



Public Health

**DOTs, MPOs,
Planners,
Engineers &
Architects**



Sarah Kareshi, MD & Kim Bullock, MD
*Journal of Healthcare for the
Poor and Underserved (2011)*

“As clinicians, we are trained to focus on each individual patient and his/her health problem. When epidemics of chronic illnesses such as diabetes, cardiovascular disease, asthma, obesity, and depression are seen we must realize that **these are resulting from more than just the product of individuals’ unhealthy choices...**

“They are resulting from the built environment in which we live. We must widen our view of health to include everything surrounding a patient and our interventions must address the environmental opportunities and obstacles that shape health behavior.”



Are we ready for HIA?

Lessons Learned from HIAs in Active Transportation

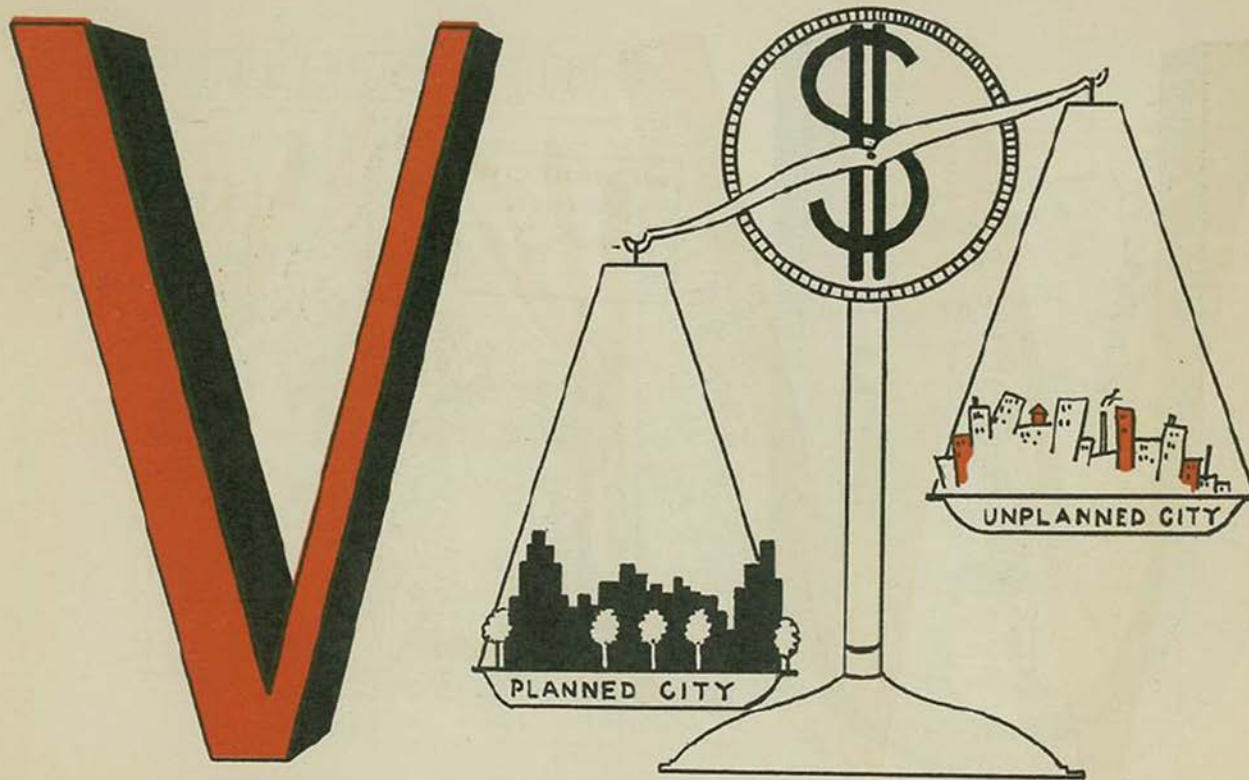
Lessons Learned in HIA

1. Planning & health—we meet again!

2. Data & Analysis

3. Methods & Outcomes

1. Planning & health—we meet again!



V—is for **VALUE**
Not measured in wealth.
Planners think wisely
Weighing comfort and health.









The North Carolina Experience



**Robbinsville
Pedestrian
Connectivity Plan**

**Haywood County
Comprehensive Bicycle Plan**



**Capital Area MPO:
NE Area Study**



**MOUNTAIN
elements**
A MOUNTAINWISE HEALTH IMPACT ASSESSMENT
**8-County Health
+ Planning HIA**



**Buncombe County
Greenways & Trails
Master Plan**



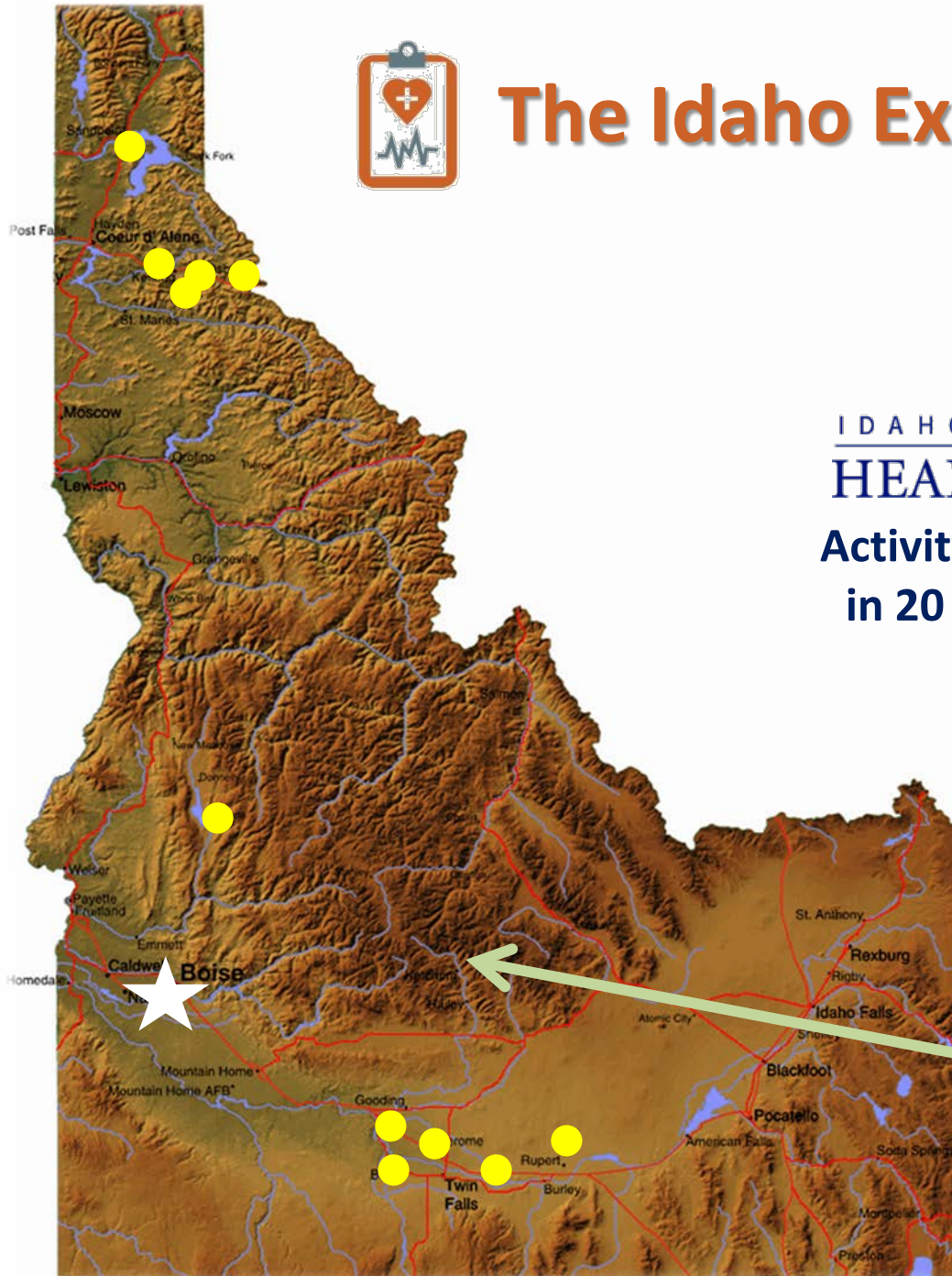
The Idaho Experience



IDAHO DEPARTMENT OF
HEALTH & WELFARE
Activity Connection Plans®
in 20 Idaho communities



**Blaine County (Sun Valley)
Pedestrian & Bicycle Plan HIA**



2.Data & Analysis

What **Makes**
Us Healthy



What We **Spend**
On Being Healthy



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



Capital Area MPO: NE Area Study

Wake Co. Leading Causes of Death, Rates for African-Americans compared to White population

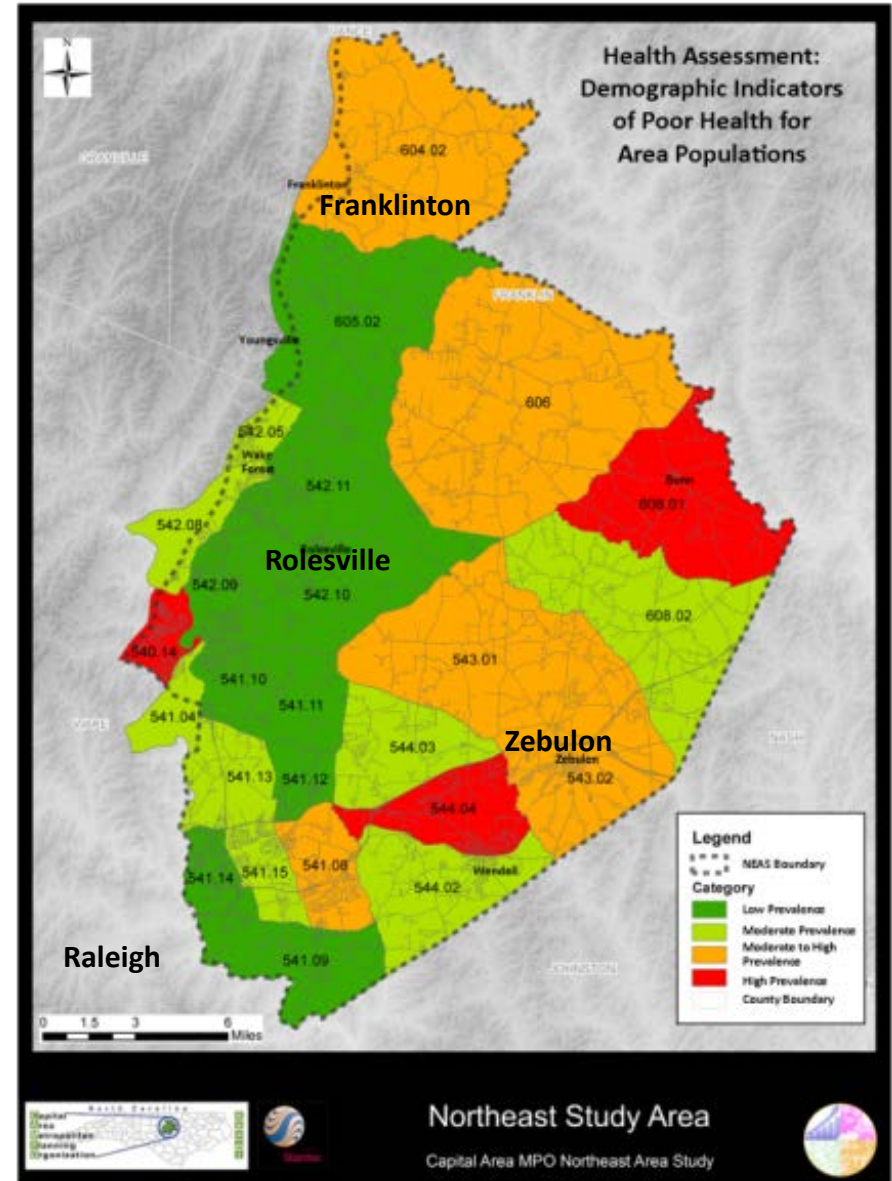
Cause of Death	% Higher in African American Population
Cancer	23%
Heart Disease	32%
Stroke	49%
Diabetes	318%
Septicemia	96%
Motor Vehicle Injuries	47%

Northeast Area Study – Pedestrian Crashes by Race, percentage of overall Crashes (2006-2011)

Pedestrian Race	#	%
Black	51	40.8%
Hispanic	10	8.0%
White	58	46.4%
other	3	2.4%
unknown	3	2.4%
Total	125	100.0%

African-American population is 20% of total, but is 40.8% of pedestrian crash victims.

“Hot Spots” of Poor Health in the NEAS Study Area





Robbinsville Pedestrian Connectivity Plan

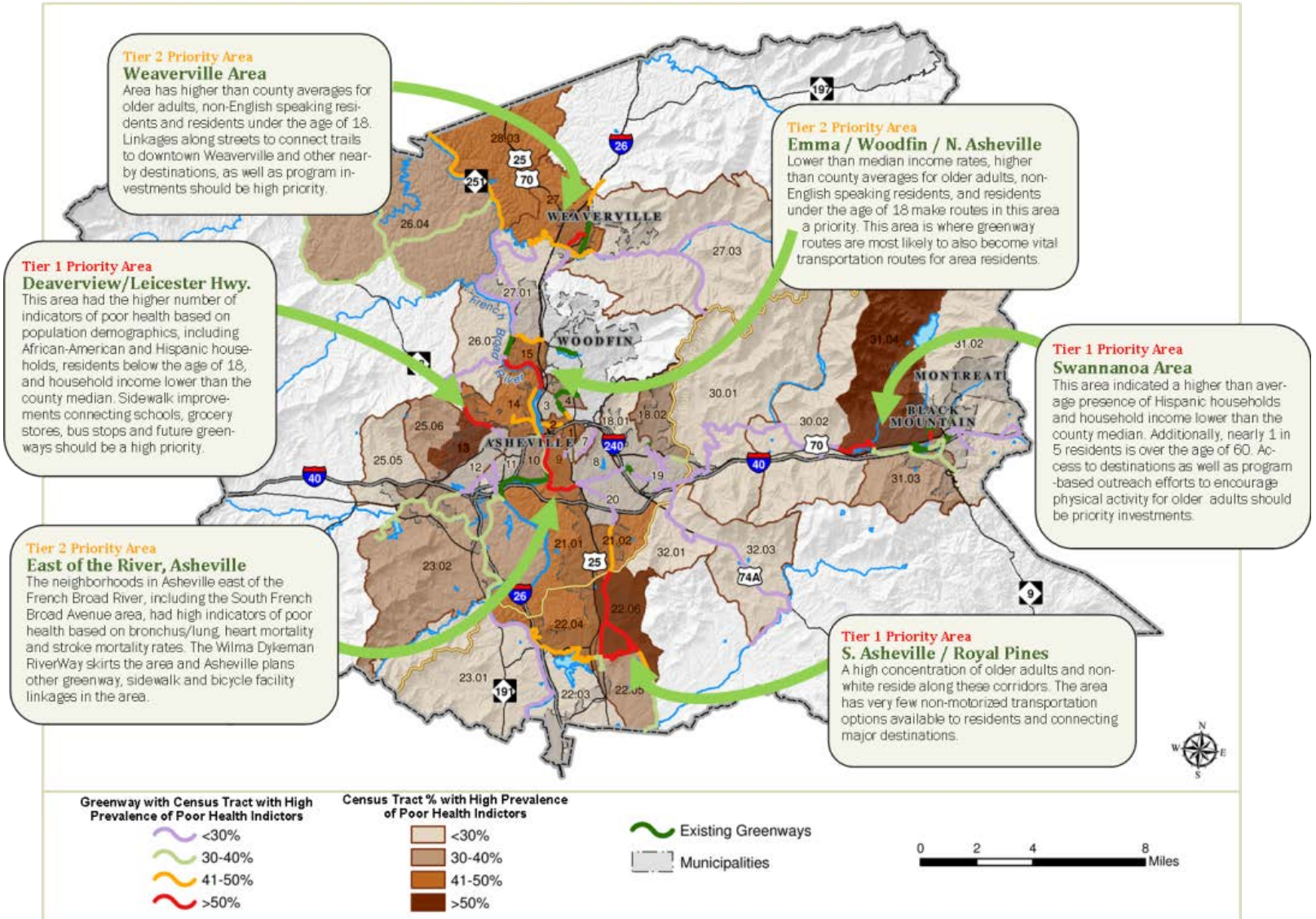


The town's main sidewalk was blocked by construction crews during HIA Walkabout.

Community	Population (2010)	Crashes (1997-2010)	Pedestrian crashes per 1,000 pop.
Robbinsville	620	10	16.1
Hayesville	311	4	12.9
Sylva	2,588	25	9.7
Forest City	7,476	66	8.8
Blowing Rock	1,241	9	7.3
Bryson City	1,424	10	7.0
West Jefferson	1,299	9	6.9
Murphy	1,627	10	6.1
Columbus	999	6	6.0
Rosman	576	3	5.2
Franklin	3,845	20	5.2
Sparta	1,770	9	5.1
Andrews	1,781	9	5.1
Rutherfordton	4,213	21	5.0
Highlands	924	4	4.3
Tryon	1,646	7	4.3
Brevard	7,609	30	3.9
Spruce Pine	2,175	8	3.7
Hot Springs	560	2	3.6
Maggie Valley	1,150	4	3.5
Spindale	4,321	14	3.2
Weaverville	3,120	9	2.9
Waynesville	9,869	27	2.7
Mars Hill	1,869	5	2.7
Marion	7,838	19	2.4
Jefferson	1,611	3	1.9
Clyde	1,223	2	1.6
Cherokee	2,138	3	1.4
Burnsville	1,693	2	1.2
Fletcher	7,187	8	1.1
Banner Elk	1,028	1	1.0
Cullowhee	6,228	6	1.0
Canton	4,227	4	0.9
Woodfin	6,123	4	0.7

Buncombe County Greenways & Trails Master Plan

Exhibit 1-6: Health-based Priority Areas for Greenways & Trails Master Plan Corridors





Buncombe County Greenways & Trails Master Plan

Exhibit 1-8: Results of Health Economic Assessment Tool (HEAT) for Buncombe County Greenways

NOTE: The figures in this exhibit represent average values based on 4 iterations of HEAT analysis.

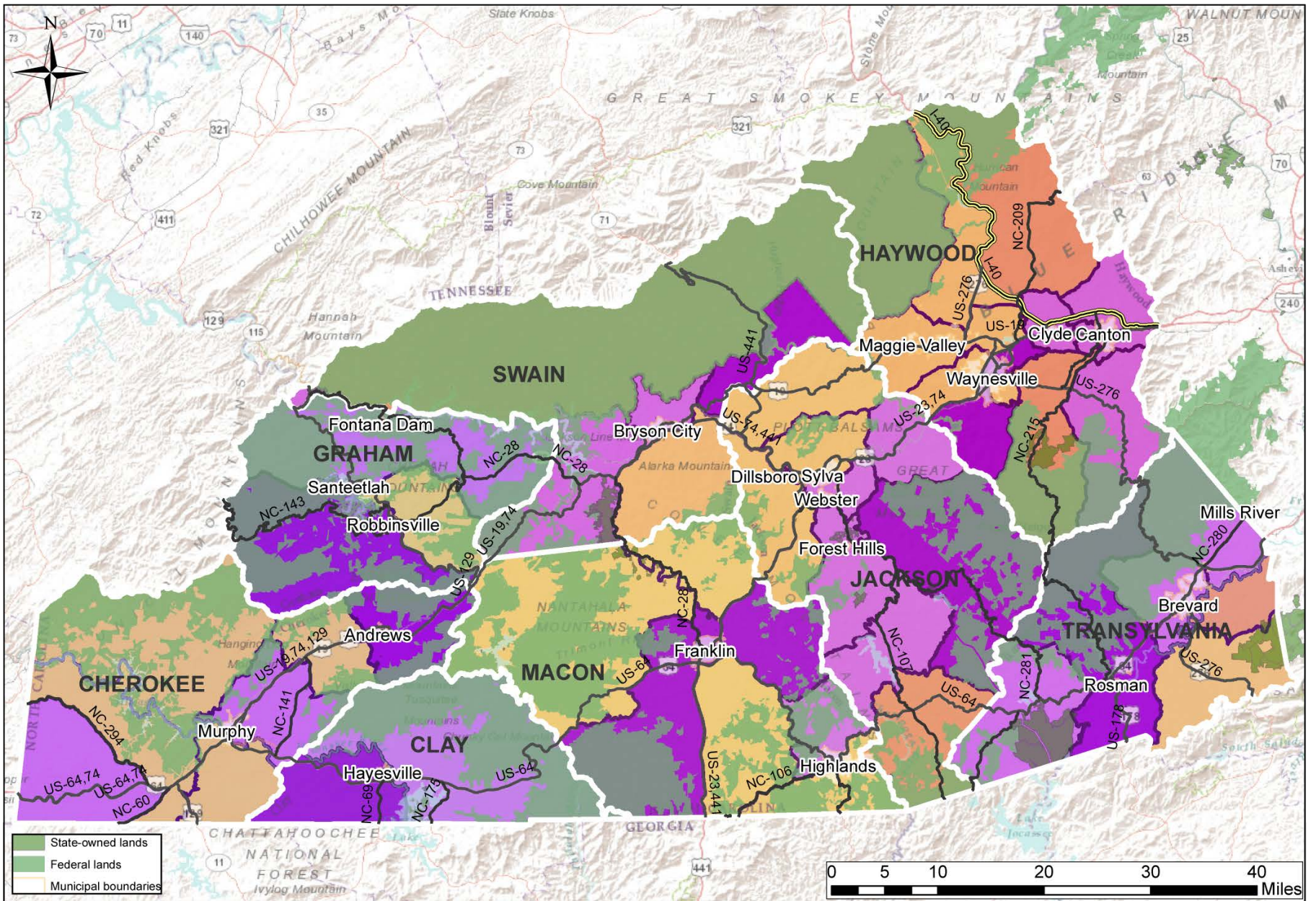
Metric	Walking	Bicycling	Total
Total Deaths per year prevented	31.8	22.8	54.6
Decreased mortality risk	9 %	13 %	
Average annual benefit	\$ 20,160,000	\$ 14,400,000	\$ 34,560,000
Total benefits accumulated over 25 years	\$ 504,000,000	\$ 360,000,000	\$ 864,000,000
Maximum annual benefit	\$ 47,700,000	\$ 34,100,000	\$ 81,800,000
Total health cost savings over 25 years	\$ 220,000,000	\$ 160,000,000	\$ 380,000,000
Health benefit to cost ratio <i>(based on greenway system construction costs)</i>	3.52 to 1	2.51 to 1	



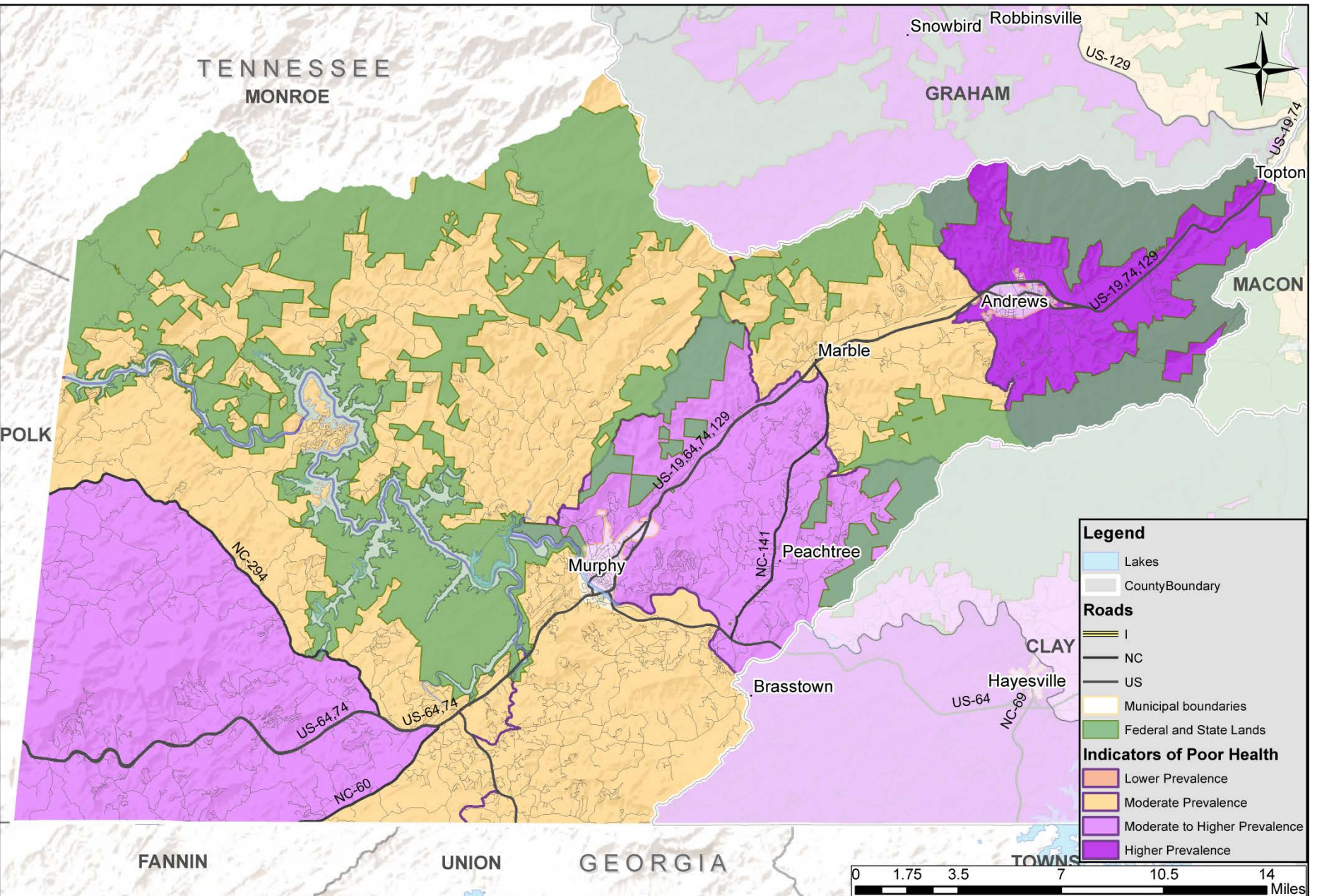
MOUNTAIN elements

A MountainWise Health Impact Assessment for Western North Carolina

MOUNTAINWISE.ORG



MountainWise
Prevalence of Indicators of Poor Health



Legend

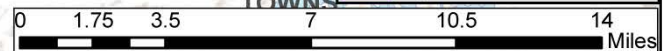
- Lakes
- County Boundary

Roads

- I
- NC
- US
- Municipal boundaries
- Federal and State Lands

Indicators of Poor Health

- Lower Prevalence
- Moderate Prevalence
- Moderate to Higher Prevalence
- Higher Prevalence



Data sources: USGS, US Census, American Community Survey, Esri, NC OneMap, NCDOT, Southwestern Commission, and the NC State Center for Health Statistics (SCHS)

SCHS Indicator thresholds modified to reflect greater diversity among WNC Census tracts



Cherokee County Prevalence of Indicators of Poor Health

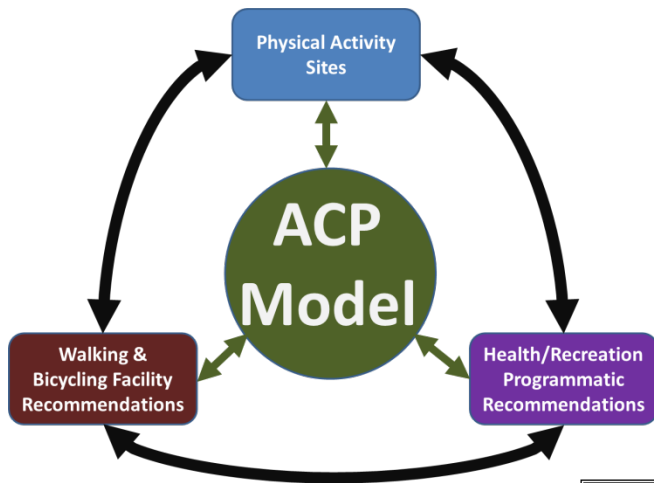
3. Methods & Outcomes





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HEALTH & WELFARE

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in 20 Idaho communities



Blaine County (Sun Valley)
Pedestrian & Bicycle Plan HIA



2014 Commute Rates	Impacted Daily Population (Based on May 2014, Blaine Co. Total Employment: 11,437)	Weekly Miles Traveled	Weekly Physical Activity (Minutes)	Weekly \$ Saved	Annual \$ Savings
Walking- 4.6%	526	2630	52,600	\$1,673	\$86,996
Bicycling- 2.5%	286	5720	28,600	\$3,638	\$189,176
.25% Annual Increase					
Walking- 6.1%	698	3490	69,800	\$2,220	\$115,440
Bicycling- 4.0%	457	9140	45,700	\$5,813	\$302,276
.5% Annual Increase					
Walking- 7.6%	870	4350	87,000	\$2,767	\$143,884
Bicycling- 5.5%	629	12580	62,900	\$8,001	\$416,052
1% Annual Increase					
Walking- 10.6%	1212	6060	121,200	\$3,854	\$200,408
Bicycling- 8.5%	972	19440	97,200	\$12,364	\$642,928








MOUNTAIN elements

How Health and Planning Impact Transylvania County

MOUNTAINWISE.ORG



Plans in Transylvania County

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

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

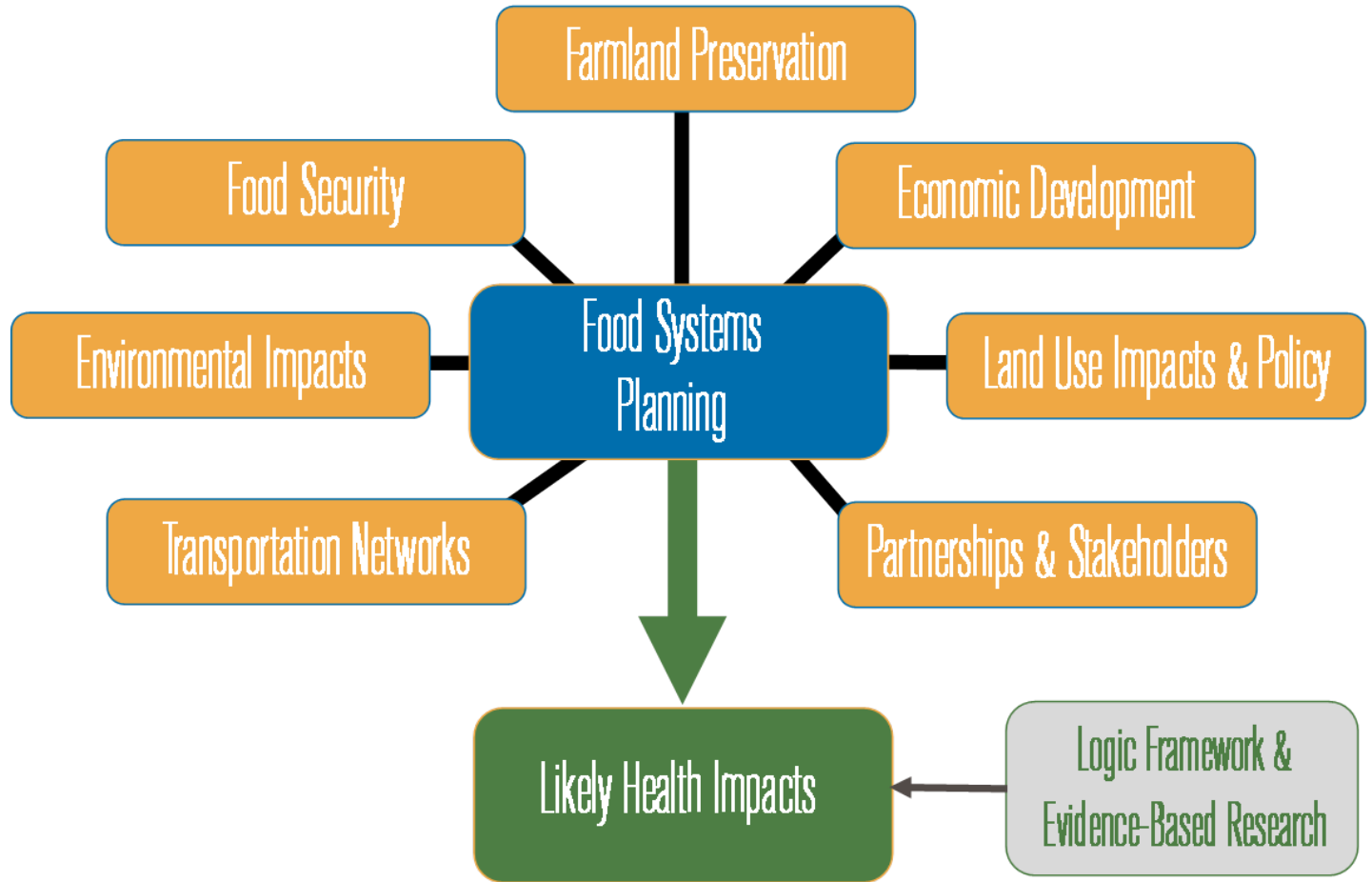
MOUNTAINwise

GRAHAM COUNTY Health Info

Source: 2012 PRIC Community Health Assessment



FOOD SYSTEMS PLANNING WEB



Communities
Transforming
For a healthier North Carolina

LOGIC FRAMEWORK

Possible Strategies

Resulting Changes to Systems or Built Environment

Behavioral Changes

Long-Term Health Impacts

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/ CSA/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

- 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

Haywood County Comprehensive Bicycle Plan



What are the impacts on one's desire to ride a bike when loose dogs are a community problem?

Two local stores are now "Bicycle-Friendly Outposts", stocking healthy foods and supplies for bicyclists in rural areas.





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.

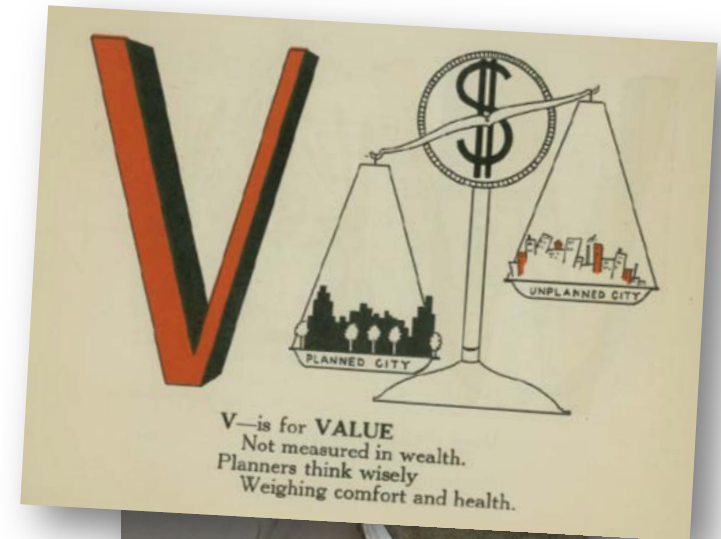
Growing from an abandoned school building just a few short years ago to the vibrant center of the community today, Stecoah Valley Cultural Arts Center now offers over 20 programs to approximately 10,000 people annually.

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.

Overall Lessons Learned

- **“Comprehensive” should not be a term reserved for land use planning.**
 - Aim for “comprehensiveness” in how you integrate health & planning themes.
- **Some data is useful, other data is not.**
 - Countywide data not useful at a community scale to differentiate.
 - Popular datasets don’t tell the whole story.
- **Review data with a discerning eye**
 - Never assume the information is static or that there isn’t a story behind a story
- **Prepare for the local context**
 - Foster great dialogue and get creative with stakeholders...health can be fun



**SPITTING
ON SIDEWALKS**

PROHIBITED

PENALTY \$5 TO \$100

DEPT. OF HEALTH

To Access
Presentation



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