

Healthy Infrastructure Plan



Broome County, New York

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I. Introduction

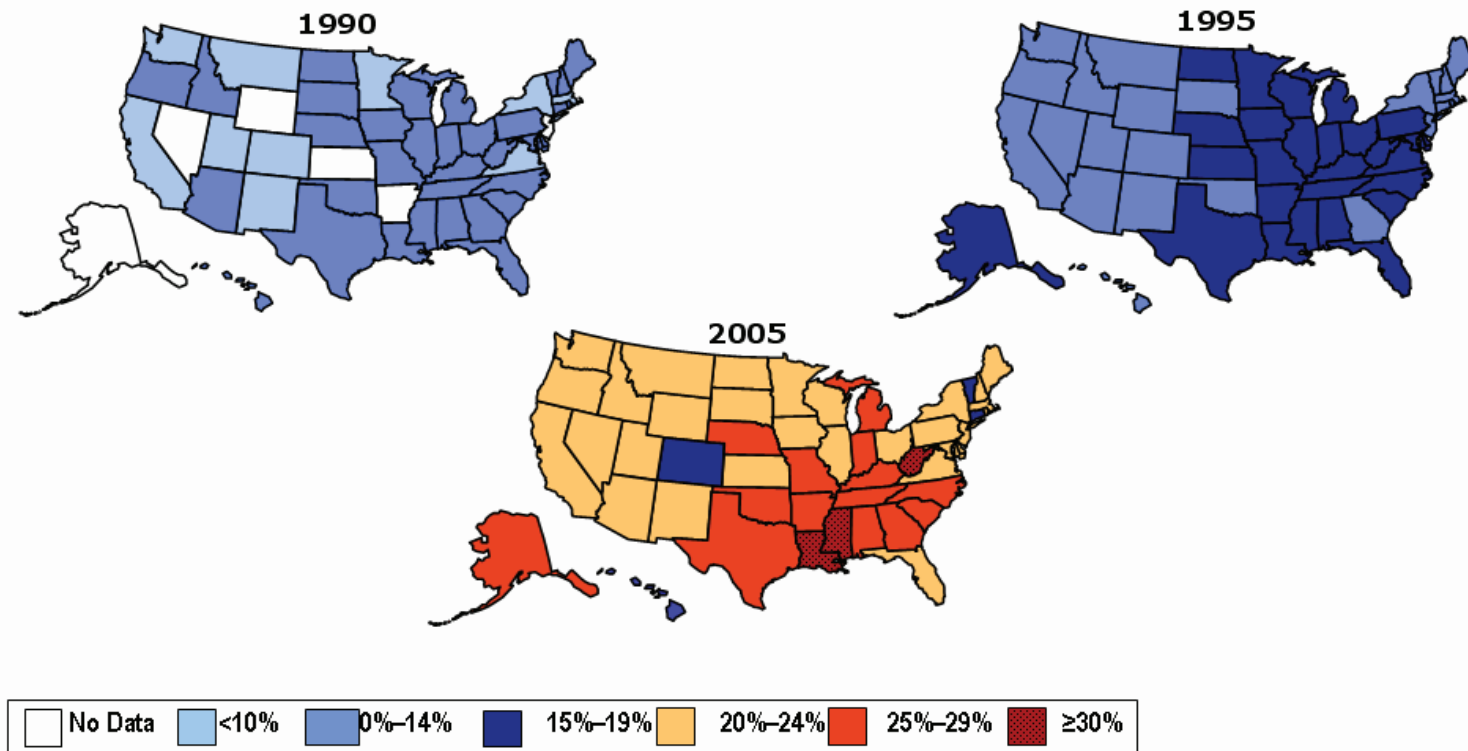
The *Initiative for Healthy Infrastructure* (iHi) project at *University at Albany* (SUNY) is designed to facilitate statewide efforts to create physical environments which fosters healthy active lifestyles. This undertaking includes a cross-disciplinary approach in addressing this issue through teaching, researching, developing policy, public outreach and planning. The primary motivation for this project is in resolving the contradiction between the need for increased physical activity and the deficit in walk-able community infrastructure. Expanding New York State's resource and research base in this area will encourage both more walk-able communities and a healthy population. This project is funded by the *Healthy Heart Program* in the *New York State Department of Health* and is supported by *The Research Foundation of The State University of New York*.

Since one of the goals of the *Healthy Heart Program* is to encourage walking as a routine activity, it is logical to connect this concept with planning, particularly in the development of sidewalks, streets and trails. Unfortunately, community 'health' is not currently considered a performance measure for public works infrastructure, so a new approach that brings together the issue of public health and planning communities is needed. There is increasing evidence that community supports for a heart healthy lifestyle can be effective in reducing the risk of Cardiovascular Disease (CVD). Numerous sources, including the Centers for Disease Control and Prevention, have advocated walking as a primary means of increasing routine physical activity.

The national obesity trend is illustrated in these graphics developed by the Centers for Disease Control and Prevention (CDC). *Source: www.cdc.gov.*

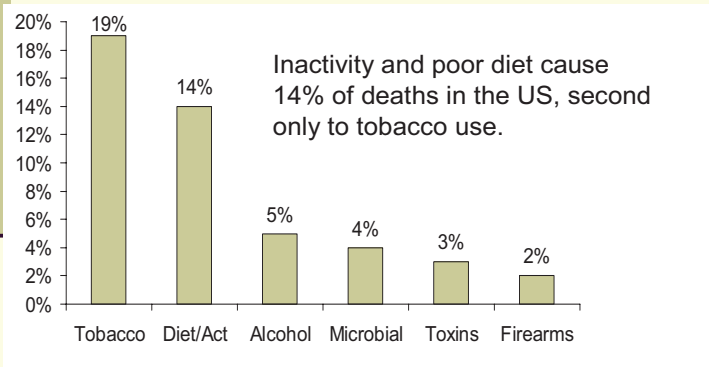
Obesity Trends* Among U.S. Adults BRFSS, 1990, 1995, 2005

(*BMI ≥ 30 , or about 30 lbs overweight for 5'4" person)

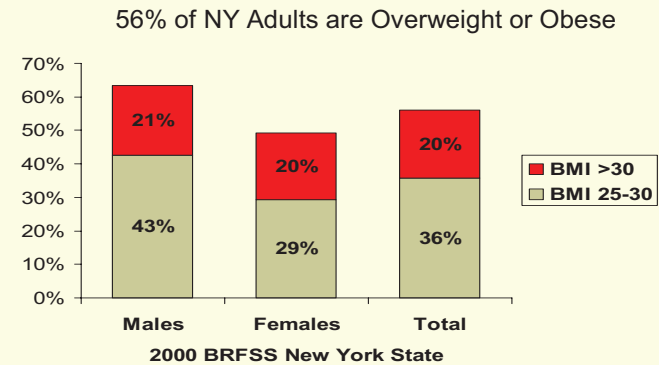


Cardiovascular disease (CVD) is the leading cause of death, disability and health care expenditures among New York State residents. In 1998, more than 70,000 New Yorkers died of cardiovascular disease, accounting for 45% of all deaths. According to data from the 2001 Behavioral Risk Factor Surveillance System, 56% of New Yorkers are insufficiently active (no activity or less than 20 minutes a day, or less than three times/week). At the same time, pedestrians and bicyclists accounted for more than 20% of New York State's traffic fatalities and injuries, 48% of hospitalizations and 59% of injury related hospitalization costs according to data from the Statewide Planning and Research Cooperative System (SPARCS) system. (Provided by the NYS Department of Health (DOH)) In order to encourage people to walk or bicycle more, it is critical to provide a safe infrastructure that supports an active lifestyle.

Underlying Causes of Death (US)

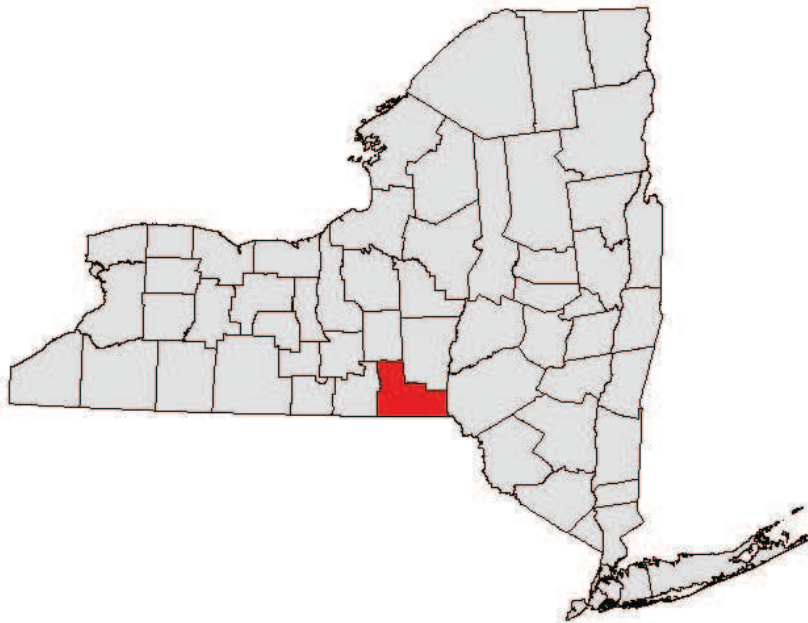


Overweight and Obesity Among NYS Adults (2001 BRFSS)



The data for the U.S. and New York State indicate that inactivity, poor diet and obesity are serious issues. Graphics provided by Deb Spicer, NYS Department of Health.

Broome County, NY
Prepared by iHi, January 2007



Broome County, bordered by Pennsylvania to the south, is located in south-central New York State in an area also known as the Southern Tier. Broome County, where the Susquehanna and Chenango Rivers meet, is somewhat of a valley. The city of Binghamton is the county seat. The county is traversed by Interstates 88 and 81 and NY 17.

The population of Broome County is approximately 200,536 people. The primary population center is Binghamton, as well as 16 towns and 7 villages. The median household income is \$35,347 (1999), with 8.8% of the population living below the poverty level. The county land area covers 707 square miles, with a population density of 283.7 people per square mile.

Please note: seasonal and or student population may skew these figures.

Source: US Census and Broome County

II. Community Health Data

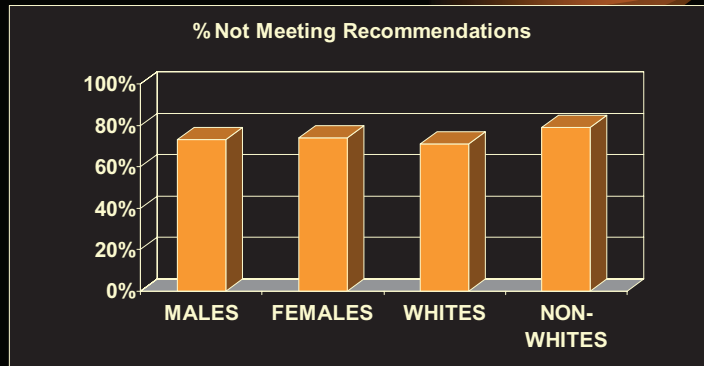
Broome County is fortunate to have a detailed set of data for assessing public health. The New York State Behavioral Risk Factor Surveillance System (data) provides a general overview for statistical comparisons between state, national and county data. The following sections use available local and statewide health data to identify existing conditions and issues for Broome County.

NYS BRFSS

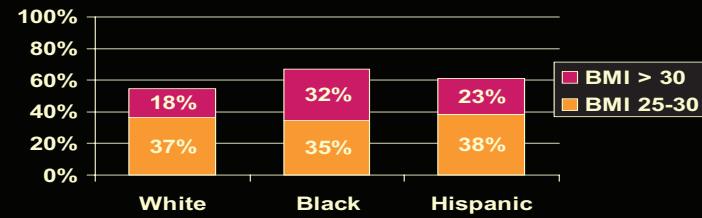
The national trends and data are reflected in the public health data provided by NYS DOH from the 2000 and 2001 BRFSS. The two charts below show levels of physical activity statewide and obesity prevalence in ethnic groups among NYS adults.

The data below indicates that more than 70% of New York State adults (1) do not meet recommended levels of physical activity and (2) that more than 50% of the State's adults are overweight or obese.

Physical Activity Among NYS Adults, (BRFSS 2000)



Obesity Among NYS Adults, By Ethnicity 2001, BRFSS



Mortality data for Broome County

	Population (2000 data)	Total Deaths (per 100,000)	Total Deaths (rate)	Cerebrovascular Disease (#)	Cerebrovascular Disease (rate)	Diseases of the Heart (#)	Diseases of the Heart (rate)
NYS	18,976,457	157,425	829.6	7,935	41.8	57,924	305.2
Broome	200,536	2,223	1108.5	182	90.8	767	382.5

*heart disease is a major public health issue, with levels above the statewide level

Traffic Safety Data

Health and safety are related issues. The amount that people will walk or bicycle is affected by perceived and real concerns about traffic safety. In recent years, Broome County has been subject to considerable development pressure. The built environment that has resulted from these pressures, often presents barriers to active living. In a report entitled, "Broome County Traffic Safety Data", dated February 2004, the Institute for Traffic Safety and Research provides the following summary of Broome County safety Statistics.

Please see the following page for complete traffic safety data.

**New York State Department of Motor Vehicles
Summary of Motor Vehicle Accidents**

2004 Broome County

TABLE 1 Accident Summary Totals		
Category Totals	All Accidents	Police Reported
Total Accidents	2,391	1,394†
Fatal Accidents	14	14
Non-Fatal Personal Injury Accidents	1,488	1,343
Reportable Property Damage Accidents	889	37†
Vehicles	4,091	2,402
Drivers Involved	3,696	2,297
Vehicle Occupants	5,208	3,477
Special Accident Series		
Pedestrian/Motor Vehicle Accidents	61	59
Bicycle/Motor Vehicle Accidents	43	42
Motorcycle Accidents	39	38
Fatalities		
Persons Killed (1)	16	16
Drivers Killed	8	8
Passengers Killed	5	5
Pedestrians Killed	3	3
Bicyclists Killed	0	0
Other	0	0
Non-Fatal Injuries		
Persons Injured (1)	1,982	1,799
Drivers Injured	1,341	1,198
Passengers Injured	535	498
Pedestrians Injured	60	58
Bicyclists Injured	43	42
Other	3	3
† It is important to note that the data for 2004 are not strictly comparable to the data for 2001 and 2002. Changes in data collection and reporting that began during 2001 with respect to property damage crashes have reduced the total number of crashes, since the changes resulted in fewer property damage crashes being captured in the statewide Accident Information System (AIS) maintained by the NYS Department of Motor Vehicles.		
(1) Includes pedestrians, bicyclists and all other non-vehicle involved persons as well as vehicle occupants regardless of seating position.		

TABLE 2(P) Severity of Accident		
	Number	Percent
Total	1,394	100.0
Fatal (K) Accidents	14	1.0
Personal Injury Accidents		
Serious (A)	114	8.2
Moderate (B)	268	19.2
Minor (C)	913	65.5
Unknown Severity	48	3.4
Property Damage (O) Accidents	37	2.7

General Notes

- * Some of the tables are based upon information received from police and motorist reports of motor vehicle accidents. Others are based only on the police reports; these are indicated by a (P).
- * The Property Damage Accident reporting level is \$1,000 or more.
- * The term "vehicle" always excludes bicycles.
- * The term "driver" always excludes bicyclists.
- * Percentages may not total 100.0 due to rounding.

III. Infrastructure Diagnosis

For the purposes of this study, the medical term ‘diagnosis’ is applied to the county’s public works infrastructure to investigate possible connections between the built environment and public health. The ‘patient’ in this case is Broome County, and the diagnosis looks at whether current levels of physical activity are related to the provision of built environment features such as rural roadways with paved shoulders, trails, parks and other facilities that encourage a physically active lifestyle. Note that at the county level this is a very general analysis, and precision and scope are limited to an overview of existing conditions. Additional investigations will be necessary to supplement this study with more detailed observation and data at the community and neighborhood level.

U.S Census Transportation Data

While limited in its ability to capture all travel by walking and bicycling (it focuses only on trips to work, not travel for shopping, school, or leisure), the U.S. Census Transportation data is a useful source of county level data. From 1990-2000, the census shows that walking and bicycling in Broome County DECLINED.

Please see CTPP data on following page





CENSUS TRANSPORTATION PLANNING PACKAGE (CTPP 2000)

Table 1. Profile of Selected 1990 and 2000 Characteristics

Geographic Area: Broome County, New York

Subject	1990 Census		Census 2000		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
POPULATION						
Total population	212,160	100.0	200,536	100.0	-11,624	-5.5
In households	204,363	96.3	191,418	95.5	-12,945	-6.3
In group quarters	7,797	3.7	9,118	4.5	1,321	16.9
HOUSEHOLD SIZE						
Total households	81,730	100.0	80,917	100.0	-813	-1.0
1-person household	21,897	26.8	24,996	30.9	3,099	14.2
2-person household	26,587	32.5	27,001	33.4	414	1.6
3-person household	13,894	17.0	12,150	15.0	-1,744	-12.6
4-person household	11,911	14.6	10,176	12.6	-1,735	-14.6
5-or-more-person household	7,441	9.1	6,594	8.1	-847	-11.4
Mean number of persons per household	2.50	(X)	2.37	(X)	-0.13	(X)
VEHICLES AVAILABLE¹						
Total households	81,730	100.0	80,917	100.0	-813	-1.0
No vehicle available	9,711	11.9	10,008	12.4	297	3.1
1 vehicle available	29,560	36.2	30,937	38.2	1,377	4.7
2 vehicles available	30,752	37.6	29,678	36.7	-1,074	-3.5
3 vehicles available	8,743	10.7	8,060	10.0	-683	-7.8
4 vehicles available	2,337	2.9	1,732	2.1	-605	-25.9
5 or more vehicles available	627	0.8	502	0.6	-125	-19.9
Mean vehicles per household	1.59	(X)	1.53	(X)	-0.06	(X)
WORKERS BY SEX¹						
Workers 16 years and over	97,028	100.0	89,550	100.0	-7,478	-7.7
Male	52,341	53.9	46,535	52.0	-5,806	-11.1
Female	44,687	46.1	43,020	48.0	-1,667	-3.7
MEANS OF TRANSPORTATION TO WORK						
Workers 16 years and over	97,028	100.0	89,552	100.0	-7,476	-7.7
Drove alone	74,472	76.8	71,226	79.5	-3,246	-4.4
Carpooled	11,744	12.1	9,145	10.2	-2,599	-22.1
Public transportation (including taxicab)	2,541	2.6	2,490	2.8	-51	-2.0
Bicycle or walked	5,448	5.6	4,045	4.5	-1,403	-25.8
Motorcycle or other means	404	0.4	409	0.5	5	1.2
Worked at home	2,419	2.5	2,237	2.5	-182	-7.5
TRAVEL TIME TO WORK						
Workers who did not work at home	94,609	100.0	87,315	100.0	-7,294	-7.7
Less than 5 minutes	3,947	4.2	3,580	4.1	-367	-9.3
5 to 9 minutes	14,614	15.4	12,564	14.4	-2,050	-14.0
10 to 14 minutes	22,567	23.9	19,382	22.2	-3,185	-14.1
15 to 19 minutes	21,231	22.4	19,227	22.0	-2,004	-9.4
20 to 29 minutes	20,574	21.7	19,160	21.9	-1,414	-6.9
30 to 44 minutes	8,142	8.6	8,268	9.5	126	1.5
45 or more minutes	3,534	3.7	5,134	5.9	1,600	45.3
Mean travel time to work (minutes)	16.4	(X)	18.9	(X)	2.5	(X)
TIME LEAVING HOME TO GO TO WORK						
Workers who did not work at home	94,609	100.0	87,315	100.0	-7,294	-7.7
5:00 a.m. to 6:59 a.m.	22,974	24.3	20,025	22.9	-2,949	-12.8
7:00 a.m. to 7:59 a.m.	29,961	31.7	27,541	31.5	-2,420	-8.1
8:00 a.m. to 8:59 a.m.	16,888	17.9	15,538	17.8	-1,350	-8.0
9:00 a.m. to 9:59 a.m.	5,135	5.4	4,224	4.8	-911	-17.7
10:00 a.m. to 11:59 a.m.	3,097	3.3	3,210	3.7	113	3.6
12:00 p.m. to 11:59 p.m.	14,795	15.6	14,584	16.7	-211	-1.4
12:00 a.m. to 4:59 a.m.	1,759	1.9	2,193	2.5	434	24.7

¹ See the entry for this item in the Technical Notes in the root directory or state subdirectories (filename: tech_notes.txt).
 (X) Not applicable.
 Source: U.S. Census Bureau. Census of Population and Housing, 1990 and 2000 long-form (sample) data.

Spatial Analysis using Geographic Information Systems

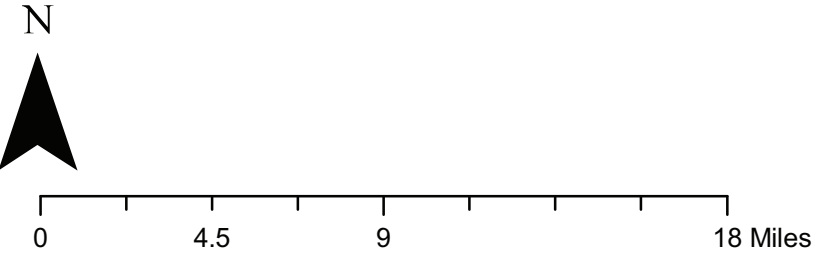
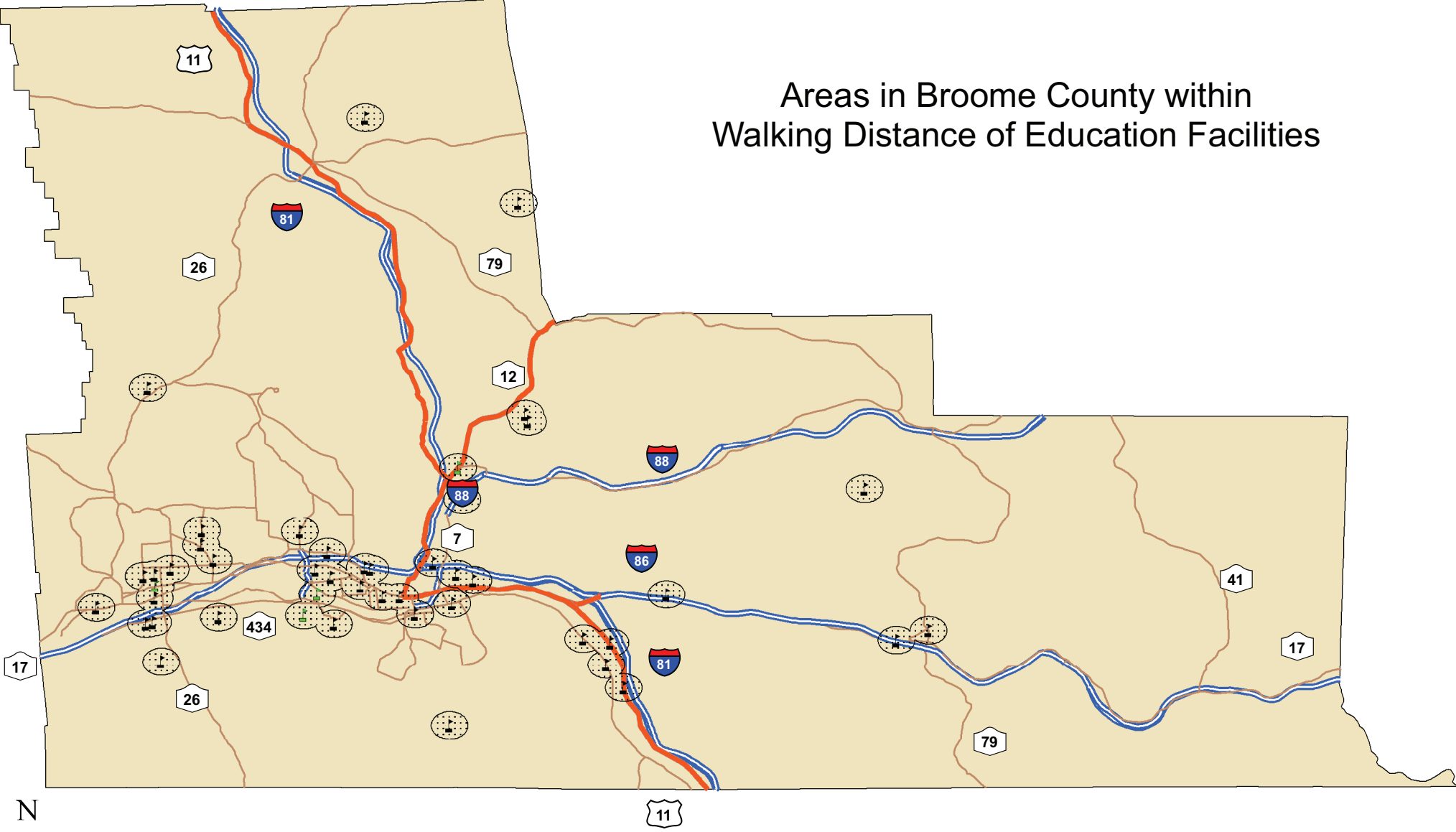
Through the use of census data and geocoded locations for specific spatial attributes, it is possible to identify key features within the county. For the purposes of this phase of IHI's project, Healthcare and Education facilities were identified as types of community destinations which can help describe the potential for walking to routine destinations as part of an active lifestyle. The potential of a resident walking to a destination can be identified as accessible within a .5 mile radius. This is the equivalent of approximately a 10 minute walk at an average pace of 3 miles per hour. Note that this distance is also a relatively short bicycle ride – approximately a 3 minute ride at a 10 mile per hour pace. The purpose of this diagnostic tool is not to specifically identify which individuals within the county walk or bicycle, but rather to provide a broad perspective on whether it is possible to walk or bike to certain key features within the area.







Education

Access to schools is a part of the daily travel routine for Broome County families. Nationally, the trend in the past several decades has been away from children walking or bicycling to school, and towards children being bused and driven to school. The data showing the lack of physical fitness in children (as well as faculty, staff and college students) is related to this change in daily routine. As a result, investigating the potential for schools to be a destination within walking distance of the local population can be an important step towards encouraging a more active lifestyle. About 190,635 people live within walking distance of schools.

Please see Education map on following page

Areas in Broome County within Walking Distance of Education Facilities



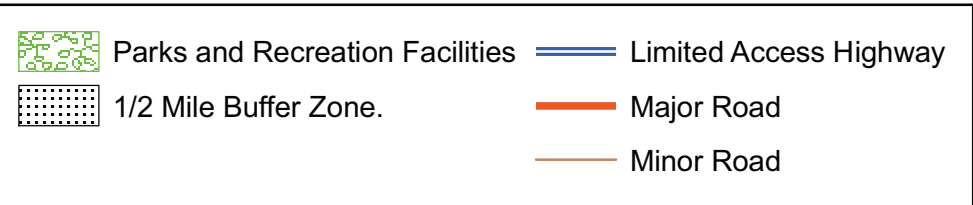
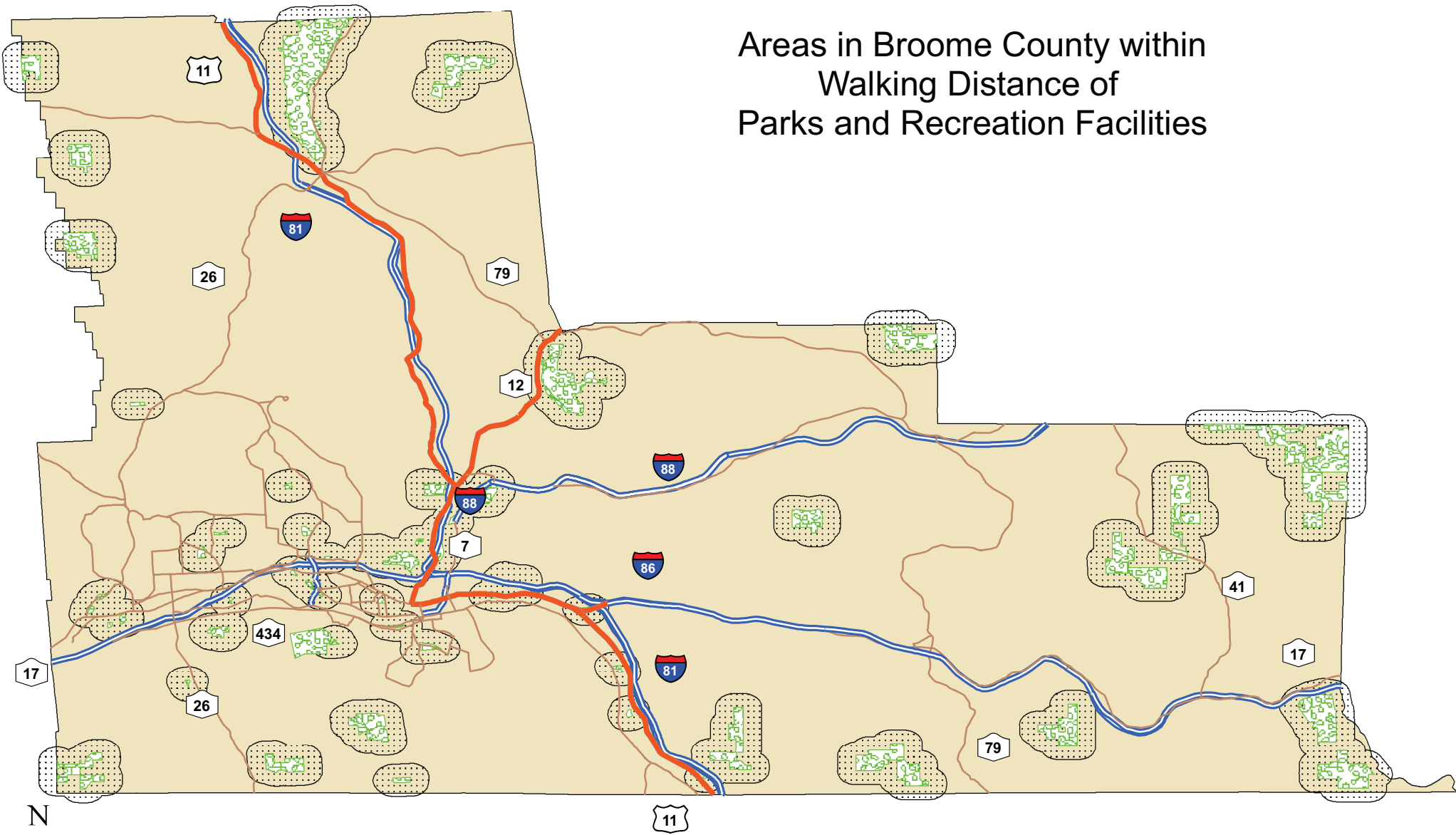
	Colleges		Limited Access Highway
	Schools		Major Road
	1/2 Mile Buffer Zone		Minor Road

Parks

Parks and Recreation Facilities provide locations intended for physical activity, sports and other leisure time activities. Walking, hiking and bicycling are primary activities at these locations, yet in a rural setting, it is important to determine if people are able to walk or bike to parks and recreation, or if they are limited to driving a car to reach these destinations. Broome County is fortunate to have a significant amount of parks and public lands in local communities. About 233,644 people live within walking distance of parks.

Please see Parks map on following page

Areas in Broome County within Walking Distance of Parks and Recreation Facilities



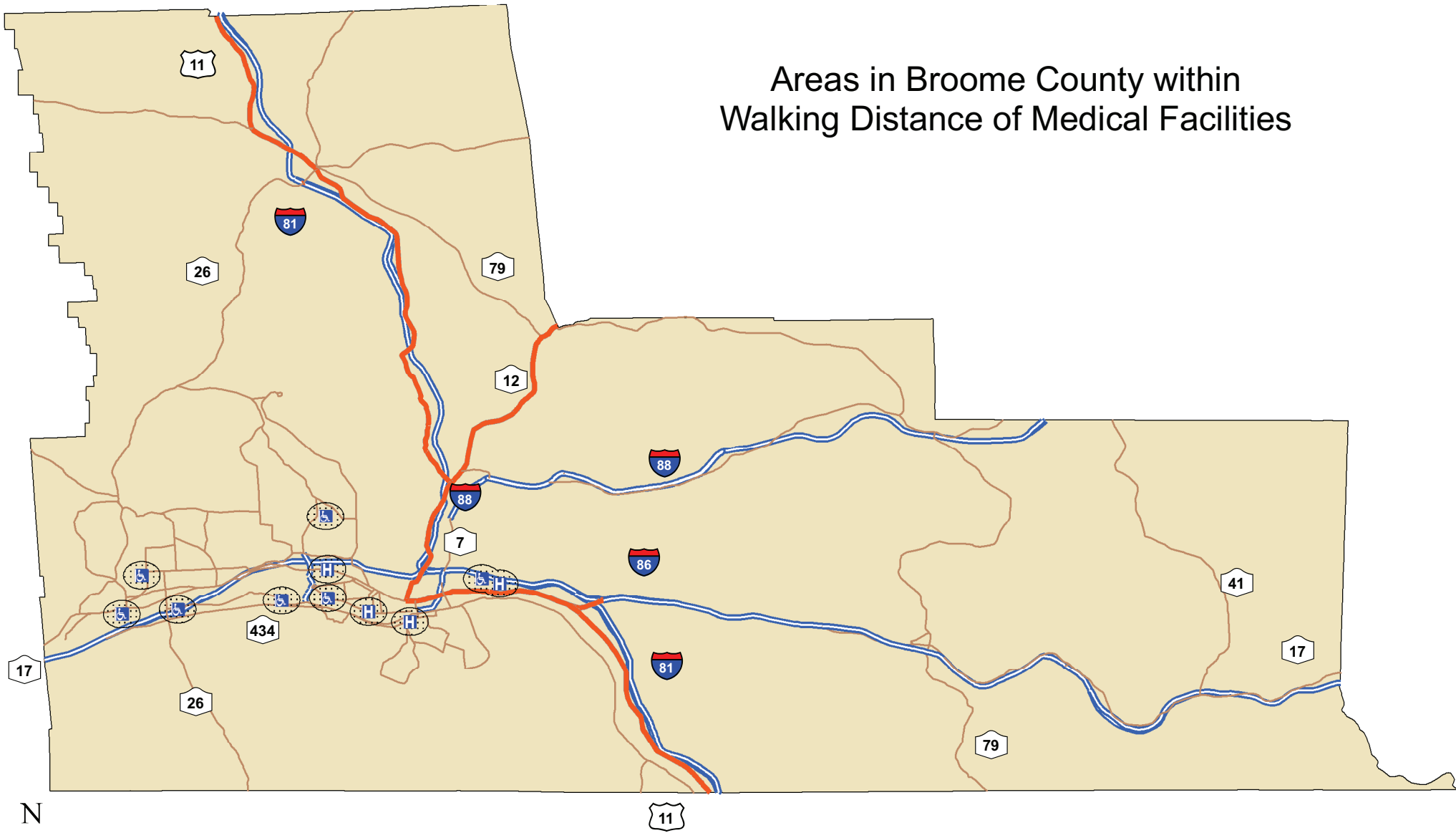
0 4.5 9 18 Miles

Health Institutions

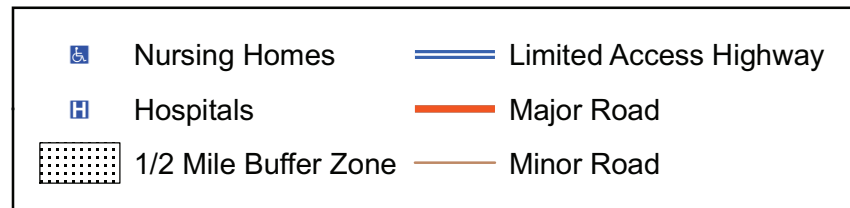
Just as schools and parks can provide walk-able community destinations, health institutions can play a similar role in being a place that encourages physical activity and fitness by being a role model as a destination. This is often not the case with large hospitals and medical centers, and there are many examples of hospitals being surrounded by large parking lots without appropriate consideration for how walking and bicycling relate to public health and the medical institution's role in creating a healthy neighborhood environment. For the purpose of this analysis, healthcare institutions were identified and geocoded, and the same walking distance buffer was applied for the .5-mile radius around the facility. The data indicates that approximately 86,000 people live within walking distance of a healthcare facility.

Please see Health Institutions map on following page

Areas in Broome County within Walking Distance of Medical Facilities



0 4.5 9 18 Miles



Transportation Infrastructure (following page)

For many people, local streets and roads define access to jobs, education, healthcare and recreation. The provision of paved shoulders and sidewalks along these facilities is a key to providing a safe environment for pedestrians and bicyclists. Unfortunately however, data is not currently available to determine the percentage of all these roads that include paved shoulders, sidewalks, bike lanes or trails. An investigation of NYSDOT sufficiency file data indicated that paved shoulders and sidewalks are not systematically included in the State's pavement management and information systems.

The available data table for the Broome County highway system is provided on the following page.

BROOME COUNTY REGION 9 COUNTY 1

MINOR CIVIL DIVISION		GEO- CODE	URBAN AREA CODE	POP. 2000	TOTAL STATE TOURING ROUTE MILEAGE	CENTERLINE HIGHWAY MILEAGE BY JURISDICTION						
TYPE	Name of Town, Village or City					TOWN VILLAGE or CITY	COUNTY	TOTAL LOCAL	D.O.T. OWNED	OTHER STATE	TOTAL STATE & LOCAL	
TOWNS	Barker	0051		2,740	24.1	41.0	20.5	61.5	24.1	0.0	85.6	
	Binghamton	0073	009P	4,970	0.1	49.8	22.7	72.5	0.1	0.0	72.6	
	Chenango	0154	009P	11,450	21.5	64.7	21.2	85.9	21.5	0.0	107.3	
	Colesville	0185		5,440	40.4	92.9	31.8	124.8	41.1	0.0	165.8	
	Conklin	0195	009P	5,940	10.8	41.2	19.7	60.9	10.8	0.0	71.7	
	Dickinson	0235	009	3,640	3.8	11.9	6.3	18.2	3.8	0.0	22.1	
	Fenton	0286	009P	6,910	21.7	50.2	18.1	68.3	22.3	0.0	90.5	
	Kirkwood	0442	009P	5,650	22.9	44.1	24.0	68.1	24.4	0.0	92.4	
	Lisle	0473		2,410	15.9	55.0	15.8	70.9	15.9	0.0	86.8	
	Maine	0499	009P	5,460	10.9	63.0	28.6	91.6	10.9	0.0	102.5	
	Nanticoke	0558		1,790	5.3	27.8	10.4	38.3	5.3	0.0	43.6	
	Sanford	0743		1,640	18.0	102.0	31.0	132.9	18.0	0.0	150.9	
	Triangle	0833		2,070	13.6	37.1	13.4	50.5	13.6	0.0	64.1	
	Union	0846	009	27,730	12.3	119.5	24.5	144.0	12.3	0.0	156.3	
	Vestal	0855	009P	26,540	21.4	136.5	20.4	156.8	21.4	6.9	185.1	
	Windsor	0919		5,520	20.7	118.7	28.9	147.5	20.7	0.0	168.2	
	SUBTOTAL				119,900	263.3	1055.3	337.2	1392.5	266.1	6.9	1665.4
	VILLAGES	Deposit (Partial)	1129		840	0.0	5.7	0.8	6.5	0.0	0.0	6.5
		Endicott	1158	009	13,040	3.1	43.1	0.0	43.1	3.1	0.0	46.2
		Johnson City	1248	009	15,540	4.7	49.6	0.0	49.6	6.2	0.0	55.8
Lisle		1273		300	0.7	3.4	0.0	3.4	0.7	0.0	4.2	
Port Dickinson		1403	009	1,700	1.2	4.7	0.0	4.7	2.3	0.0	7.0	
Whitney Point		1537		970	3.9	5.1	0.1	5.1	3.9	0.0	9.0	
Windsor		1541		900	2.0	4.9	0.7	5.6	2.0	0.0	7.6	
SUBTOTAL				33,290	15.6	116.4	1.6	118.0	18.2	0.0	136.2	
CITY	Binghamton	2006	009	47,380	18.8	157.0	0.0	157.0	12.4	6.7	176.1	
SUBTOTAL				47,380	18.8	157.0	0.0	157.0	12.4	6.7	176.1	
COUNTY TOTAL		----	----	200,570	297.8	1328.7	338.8	1667.5	296.7	13.6	1977.7	

Infrastructure Investment Analysis

Healthcare is a significant budget expenditure and cost for New York State and local communities. The direct and indirect costs due to medical care, workers compensation claims, and lost time related to injuries is illustrated below in a graphic provided by NYSDOH.

Specifically, in Broome County, physical inactivity costs over \$221 Million per year. This includes over \$33 Million in medical care costs, almost \$1 million in workers compensation costs, and over \$186 million in lost productivity. Broken down, it costs each resident of Broome County around \$1,400 per year. It is estimated that a 5% increase in physical activity would save tax-payers over \$11 million each year.

Source: www.activelivingleadership.org, figures from US Census

Slide Source (bullets 1 & 2): Chenoweth, "Physical Inactivity in NYS, An Economic Cost Analysis", 1999
Slide Source (bullet 3): Pratt, M. "Higher Direct Medical Costs Associated with Physical Inactivity", *The Physician and Sports Medicine*, October, 2000. This study used data from the 1987 National Medical Expenditures Survey.

Cost of Physical Inactivity in NYS

- Inactivity costs NYS **\$3 billion** a year
- A 5% increase in physical activity rates in adults would save NY **\$180 million** a year.
- Inactive adults have **\$330** more per year in direct medical costs than active adults (in 1987 dollars).

IV. Initiatives for Broome County

Broome County Steps to a Healthier NY

“Steps to a Healthier NY is part of a national health promotion and disease prevention initiative entitled Steps to a Healthier US, launched by the Department of Health and Human Services in 2003. This five year corporative agreement aims to help Americans live healthier, longer and better lives by reducing the burden of diabetes, overweight, obesity and asthma and addressing three related risk factors- physical inactivity, poor nutrition and tobacco use...Broome County is part of a four county project lead by the New York Department of Health through funding from the Centers for Disease Control.”

The physical inactivity aspect is of great importance because the built environment can affect one’s activity level. Steps to Healthier NY supports many beneficial programs for the residents of Broome County: <http://www.broomesteps.org>.

Broome County Walks “B.C. Walks”

B.C. Walks encourages and supports numerous walking campaigns for the residents of Broome County. *“Starting with only 10 minutes a day, the B.C. Walks program encourages everyone to enjoy walking as the excellent method of physical fitness that it is. Walking ten minutes a day.... not a big investment in time, but a huge investment in health; then twenty minutes each day.... then thirty minutes a day to create a lifelong habit which can help prevent obesity, diabetes and heart disease. Walking is free exercise requiring only a good pair of sneakers or walking shoes and the desire to commit to improved health.”*

Helpful information is available: <http://www.bcwalks.com/>.



Approved Future Bicycle and Pedestrian Projects in Broome County

Chenango River Walk, City of Binghamton: This project extends the Riverwalk pedestrian and bicycle facility on the east side of the Chenango River from East Clinton Street to Cheri Lindsey Park. Water Street, from East Clinton St to Eldredge St, will be reconstructed to provide a median separated on-street facility.

Village of Endicott, Town of Union: curbs, sidewalks, bike lanes, transit shelters, lighting on NY 17C, Nanticoke to Dickson; and NY 26, Main St to Endicott-Union line

Court Street Bridge over Chenango River, City of Binghamton: accommodation of the Chenango River Walk, bike lanes to be added to bridge

Upper Court Street Reconstruction, Town of Colesville: includes construction of sidewalks and will likely include bike lanes

Court Street Operations, City of Binghamton: Bike lanes and sidewalks exist and will be maintained in project design

Binghamton Metropolitan Transportation Study (BMTS)

BMTS is the local Metropolitan Planning Organization (MPO) serving Broome County. BMTS is required to publish a TIP that lists all projects federally-funded in the local area. Some projects include new bicycle and pedestrian facilities and others include bicycle and pedestrian enhancements. A complete list of local projects is available at the BMTS website: <http://www.gobroomecounty.com/bmts/>

BMTS Pedestrian and Bicycle Plan: http://www.gobroomecounty.com/bmts/BMTS_reports.php

BMTS Bicycle Route Map: <http://www.gobroomecounty.com/bmts/pdfs/BMTSBicycleRouteMap.pdf>

V. Community Infrastructure Prescriptions

The information gathered for this project can help in informing Broome County and local communities about the issues and potential solutions related to physical activity, cardiovascular fitness, and the built environment. Data in the previous sections (see NYS BRFSS data) have indicated that Broome County residents are at risk for heart disease, that physical activity is declining, and that transportation and health care costs represent a significant amount of local public expenditures. In order to translate these facts into action, it is first necessary to understand the current recommendations of the health profession in terms of change in individual behavior. Currently the Surgeon General of the United States is recommending that adults have 30 minutes of moderate physical activity on most, if not all days of the week and that children have at least 60 minutes of physical activity on most days, if not all days of the week. In many cases, this amount of physical activity can be achieved while walking to work, school, or for recreation within a local community – if these destinations are accessible in terms of pedestrian facilities. At the same time, research is beginning to show that for many people, leisure time physical activity frequently involves walking, and that roads, streets and sidewalks are important facilities for this purpose.

While it is not certain that there is a direct cause and effect relationship between providing sidewalks, paved shoulders, trails and bicycle facilities and specific improvements in the conditions of cardiovascular disease, there is sufficient evidence to indicate that Broome County would benefit from infrastructure improvements that encourage a more active lifestyle. **The following sections identify several possible policy and funding opportunities for Broome County.**

Policy Suggestions

Safe Routes to School

There is a growing national and international movement towards encouraging children to walk and bicycle to school. Schools are a logical focal point for creating safe, healthy, physically active communities. While current conditions indicate the majority of children are being bused and driven to school, changes in the physical environment (including sidewalks, crossings and traffic calming of school zones) can be combined with encouragement programs to facilitate a return to safe routes to school in Broome County. Please see the iHi NY Safe Routes to School document on our website here: <http://www.albany.edu/~ihi/2briefing.pdf>.

Complete Streets

Benefits of *Complete Streets* range from improved safety conditions for pedestrians and bicyclists to less congested roadways. Numerous communities across the country have already adopted such policies. A proposed *Complete Streets* policy for Broome County can be found here: <http://www.completestreets.org/index.html>.

Local Sidewalk Program / Winter Maintenance

It is common practice in Upstate New York communities for adjacent property owners to be responsible for construction and maintenance of sidewalks. While this limits a municipality's maintenance cost and shifts the existing or perceived liability to the adjacent landowner, it also creates discontinuous and often nonexistent pedestrian facilities. While there may not be a single, one size fits all solution to these issues, there are a number of excellent best practices which could be facilitated at the county level. Examples include mapping the existing sidewalk systems and identifying missing links. Sidewalk construction could be facilitated into group discount purchases in order to ease the cost burden on property owners. Winter maintenance could be enhanced through economic opportunity programs, providing jobs for the unemployed or youth seeking to enter the workforce.

Land Use and Walkability

As a 'home rule' state, New York does not have regional land use planning for rural counties, and as a result, most land use decisions are made at the local municipal level. With a dispersed rural population, the creation of compact development centers in villages and hamlets would support walking, especially if combined with locating public facilities such as post offices, libraries and local government offices within town centers. In order to encourage people to walk as part of their daily routing, it is important to group destinations and activities within walking distance of businesses and residences to the greatest extent possible.

Road Shoulder Guidelines

Many of the County's highways are low volume two lane roads. In most cases where there are few motor vehicles and traffic speeds are kept slow, these are already good places to walk or bicycle. On roads with higher traffic volumes and speeds, providing paved shoulders can be a significant benefit to motorists, bicyclists and pedestrians. A consistent policy for providing paved shoulders as a typical roadway feature could be implemented by NYSDOT, the County and municipal agencies. The document on the following page, developed in Oregon, provides an excellent rationale for these facilities.

Paved Shoulders

Reasons for Highway Shoulders

Prepared by Michael Ronkin, Bicycle and Pedestrian Program Manager & Members of the Preliminary Design Unit Oregon Department of Transportation

Before the 1971 "Bike Bill" was passed, and the terms "shoulder bikeways" or "bike lanes" were commonly used, the Oregon Highway Division advocated (1) building paved shoulders when constructing roads and (2) adding paved shoulders to existing roads. These were often referred to as "safety shoulders." There are good reasons for this term.

The following reasons are what AASHTO has to say about the benefits of shoulders in three important areas: safety, capacity and maintenance. Most of these benefits apply to both shoulders on rural highways and to marked, on-street bike lanes on urban roadways. See other side for other benefits specific to urban areas.

Safety - highways with paved shoulders have lower accident rates, as paved shoulders:

- Provide space to make evasive maneuvers;
- Accommodate driver error;
- Add a recovery area to regain control of a vehicle, as well as lateral clearance to roadside objects such as guardrail, signs and poles (highways require a "clear zone," and paved shoulders give the best recoverable surface);
- Provide space for disabled vehicles to stop or drive slowly;
- Provide increased sight distance for through vehicles and for vehicles entering the roadway (rural: in cut sections or brushy areas; urban: in areas with many sight obstructions);
- Contribute to driving ease and reduced driver strain;
- Reduce passing conflicts between motor vehicles and bicyclists and pedestrians;
- Make the crossing pedestrian more visible to motorists; and
- Provide for storm water discharge farther from the travel lanes, reducing hydroplaning, splash and spray to following vehicles, pedestrians and bicyclists.

Capacity - highways with paved shoulders can carry more traffic, as paved shoulders:

- Provide more intersection and safe stopping sight distance;
- Allow for easier exiting from travel lanes to side streets and roads (also a safety benefit);
- Provide greater effective turning radius for trucks;
- Provide space for off-tracking of truck's rear wheels in curved sections;
- Provide space for disabled vehicles, mail delivery and bus stops; and
- Provide space for bicyclists to ride at their own pace;

Maintenance - highways with paved shoulders are easier to maintain, as paved shoulders:

- Provide structural support to the pavement;
- Discharge water further from the travel lanes, reducing the undermining of the base and subgrade;
- Provide space for maintenance operations and snow storage;
- Provide space for portable maintenance signs;
- Facilitate painting of fog lines.



VI. Funding Options

Bicycle and Pedestrian Improvements can be made possible in Broome County with funding through multiple avenues. There are numerous funding sources, including federal grant programs such as the Transportation Improvements Program or Congestion Mitigation Air Quality Improvement Program. Both the New York Bicycling Coalition and Parks and Trails New York (PTNY) have excellent information regarding funding.

New York Bicycling Coalition: <http://www.nybc.net/programs/funding.shtml>

Parks and Trails New York: <http://www.ptny.org/index.shtml>

There may also be state, local and private money available too. In addition, see the iHi website for more information on funding sources.

Conclusion

This report is part of our efforts to develop an approach for identifying connections between public health, transportation infrastructure and community decision-making. With that caveat in mind, the following discussion can provide some useful concepts both for Broome County and for the future development of the iHi program. One way of summarizing the data collected for this document is to connect the physical activity and transportation needs of Broome County with an image common to promoting healthy lifestyles – the food pyramid. While people may disagree on the exact proportions of carbohydrates and protein in a healthy diet, the concept of the food pyramid is that the most resource intensive food group – meat – should be eaten in moderation, and that the food group which can be produced with the least amount of energy and the greatest return to the population – grains – should form the basis of a healthy diet. The same principle can be applied to transportation. If we used the forms of transportation that consume the greatest amount of resources (petroleum), we would place automobiles and air travel at the top of the pyramid and attempt to conserve our use of these costly forms of travel. Walking and bicycling would form the foundation of a pyramid that is based on the principals of a healthy transportation diet.

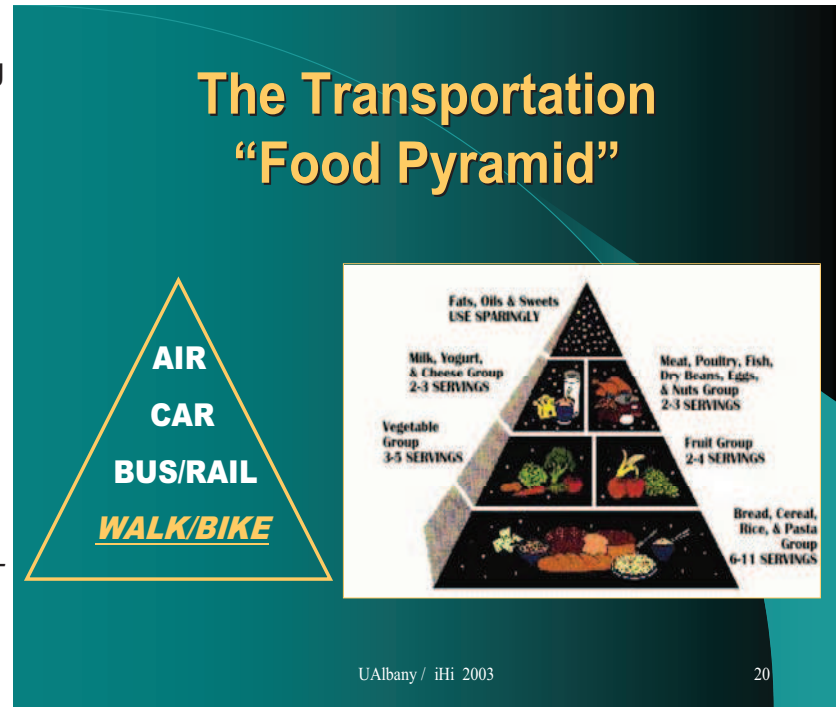
Do you know how much your local school district spends on student transportation?

Many districts allocate more funding on transportation than on physical activity programming! See the NYS Comptroller's Report and select school districts: http://www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm

Broome County is faced with some important choices for the future. With a population at risk for cardiovascular disease, and with a significant percentage of county tax revenues being used for both transportation and health care, there is a need and an opportunity to increase the community's investment in healthy infrastructure. Projects such Steps to a Healthier NY and BC Walks are part of the solution. Bringing these initiatives together under the umbrella of combining public health and public works will create new opportunities for Broome County, its residents, businesses and visitors.

The "Transportation Food Pyramid" (Olson, 2003) shows the relationship between a healthy diet and a healthy use of transportation resources.

Please Note: The USDA now has a tool online so individuals can customize their own pyramids. Go to: <http://www.mypyramid.gov/>



Additional Important Links

Broome County Health Department: <http://www.gobroomecounty.com/safety/>

Broome County Planning Department: <http://www.gobroomecounty.com/planning/>

NYS DOH: <http://www.health.state.ny.us/>



For additional information, please contact:

Initiative for Healthy Infrastructure – iHi
State University of New York at Albany
Department of Geography and Planning
www.albany.edu/gp/ihi



Healthy Infrastructure Action Plan / Survey

Thank you for being part of our efforts to connect public health, infrastructure and your community. We'd appreciate it if you would spend a few moments providing us with your opinion on this project.

County Name:

1. On a 1 to 10 scale, with '10' being the best score, is this document useful for your community?
(please circle your response)

No 1 2 3 4 5 6 7 8 9 10 Yes

2. On the same 1-10 scale, are you more aware of the connection between public health and infrastructure now that you have read this document?
(please circle your response)

No 1 2 3 4 5 6 7 8 9 10 Yes

3. Will you personally become and advocate for healthy infrastructure in your community as a result of this plan? (please check one)

Yes No Not Sure

4. What plans, programs or projects should be added to the plan?

.....
.....
.....

5. What actions will your community implement as a result of this plan? (check all that apply)

- Formal adoption of the plan by elected officials
- Increased funding for healthy infrastructure projects
- Formation of a healthy infrastructure task force
- Safe Routes to Schools Program
- New Policy to Include Pedestrian and Bicyclist Facilities



Healthy Infrastructure Action Plan / Survey

County Name:

6. Completion of a specific project.

Project name:

7. Other. Please describe:

.....
.....
.....
.....

Would you like to receive more information about iHi?
Please provide us with your contact information:

Name.....

Organization.....

Address.....

Phone.....

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Email.....

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