation can be conducted for HIAs including: 1.) The process used to conduct the assessment, 2.) The impacts on human health stemming from the proposed action or plan, or 3.) An evaluation of the outcomes of the process.

The MountainElements HIA process was not wrought with controversy as there were no ongoing proposals that generated attention in a broader public sense. Most of the Comprehensive Plans are already adopted or are being updated. Because of this, the HIA was never intended to drastically alter the plans or health initiatives but rather meant to evaluate potential impacts and generate recommendations for better integration of health themes into planning. Additionally, due to the complexity and nature of the assessment topics, the final impacts will take many years to realize. Therefore, a process evaluation was thought by team members to be the most appropriate type given all described circumstances.

**Overall Project.** MountainElements was extremely complex and complicated from a process standpoint. The numbers of considerations assessed to determine potential future impacts were many; as was originally scoped. The original goal of the HIA was to gain a better understanding of how County comprehensive plans, health initiatives and County actions will shape the future of health in the MountainWise region. To that end, the final document was viewed as highly informative and helpful to give specific direction



on ways to improve the health of area residents.

The HIA process was rewarding for those involved as valuable information, contact information and understanding of community happenings were exchanged, but the process was not without challenges.

Logistical issues surfaced due to the vast geographic study area. Meetings and communications were at times difficult with so many stakeholders, and in limited instances, gaining interest or understanding of the value of HIA was difficult as few people were previously exposed to HIA and how the process works.

A continual education and awareness of what a health impact assessment is, and how it could add value was needed, but resources for more broad-based outreach were limited. The abrupt end to the State of North Carolina's Community Transformation Grant program also inhibited more robust outreach efforts.

- ◆ **Strengths:** Given the incredible amount of information, data, initiatives, stakeholders, and plans to weigh through, the final outcomes are viewed as a success. The HIA findings and recommendations were synthesized in such a way that they are digestible, clear and relatable with the general public body and technical experts.
- ◆ **Weaknesses:** The weakness of MountainElements could be that it was not as focused on a small number of assessment topics typical to other HIAs. This limited the depth of analysis and modeling of likely outcomes. The nature of Comprehensive Planning, particularly in a state and region where planning laws are not strong, also limited the depth of the HIA assessment. However, the intent of the HIA was never to assess a select few comprehensive plan policies or health initiatives; rather it was to evaluate planning at a broad level to derive general impacts and major themes.
- ◆ **Lessons Learned:** In future efforts a discussion during the screening phase could be held among stakeholders to more strategically evaluate the positive and negative effects of assessing so many topic areas.

**Data.** Information used for MountainElements was extensive. Public surveys, stakeholder interviews, comprehensive plans, county budgets, Census information, and County Health Assessments were the major sources of information. The information was reviewed, streamlined, and compiled to try and capture current conditions and future desires for the eight counties.

- ◆ **Strengths:** The quantity of information attained and used helped to provide a solid evaluation of current conditions. Western North Carolina's regional Community Health Assessment creates a consistent set of countywide data to make comparison between counties easier. North Carolina is fortunate to have the State Center for Health Statistics generated Census tract-level health data. Information gleaned from stakeholders helped provide context to this data. Most of the data was obtained from third parties. The statistically-valid regional survey constituted is the only project-generated data.



Some datasets were found to be very useful, including NC's State Center for Health Statistics analysis of health factors at the Census-tract level. Other datasets were not as useful and GIS data varied greatly across the region, making it difficult to conduct side-by-side comparisons.

- ◆ **Weaknesses:** The way that information and data was either collected or presented was lacking in consistency from one county to the next. Comprehensive plans didn't always contain overlapping desires or budgets presented using unique formatting. The inconsistencies, though perfectly suitable for typical use, made comparisons counties challenging at times.
- ◆ **Lessons Learned:** Going in to the HIA, there was a fear that inconsistency within existing datasets (variability among eight different counties) could pose a challenge. The county budgets were one such area but it was determined after an evaluation



While there are numerous studies on built environment impacts to public health, there are few studies focused on these impacts in small towns and rural areas. Studies conducted in major metropolitan areas are not relevant to Western North Carolina communities like Robbinsville (population 700).

that the financial data did not yield information pertinent to assessing likely health outcomes. For other areas seeking to conduct a similar HIA, a better screening of datasets early in the process to determine likely relevance can streamline efforts. Regarding health department budgets, a more detailed breakdown and analysis could help better determine how much local (non-federal or grant) funds are spent.

**Evidence-based Research.** The various health claims generated through stakeholder involvement mirrored other HIA efforts in the region and North Carolina. The most common planning and epidemiology journals were consulted for various planning themes.

- ◆ **Strengths:** The health claims were as comprehensive as comprehensive planning which helped yield a robust set of references for the HIA (only a fraction of which is represented in the main HIA report).
- ◆ **Weaknesses:** The interface of planning and public health have been a focus of many research studies, particularly on built environment impacts on health. However, MountainElements found that many of these studies were not applicable to the context of Western North Carolina. The small town, rural and mountainous environment is unique yet the research on planning and public health is focused primarily on major metropolitan areas. Thus, it was difficult to relate findings of that research to health outcomes of the region.
- ◆ **Lessons Learned:** The State of North Carolina, CDC, academics and others should examine the degree to which they are seeking and funding research on built environment impacts on public health in small towns and rural areas. A study that yielded findings based on data from Chicago or San Francisco may contribute greatly to the overall field, but it holds little relevance in trying to articulate the findings to stakeholders in places such as Robbinsville, North Carolina.

**Public Involvement.** The MountainElement HIA had public input through direct and indirect means. Directly, the HIA effort included a statistically-valid phone survey across the the eight counties. Additionally, many of the stakeholders involved were representatives of various public groups such as farmers markets, activity groups, and both senior citizen and area youth campaigns. Information was gleaned from seven Opt-In workshops Indirectly, the HIA used information collected from the Census, Community Health Assessments, and findings of the Opt-In regional vision.

- ◆ **Strengths:** Considerable information attained through mostly parallel efforts proved highly valuable. Data collected through the Census is generally considered to be well vetted and accurate given geographic area. The coincident public phone sur-

vey through the MountainElements HIA also informed the project with regard to general focus areas and strategies to achieve them.

- ♦ **Weakness:** Direct, face to face public outreach was limited to stakeholder meetings. Common public outreach outlets such as open houses, public involvement meetings or similar approaches were not used due to budget limitations and scheduling conflicts. There were also fears that HIA-specific meetings would not generate much public interest because of low population density and lack of widespread familiarity with HIA.
- ♦ **Lessons Learned:** As prevalent as public health themes are in our society, the more fine-grained integration of those themes into other community endeavors is still limited. Given the geographic reach of the study and budget limitations, future HIAs of similar scope and scale could use public events to gauge citizen opinion or collect primary data.



**SUCCESS  
STORIES**

**Conclusion.** The intent of the HIA analysis was to achieve two main objectives: 1. Understand how current County objectives and plans are influencing community health now and into the future, and 2. To isolate useable information into smaller geographies and population segments for area stakeholders to focus policies, investment strategies and interventions.

To both ends, the MountainElements HIA advanced the regional conversation regarding public planning policy and linkages to the seven dimensions of health. Area officials and stakeholders seem more aware of these connections. Assuming the recommendations galvanize efforts and support future initiatives, the eight county Western North Carolina region could see significant progress in addressing the recommendations of the HIA.

MountainWise is well-positioned to lead the regional dialogue in future years but will need participation and strong leadership among County leaders to usher in improvements sought by citizens, stakeholders, and community members.

## The Rosenwald Peace Garden, Brevard



Rosenwald Memorial Peace Park is a community initiative to re-vamp a park in the historic Rosenwald Community in Transylvania County. The Rosenwald Community has a rich history to preserve and cherish including the Brevard Rosenwald School being the first school in NC to be integrated as well as Transylvania County having the first ever integrated football team in NC. The Park initiative came about by the Brevard City Planning Department, which was seeking creative ways to reach out to the historic Rosenwald Community and thought that Arts and the Youth would be a good avenue. By working with Rosenwald Peace Park, which is owned by a local church, MountainWise can assist with creating a formal Joint Use Agreement with the church and providing supplies that will help this community create the park that they are envisioning and provide a safe place for this community to be physically active.



# Links & Resources

## MountainWise

<http://www.mountainwise.org>

## Cherokee County Department of Public Health

<http://www.cherokee-county-nc.gov/index.aspx?page=102>

## Clay County Department of Public Health

<http://www.clayconnc.com/services/details.php?id=13>

## Macon County Public Health

<http://www.maconnc.org/health-department.html>

## Swain County Department of Public Health

<http://www.swaincountync.gov/health-home.html>

## Jackson County Department of Public Health

<http://health.jacksonnc.org/>

## Graham County Department of Public Health

<http://www.grahamcounty.org/Departments/Health/>

## Haywood County Health Department

[http://www.haywoodnc.net/index.php?option=com\\_content&view=article&id=92&Itemid=87](http://www.haywoodnc.net/index.php?option=com_content&view=article&id=92&Itemid=87)

## Transylvania County Department of Public Health

<http://health.transylvaniacounty.org/>

## WNC Regional Community Health Assessment

<http://www.wnchealthyimpact.com/#!/resources/crpl>

## Growing Local: Implications for WNC

<http://asapconnections.org/local-food-research-center/growing-local-research-project/>

## Sharing the Harvest

<http://asapconnections.org/downloads/asap-farmers-market-access-guide.pdf>

## WNC Vitality Index

<http://www.wncvitalityindex.org/human-environment>

## Tobacco Free Parks and Recreation—NC Local Government TF Toolkit

<http://tobaccopreventionandcontrol.ncdhhs.gov/lgttoolkit/>

## Economic impact of Smoke Free laws

<http://www.cdcfoundation.org/pr/2013/largest-study-date-finds-state-smoke-free-laws-would-not-hurt-restaurant-and-bar-business>

## USDA Food Desert Locator:

<http://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas.aspx#.UgKlmtLVBJQ>

## SNAP/EBT Guide for Farmers Markets in NC

<https://static.squarespace.com/static/50bf9353e4b0e692146e36b2/t/510ffb19e4b0c0190c39305c/1360001817159/Guide%20to%20SNAP%20EBT%20Access%20at%20Farmers%20Markets%20in%20NC.pdf>

**Making Healthy Food more Accessible**

[http://www.foodsystems-integrity.com/yahoo\\_site\\_admin/assets/docs/Making\\_Healthy\\_Food\\_More\\_Accessible\\_for\\_Low-Income\\_People.28645148.pdf](http://www.foodsystems-integrity.com/yahoo_site_admin/assets/docs/Making_Healthy_Food_More_Accessible_for_Low-Income_People.28645148.pdf)

**Farmers Markets Improve Access to Health Foods**

<http://www.pps.org/wp-content/uploads/2013/02/RWJF-Report.pdf>

**Healthy Corner Stores Network**

<http://www.healthycornerstores.org/>

**Shared Use Agreements ChangeLab Solution**

<http://changelabsolutions.org/publications/model-JUAs-national>

**Safe Routes to School**

<http://www.saferoutesinfo.org/>

**Mountain Landscapes Initiative**

<http://www.mountainlandscapesnc.org/>

**America Planning Association- Healthy Planning**

<http://www.planning.org/research/publichealth/pdf/evaluationreport.pdf>

**CDC- Healthy Places**

<http://www.cdc.gov/healthyplaces/>

**Livable Communities- Great Places for All Ages**

<http://www.aarp.org/livable-communities/>



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