

# *Healthy Infrastructure Plan*



## **Ulster County, New York**

Project by:  
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## I. Introduction

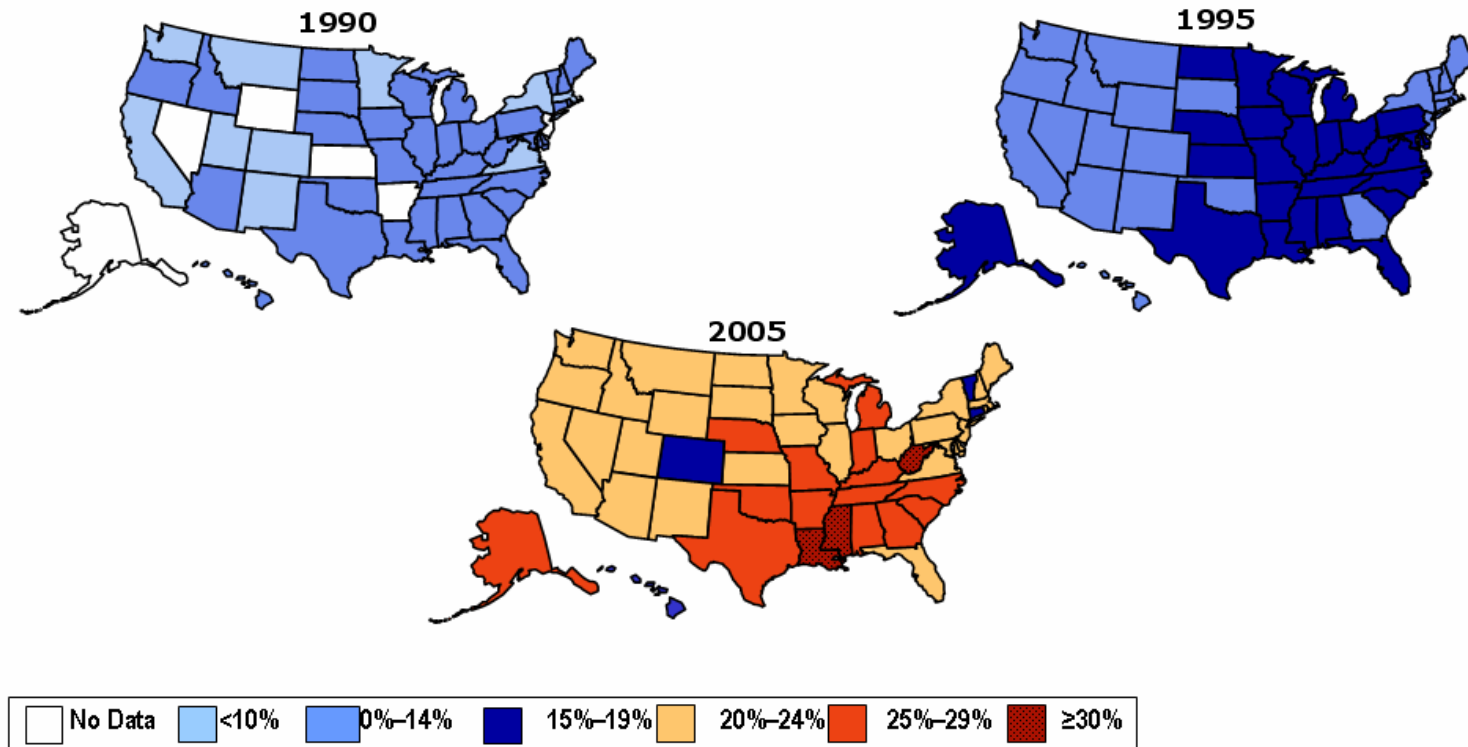
The *Initiative for Healthy Infrastructure* (iHi) project at *University at Albany* (SUNY) is designed to facilitate statewide efforts to create physical environments which fosters healthy active lifestyles. This undertaking includes a cross-disciplinary approach in addressing this issue through teaching, 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.*

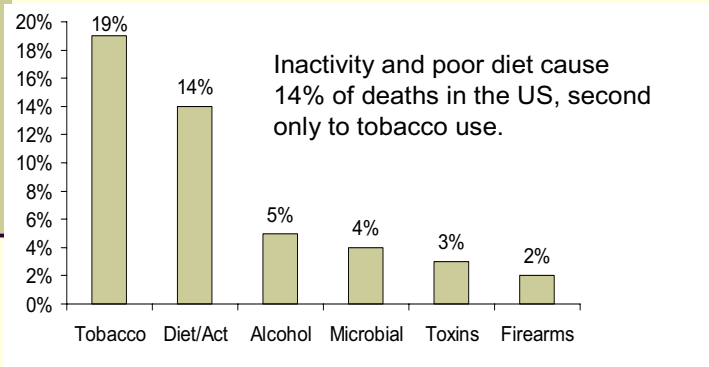
## Obesity Trends\* Among U.S. Adults BRFSS, 1990, 1995, 2005

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

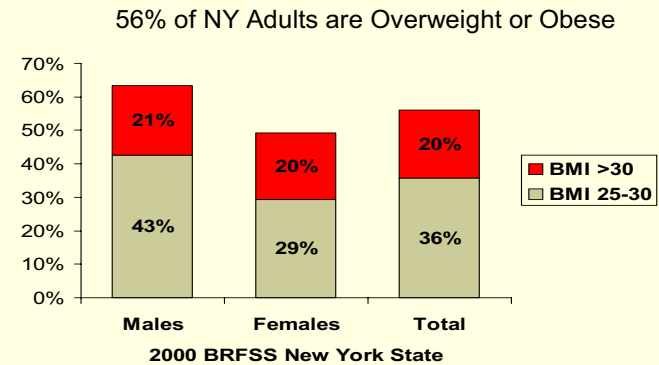


Cardiovascular disease (CVD) is the leading cause of death, disability and health care expenditures among New York State residents. In 1998, more than 70,000 New Yorkers died of cardiovascular disease, accounting for 45% of all deaths. According to data from the 2001 Behavioral Risk Factor Surveillance 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)

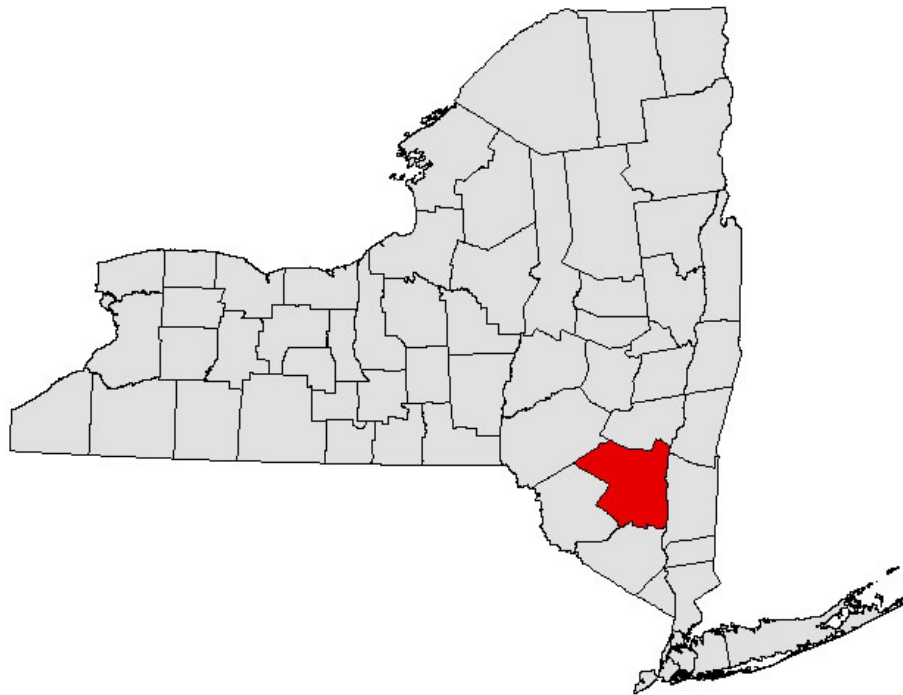


### Overweight and Obesity Among NYS Adults (2001 BRFSS)



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.*

Ulster County  
Prepared by iHi, 2007



The population of Ulster County is approximately 177,749 people (2000). Ulster County is situated in the Hudson River Valley, nestled among the Catskills Mountains. The median household income is \$42,014 (2003), with 10.6 % of the population living below the poverty level. The county land area covers 1,126 square miles, with a population density of 157.8 people per square mile.

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

*Source: US Census and Ulster County*

## II. Community Health Data

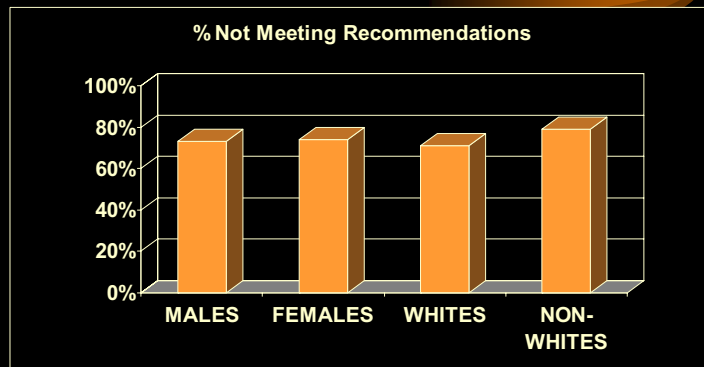
Ulster County is fortunate to have a detailed set of data for assessing public health. The New York State Behavioral Risk Factor Surveillance System (data) provides a general overview for statistical comparisons between state, national and county data. The following sections use available local and statewide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

### NYS BRFSS

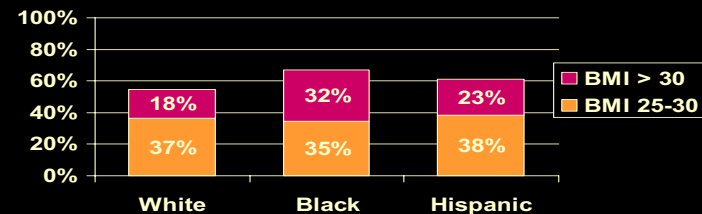
The national trends and data are reflected in the public health data provided by NYS DOH from the 2000 and 2001 BRFSS. The two charts below show levels of physical activity statewide and obesity prevalence in ethnic groups among NYS adults.

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



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

**2004 Ulster County**

<b>TABLE 1 Accident Summary Totals</b>		
<b>Category Totals</b>	<b>All Accidents</b>	<b>Police Reported</b>
<b>Total Accidents</b>	<b>2,730</b>	<b>1,648†</b>
Fatal Accidents	25	25
Non-Fatal Personal Injury Accidents	1,715	1,543
Reportable Property Damage Accidents	990	80†
<b>Vehicles</b>	<b>4,461</b>	<b>2,756</b>
Drivers Involved	4,146	2,673
Vehicle Occupants	5,853	4,051
<b>Special Accident Series</b>		
Pedestrian/Motor Vehicle Accidents	58	53
Bicycle/Motor Vehicle Accidents	41	41
Motorcycle Accidents	88	85
<b>Fatalities</b>		
<b>Persons Killed (1)</b>	<b>27</b>	<b>27</b>
Drivers Killed	18	18
Passengers Killed	6	6
Pedestrians Killed	2	2
Bicyclists Killed	1	1
Other	0	0
<b>Non-Fatal Injuries</b>		
<b>Persons Injured (1)</b>	<b>2,452</b>	<b>2,236</b>
Drivers Injured	1,669	1,502
Passengers Injured	686	641
Pedestrians Injured	59	55
Bicyclists Injured	38	38
Other	0	0
† 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.		

<b>TABLE 2(P) Severity of Accident</b>		
	<b>Number</b>	<b>Percent</b>
<b>Total</b>	<b>1,648</b>	<b>100.0</b>
Fatal (K) Accidents	25	1.5
Personal Injury Accidents		
Serious (A)	181	11.0
Moderate (B)	316	19.2
Minor (C)	1,004	60.9
Unknown Severity	42	2.5
Property Damage (O) Accidents	80	4.9

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 Ulster 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 Ulster 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: Ulster County, New York**

Subject	1990 Census		Census 2000		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
<b>POPULATION</b>						
<b>Total population</b> .....	165,304	100.0	177,749	100.0	12,445	7.5
In households .....	156,651	94.8	166,412	93.6	9,761	6.2
In group quarters .....	8,653	5.2	11,337	6.4	2,684	31.0
<b>HOUSEHOLD SIZE</b>						
<b>Total households</b> .....	60,639	100.0	67,501	100.0	6,862	11.3
1-person household .....	14,624	24.1	18,799	27.8	4,175	28.5
2-person household .....	19,804	32.7	22,474	33.3	2,670	13.5
3-person household .....	10,849	17.9	10,924	16.2	75	0.7
4-person household .....	9,567	15.8	9,195	13.6	-372	-3.9
5-or-more-person household .....	5,795	9.6	6,109	9.1	314	5.4
Mean number of persons per household .....	2.58	(X)	2.47	(X)	-0.12	(X)
<b>VEHICLES AVAILABLE<sup>1</sup></b>						
<b>Total households</b> .....	60,639	100.0	67,501	100.0	6,862	11.3
No vehicle available .....	5,163	8.5	5,635	8.3	472	9.1
1 vehicle available .....	19,838	32.7	23,480	34.8	3,642	18.4
2 vehicles available .....	24,330	40.1	26,763	39.6	2,433	10.0
3 vehicles available .....	7,943	13.1	8,546	12.7	603	7.6
4 vehicles available .....	2,499	4.1	2,336	3.5	-163	-6.5
5 or more vehicles available .....	866	1.4	741	1.1	-125	-14.4
Mean vehicles per household .....	1.76	(X)	1.72	(X)	-0.05	(X)
<b>WORKERS BY SEX<sup>1</sup></b>						
<b>Workers 16 years and over</b> .....	78,739	100.0	81,725	100.0	2,986	3.8
Male .....	43,374	55.1	43,070	52.7	-304	-0.7
Female .....	35,365	44.9	38,660	47.3	3,295	9.3
<b>MEANS OF TRANSPORTATION TO WORK</b>						
<b>Workers 16 years and over</b> .....	78,739	100.0	81,726	100.0	2,987	3.8
Drove alone .....	60,048	76.3	63,804	78.1	3,756	6.3
Carpooled .....	9,721	12.3	8,459	10.4	-1,262	-13.0
Public transportation (including taxicab) .....	1,304	1.7	1,803	2.2	499	38.3
Bicycle or walked .....	4,121	5.2	3,241	4.0	-880	-21.4
Motorcycle or other means .....	618	0.8	469	0.6	-149	-24.1
Worked at home .....	2,927	3.7	3,950	4.8	1,023	35.0
<b>TRAVEL TIME TO WORK</b>						
<b>Workers who did not work at home</b> .....	75,812	100.0	77,776	100.0	1,964	2.6
Less than 5 minutes .....	3,214	4.2	3,450	4.4	236	7.3
5 to 9 minutes .....	10,374	13.7	9,655	12.4	-719	-6.9
10 to 14 minutes .....	13,133	17.3	11,752	15.1	-1,381	-10.5
15 to 19 minutes .....	13,118	17.3	11,281	14.5	-1,837	-14.0
20 to 29 minutes .....	14,925	19.7	14,701	18.9	-224	-1.5
30 to 44 minutes .....	12,530	16.5	13,450	17.3	920	7.3
45 or more minutes .....	8,518	11.2	13,487	17.3	4,969	58.3
Mean travel time to work (minutes) .....	21.6	(X)	26.9	(X)	5.3	(X)
<b>TIME LEAVING HOME TO GO TO WORK</b>						
<b>Workers who did not work at home</b> .....	75,812	100.0	77,776	100.0	1,964	2.6
5:00 a.m. to 6:59 a.m. ....	17,161	22.6	18,273	23.5	1,112	6.5
7:00 a.m. to 7:59 a.m. ....	23,447	30.9	22,752	29.3	-695	-3.0
8:00 a.m. to 8:59 a.m. ....	15,895	21.0	15,527	20.0	-368	-2.3
9:00 a.m. to 9:59 a.m. ....	4,801	6.3	4,780	6.1	-21	-0.4
10:00 a.m. to 11:59 a.m. ....	2,663	3.5	3,111	4.0	448	16.8
12:00 p.m. to 11:59 p.m. ....	10,485	13.8	11,076	14.2	591	5.6
12:00 a.m. to 4:59 a.m. ....	1,360	1.8	2,257	2.9	897	66.0

<sup>1</sup> 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**

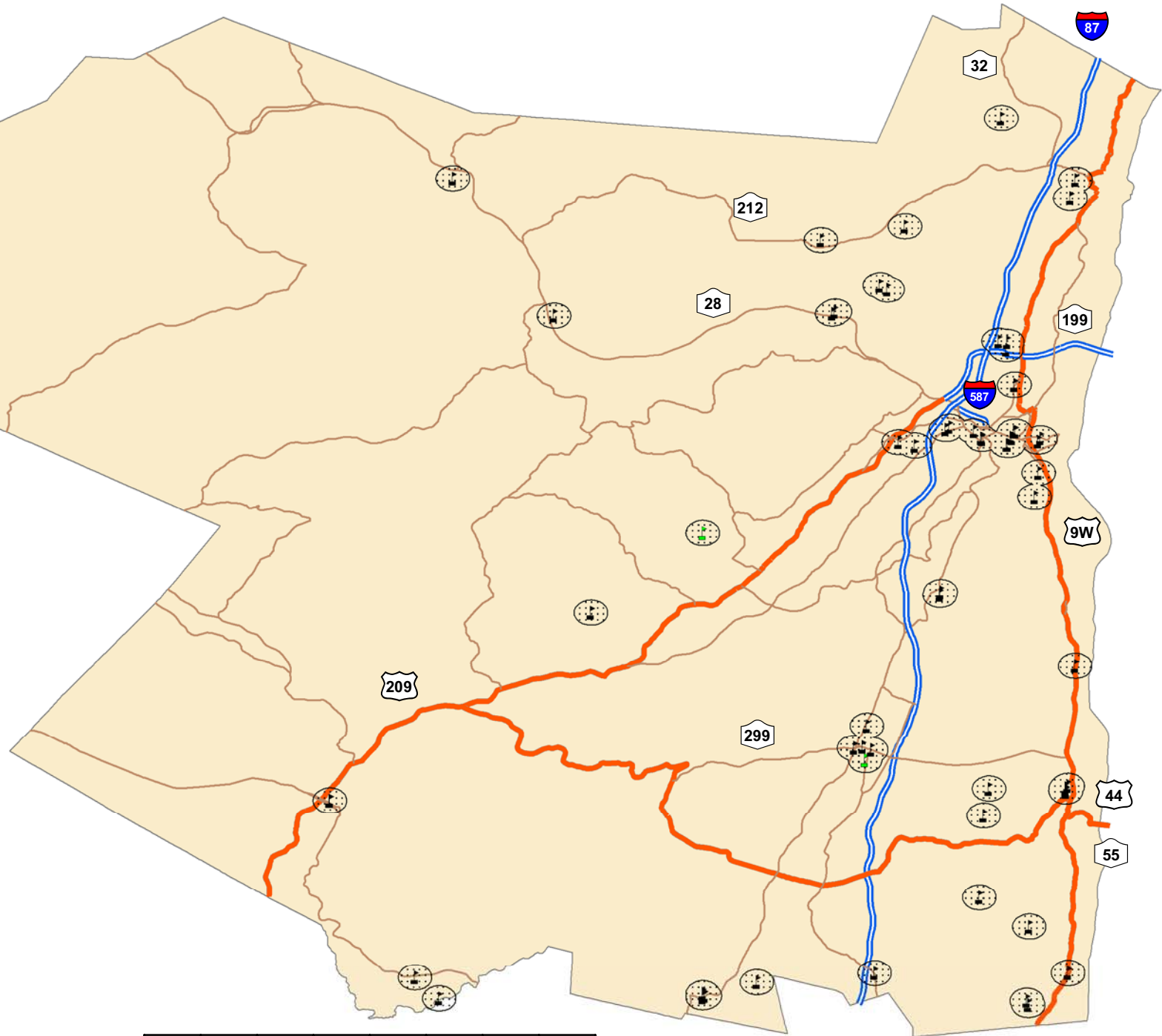
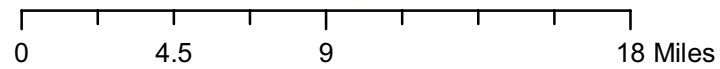
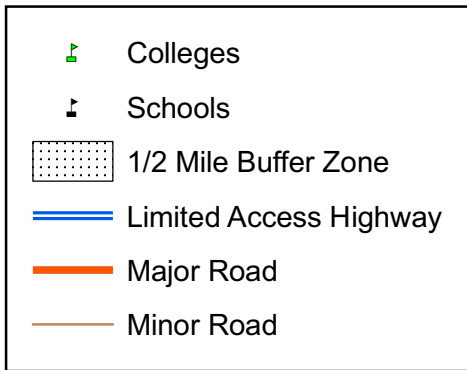
Through the use of census data and geocoded locations for specific spatial attributes, it is possible to identify key features within the county. For the purposes of this phase of IHI's project, Healthcare and Education facilities were identified as types of community destinations which can help describe 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 Ulster County families. Nationally, the trend of 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. 93,752 or 51% of the County population lives within walking distance of schools.

*Please see Education map on following page*

# Areas in Ulster County within Walking Distance of Education Facilities



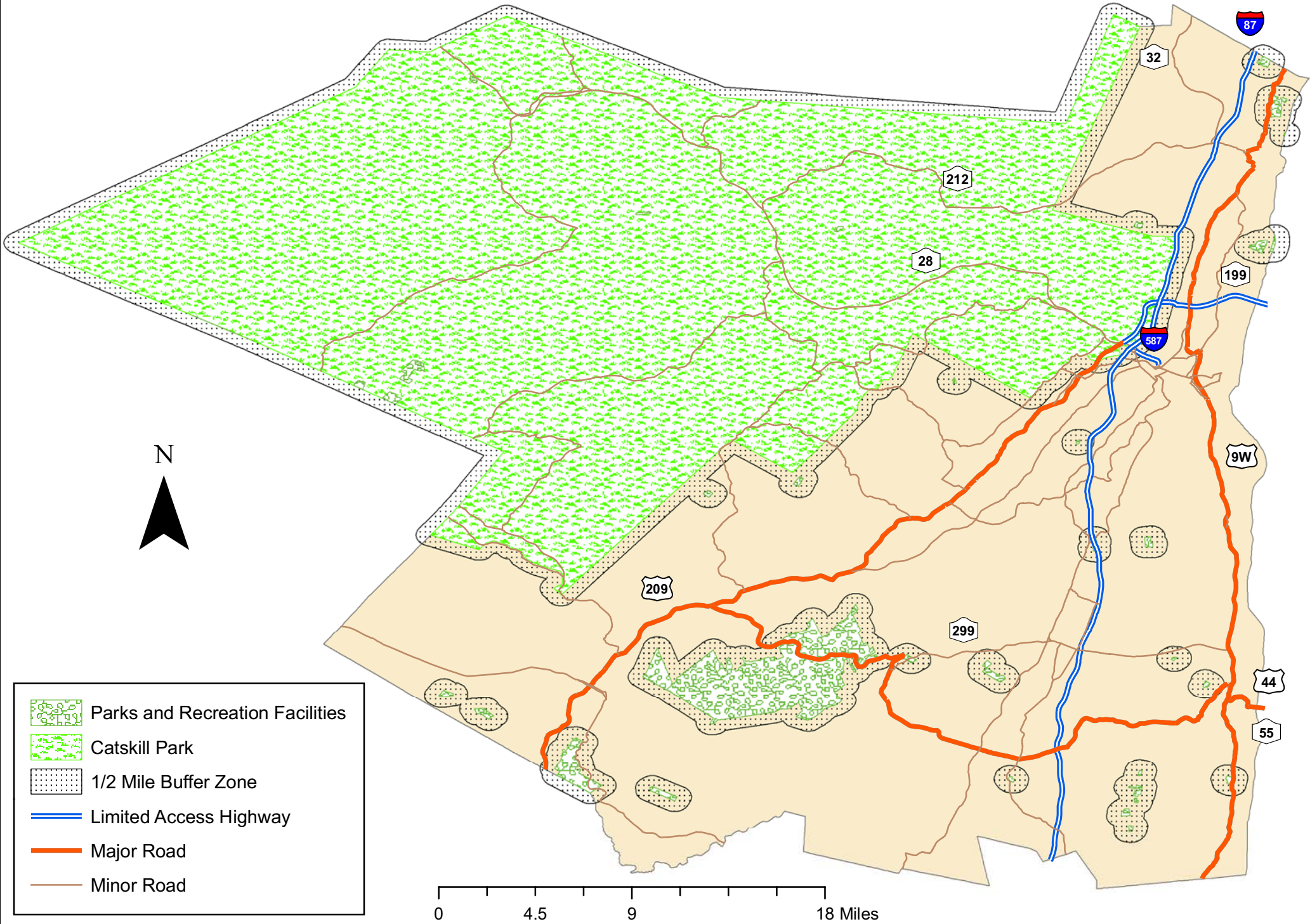
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## **Parks**

Parks are an essential part of any community and they promote not only environmental beauty but healthy activity. They are a vital part of any county that wishes for its residents to take advantage of outdoor opportunities. Not only do parks and recreational areas provide space for exercise, but parks also give people destinations to walk to and from. They offer safe places for children and families to share experiences. In Ulster County, 74,967 or 41% of the population lives within the buffer zone of parks.

*Please see Parks map on following page*

# Areas in Ulster County within Walking Distance of Parks and Recreation Facilities



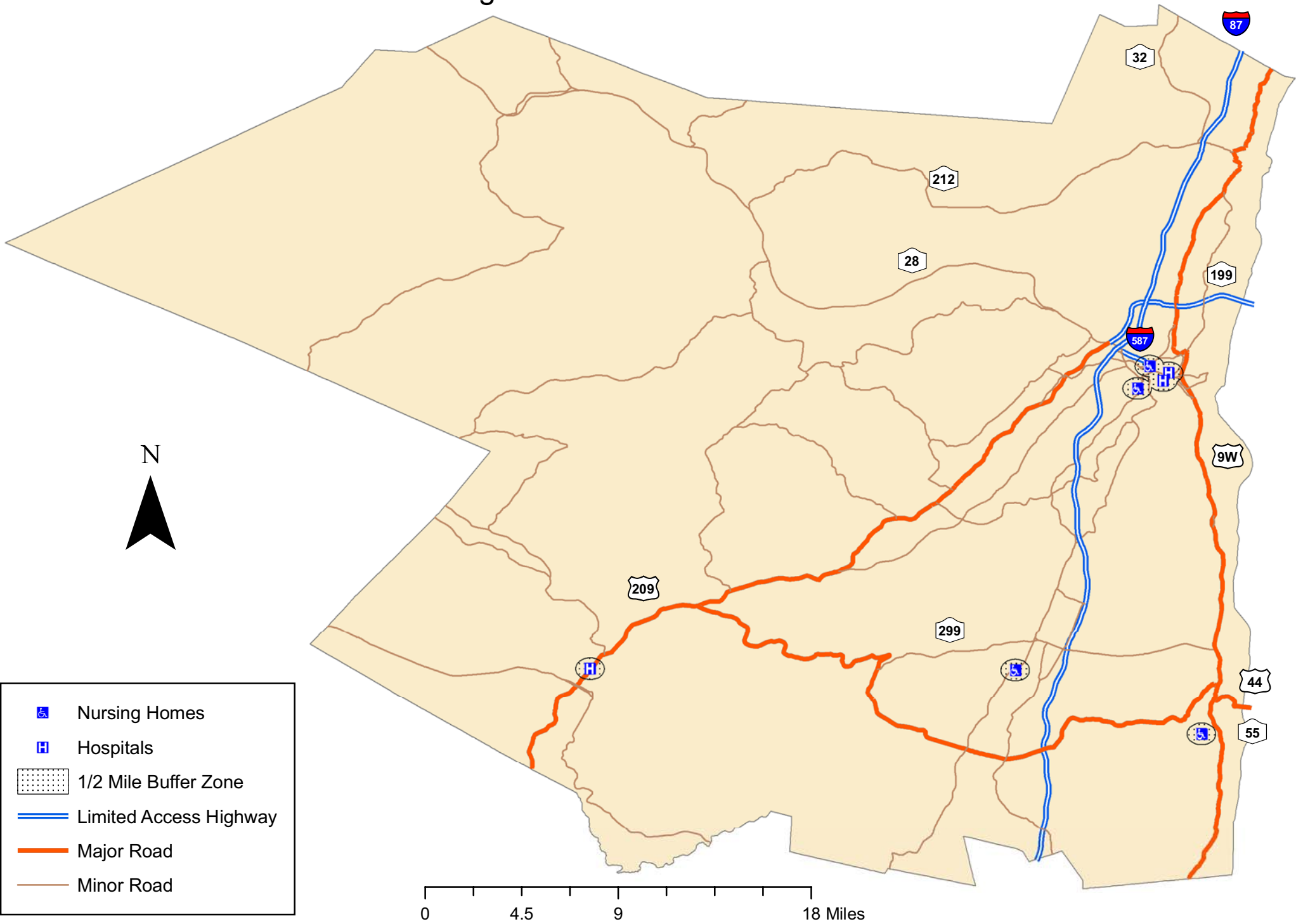
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## **Health Institutions**

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 16 percent of the county population lives within walking distance of a healthcare facility.

*Please see Health Institutions map on following page*

# Areas in Ulster County within Walking Distance of Medical Facilities



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**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 Ulster County highway system is provided on the following page.*

## ULSTER COUNTY REGION 8 COUNTY 6

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	Denning	0229		520	0.0	55.4	17.5	72.9	0.0	0.0	72.9
	Esopus	0274	032P	9,330	19.1	59.8	19.8	79.6	18.0	1.4	99.0
	Gardiner	0315		5,240	19.4	54.9	21.0	75.9	16.8	0.0	92.8
	Hardenburgh	0371		210	0.0	35.4	11.9	47.3	0.0	0.0	47.3
	Hurley	0412	032P	6,560	16.1	51.7	22.2	74.0	9.8	0.0	83.7
	Kingston	0440		910	3.0	9.1	4.8	13.8	2.2	0.0	16.0
	Lloyd	0479		9,940	17.3	63.4	14.6	78.0	16.3	2.7	97.0
	Marbletown	0509		5,850	18.2	85.1	28.0	113.1	10.0	0.0	123.1
	Marlborough	0514		8,260	7.1	57.5	17.3	74.9	7.1	0.0	82.0
	New Paltz	0579	085P	6,800	20.7	58.3	20.8	79.0	10.0	7.5	96.5
	Olive	0609		4,580	20.3	68.1	21.3	89.4	7.4	0.0	96.8
	Plattekill	0672		9,890	18.6	49.7	24.5	74.2	12.5	6.1	92.8
	Rochester	0717		7,020	12.6	121.7	19.7	141.3	12.6	0.0	153.9
	Rosendale	0724	032P	6,350	15.2	35.4	20.5	55.9	9.6	5.6	71.1
	Saugerties	0749		14,910	34.6	118.1	34.0	152.1	25.5	9.1	186.7
	Shandaken	0768		3,240	25.7	66.3	21.1	87.4	25.7	0.0	113.0
	Shawangunk	0770		12,020	12.5	90.1	32.1	122.2	12.5	3.5	138.2
	Ulster	0843	032P	12,540	32.2	69.4	23.2	92.6	24.2	9.4	126.3
	Wawarsing	0880		8,760	42.0	165.3	26.5	191.8	36.7	1.5	230.0
	Woodstock	0925		6,240	13.8	77.8	23.7	101.6	13.8	0.0	115.4
<b>SUBTOTAL</b>				<b>139,170</b>	<b>348.2</b>	<b>1392.4</b>	<b>424.5</b>	<b>1816.9</b>	<b>270.7</b>	<b>46.8</b>	<b>2134.4</b>
VILLAGES	Ellenville	1153		4,130	2.9	15.6	0.3	15.9	2.9	0.0	18.8
	New Paltz	1341	085	6,030	3.0	10.1	0.0	10.1	2.9	2.0	15.0
	Saugerties	1442		4,960	2.8	13.9	0.0	13.9	2.8	0.0	16.6
<b>SUBTOTAL</b>				<b>15,120</b>	<b>8.7</b>	<b>39.6</b>	<b>0.3</b>	<b>39.9</b>	<b>8.6</b>	<b>2.0</b>	<b>50.4</b>
CITY	Kingston	2024	032	23,460	9.1	85.9	0.0	85.9	4.0	1.4	91.4
	New York (Board of Water Supply)	2034	043		25.0	25.0	0.0	25.0	0.0	0.0	25.0
<b>SUBTOTAL</b>				<b>23,460</b>	<b>34.2</b>	<b>111.0</b>	<b>0.0</b>	<b>111.0</b>	<b>4.0</b>	<b>1.4</b>	<b>116.4</b>
<b>COUNTY TOTAL</b>		<b>----</b>	<b>----</b>	<b>177,750</b>	<b>391.1</b>	<b>1543.0</b>	<b>424.8</b>	<b>1967.7</b>	<b>283.3</b>	<b>50.2</b>	<b>2301.3</b>

## 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.

Source: [www.activelivingleadership.org](http://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.

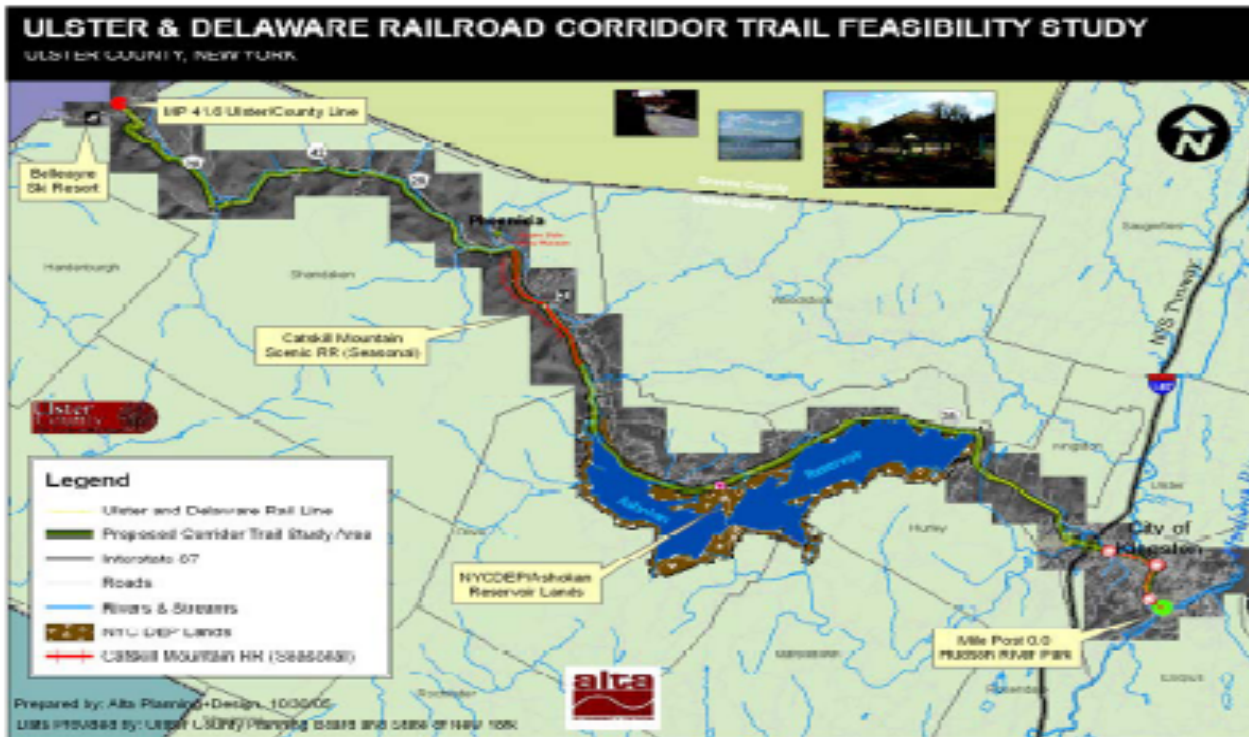
### Cost of Physical Inactivity in NYS

- 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 Ulster County

### Ulster and Delaware Railroad Corridor Rail Trail Project

This is an advantageous project because the abandoned railroad corridor stretches across the entire county. By converting it to a usable trail system, people from all around the area could access it and use it for transportation and recreation. The location of the trail is optimal due to its close proximity to the existing network of pathways that cross the county. This major route would help bolster overall usage of the trails as this affords new chances for users.



## Bicycle and Pedestrian Primer – Handbook for Local Communities

In April 2003, the Ulster County Planning Board put together this manual to inform its citizens of effective ways to implement bicycle and pedestrian friendly measures in their own communities. This document was not meant to be definitive but more advisory as it provides basic information that most of the public was unaware of. This varies from the Initiative for Healthy Infrastructure's Plan as it offers the information more descriptively and qualitatively. IHI has created its plan to be more of a systematic overview of existing conditions based more on a numbers and statistics model. Together these two documents can offer a great opportunity for the County to evaluate its bicycle and pedestrian facilities.

### The Walkkill Valley Rail Trail

Completed in 1991, The Walkkill Valley Rail Trail is a 12.2 mile converted rail trail running from the New Paltz-Rosendale town line to Gardiner-Shawangunk town line. It's easily accessible via Route 229 off the New York State Thruway. The scenic route follows the Walkkill River and offers views of the Shawangunk Mountains. The trail surface is unpaved ballast and is open year-round to all non-motorized transportation including pedestrians and bicyclists. The trail, privately operated, is part of New York State's Hudson River Valley Greenway System. Currently, links to from the town of Lloyd to the trail are being examined. A southern extension to the Village of Walden, with a TEA-21-funded grant is also being considered.



Courtesy: [www.gorailtrail.org](http://www.gorailtrail.org)

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## **The Southern Ulster Alliance**

This organization was formed in 1998 with the purpose of supporting Ulster County's environmental future. Presently the alliance is working on plans for new trails in and around the town and village of New Paltz, and the towns of Gardiner, Lloyd, Marlborough and Plattekill. In addition, the alliance is working on expanding the Hudson River Greenway in the Ulster County area.

## **The D&H Canal Trail (including the O&W Rail Trail)**

Stretching from Kingston to Ellenville in Ulster County, this trail is currently 20 miles long, but not completely connected. The longest segment, 13 miles long, runs from Hurley to High Falls. Plans for the trail include 15 additional miles and upgrading the trail's current condition.

## **Hudson River Valley Greenway Trail Program**

Created by the New York State Legislature in 1991, the Hudson Valley Greenway was established to assist *“communities and trail groups throughout the Hudson Valley establish a system of trails that links cultural and historic sites, parks, open spaces and community centers as well as provide access to the Hudson River.”* The Greenway also created The Greenway Communities Council, a state agency that *“works with local and county governments to enhance local land use planning and create a voluntary regional planning compact for the Hudson River Valley.”* The Greenway includes land in thirteen counties from Saratoga to New York and includes trails in Ulster County. In Ulster County, 28.9 miles of Greenway trails have been designated. Potential Greenway Riverside trails include: a 30 mile segment from the Green County line to the Village of Saugerties; connecting Saugerties to Kingston; and Kingston to the Orange County line. Multiple countryside corridors and connector trails are also proposed in Ulster County.

Source: <http://www.hudsongreenway.state.ny.us/>

## **Ulster County Transportation Council**

The Ulster County Transportation Council develops the local Transportation Improvement Program (TIP) for Ulster County. Funded projects and projected slated for funding, or proposed infrastructure improvements/additions can be found in the TIP: <http://www.co.ulster.ny.us/planning/tip.html>

## V. Community Infrastructure Prescriptions

The information gathered for this project can help in informing Ulster 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 Ulster 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 Ulster County would benefit from infrastructure improvements that encourage a more active lifestyle. **The following sections identify several possible policy and funding opportunities for Ulster 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 Ulster 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 Ulster 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.

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### **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 Ulster 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 Ulster 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 Ulster 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.

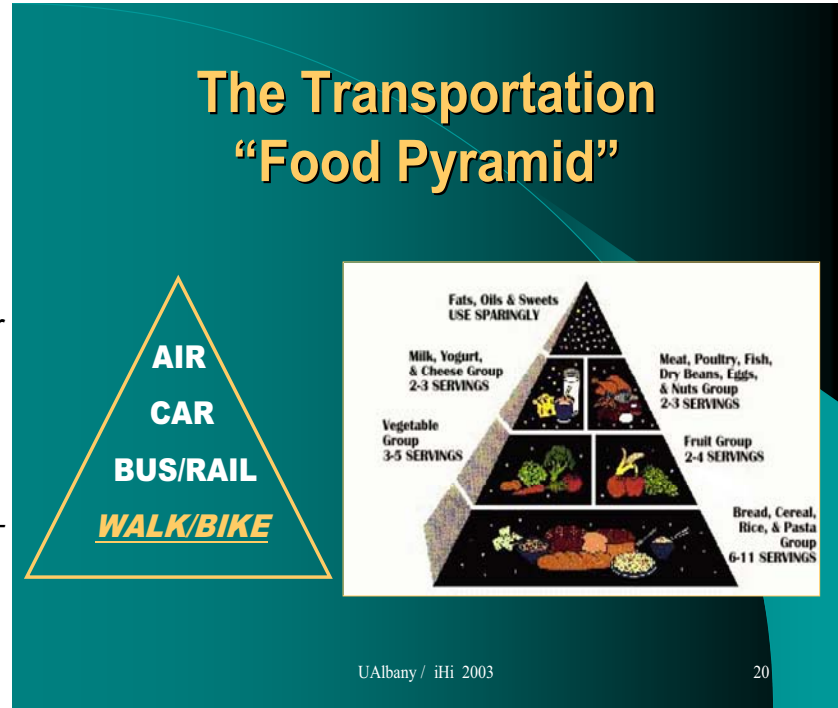
## **Do you know how much your local school district spends on student transportation?**

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](http://www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm)

Ulster 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 as the Ulster and Delaware Railroad Corridor Rail Trail Project and the Bicycle and Pedestrian Primer are all part of the solution. Bringing these initiatives together under the umbrella of combining public health and public works will create new opportunities for Ulster 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

Ulster County Health Department: <http://www.co.ulster.ny.us/resources/health.html>

Ulster County Planning Department & MPO: <http://www.co.ulster.ny.us/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](http://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.....

Fax.....

Email.....

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