

Healthy Infrastructure Plan



Tompkins County, New York

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I. Introduction

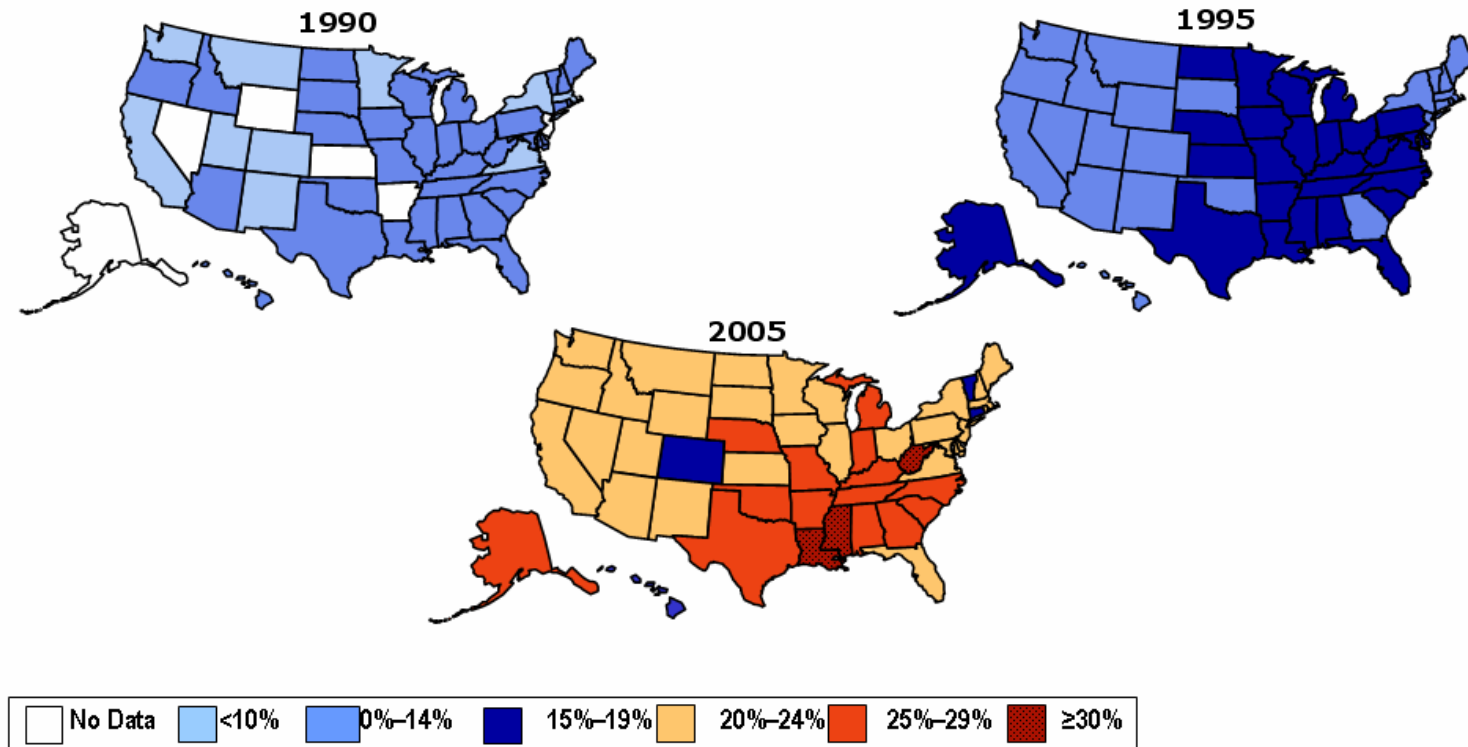
The *Initiative for Healthy Infrastructure* (iHi) project at *University at Albany* (SUNY) is designed to facilitate statewide efforts to create physical environments which fosters healthy active lifestyles. This undertaking includes a cross-disciplinary approach in addressing this issue through teaching,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

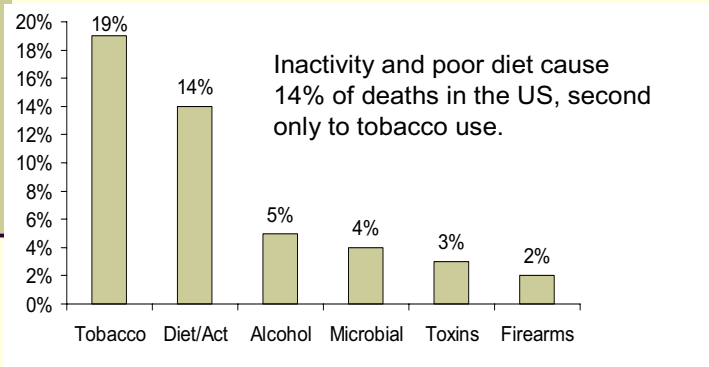
Obesity Trends* Among U.S. Adults BRFSS, 1990, 1995, 2005

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

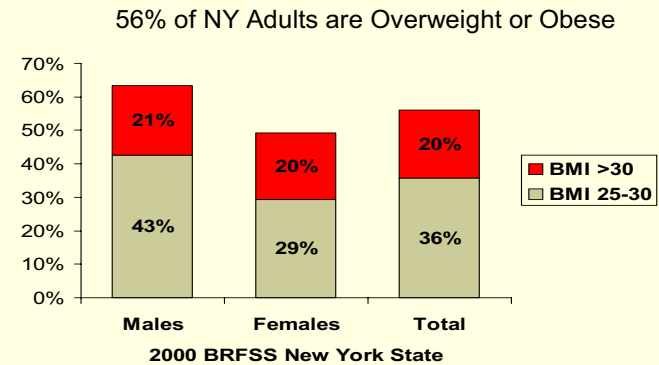


Cardiovascular disease (CVD) is the leading cause of death, disability and health care expenditures among New York State residents. In 1998, more than 70,000 New Yorkers died of cardiovascular disease, accounting for 45% of all deaths. According to data from the 2001 Behavioral Risk Factor Surveillance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

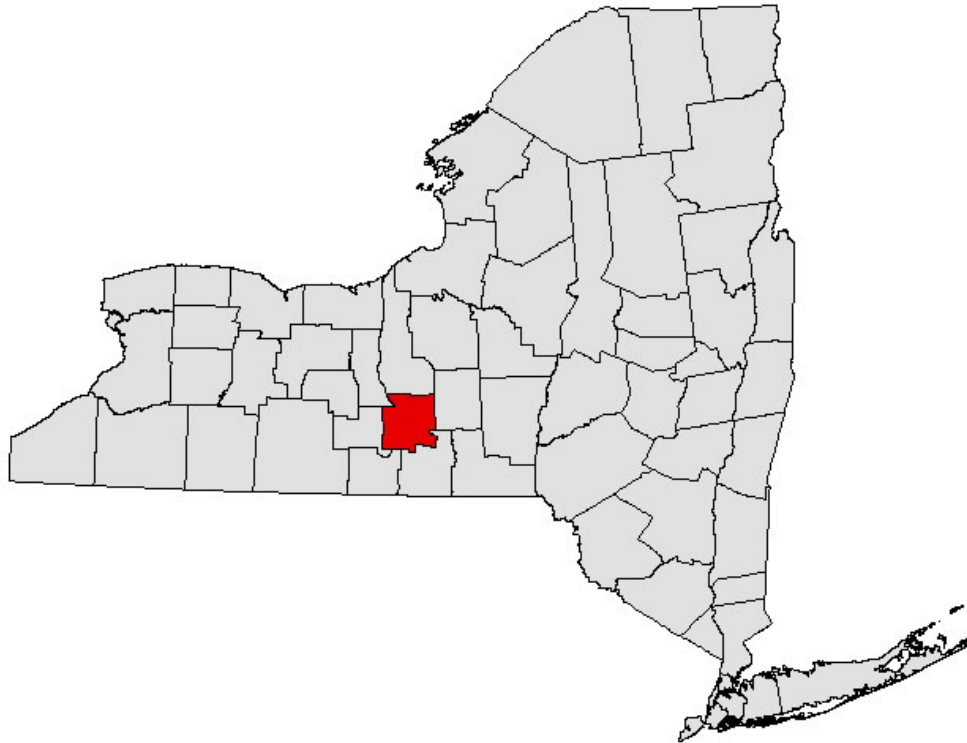


Overweight and Obesity Among NYS Adults (2001 BRFSS)



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.

Tompkins County
Prepared by iHi



Tompkins County is located midway between Albany and Buffalo in the heart of the Finger Lakes region of Upstate New York.

The population of Tompkins County is approximately 96,501. This figure includes a student population of 27,205 (28.19% of total population). The median household income is \$37,272. If the student population is excluded, the median household income is \$43,730. The county land area covers 476 square miles, with a population density of 202.7 people per square mile.

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

Source: US Census and Tompkins County Planning Department

II. Community Health Data

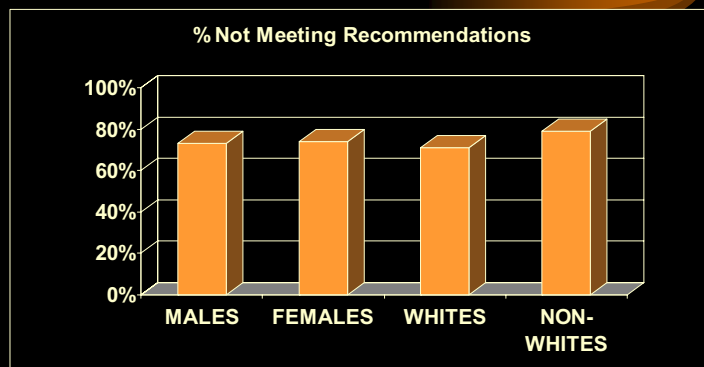
Tompkins County is fortunate to have a detailed set of data for assessing public health. The New York State Behavioral Risk Factor Surveillance System (data) provides a general overview for statistical comparisons between state, national and county data. The following sections use available local and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

NYS BRFSS

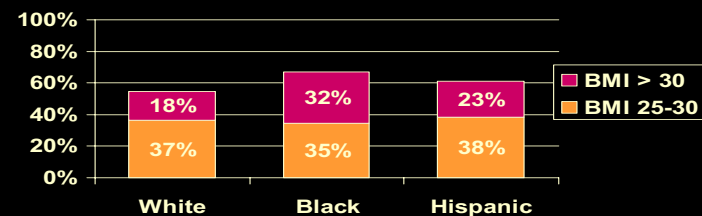
The national trends and data are reflected in the public health data provided by NYS DOH from the 2000 and 2001 BRFSS. The two charts below show levels of physical activity statewide and obesity prevalence in ethnic groups among NYS adults.

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 Tompkins 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
Tompkins	96,501	572	592.7	44	45.6	169	175.1

*Source: NYS DOH County Health Indicator Profiles

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, Tompkins 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, "Tompkins County Traffic Safety Data", dated February 2004, the Institute for Traffic Safety and Research provides the following summary of Tompkins 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 Tompkins County

TABLE 1 Accident Summary Totals		
Category Totals	All Accidents	Police Reported
Total Accidents	1,170	619†
Fatal Accidents	13	13
Non-Fatal Personal Injury Accidents	639	591
Reportable Property Damage Accidents	518	15†
Vehicles	1,844	1,026
Drivers Involved	1,674	977
Vehicle Occupants	2,306	1,430
Special Accident Series		
Pedestrian/Motor Vehicle Accidents	37	36
Bicycle/Motor Vehicle Accidents	19	18
Motorcycle Accidents	27	25
Fatalities		
Persons Killed (1)	15	15
Drivers Killed	8	8
Passengers Killed	5	5
Pedestrians Killed	2	2
Bicyclists Killed	0	0
Other	0	0
Non-Fatal Injuries		
Persons Injured (1)	863	805
Drivers Injured	583	537
Passengers Injured	226	215
Pedestrians Injured	35	34
Bicyclists Injured	18	18
Other	1	1
† 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	619	100.0
Fatal (K) Accidents	13	2.1
Personal Injury Accidents		
Serious (A)	67	10.8
Moderate (B)	141	22.8
Minor (C)	346	55.9
Unknown Severity	37	6.0
Property Damage (O) Accidents	15	2.4

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 Tompkins 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 Tompkins 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: Tompkins County, New York

Subject	1990 Census		Census 2000		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
POPULATION						
Total population	94,097	100.0	96,501	100.0	2,404	2.6
In households	82,288	87.5	84,527	87.6	2,239	2.7
In group quarters	11,809	12.5	11,974	12.4	165	1.4
HOUSEHOLD SIZE						
Total households	33,341	100.0	36,464	100.0	3,123	9.4
1-person household	9,090	27.3	11,838	32.5	2,748	30.2
2-person household	11,206	33.6	12,136	33.3	930	8.3
3-person household	5,617	16.8	5,431	14.9	-186	-3.3
4-person household	4,712	14.1	4,467	12.3	-245	-5.2
5-or-more-person household	2,716	8.1	2,592	7.1	-124	-4.6
Mean number of persons per household	2.47	(X)	2.32	(X)	-0.15	(X)
VEHICLES AVAILABLE¹						
Total households	33,341	100.0	36,464	100.0	3,123	9.4
No vehicle available	3,583	10.7	4,122	11.3	539	15.0
1 vehicle available	13,051	39.1	15,000	41.1	1,949	14.9
2 vehicles available	12,065	36.2	12,950	35.5	885	7.3
3 vehicles available	3,463	10.4	3,241	8.9	-222	-6.4
4 vehicles available	804	2.4	733	2.0	-71	-8.8
5 or more vehicles available	375	1.1	418	1.1	43	11.5
Mean vehicles per household	1.58	(X)	1.53	(X)	-0.05	(X)
WORKERS BY SEX¹						
Workers 16 years and over	45,175	100.0	47,395	100.0	2,220	4.9
Male	23,463	51.9	24,210	51.1	747	3.2
Female	21,712	48.1	23,180	48.9	1,468	6.8
MEANS OF TRANSPORTATION TO WORK						
Workers 16 years and over	45,175	100.0	47,394	100.0	2,219	4.9
Drove alone	27,067	59.9	28,339	59.8	1,272	4.7
Carpooled	5,985	13.2	5,779	12.2	-206	-3.4
Public transportation (including taxicab)	1,374	3.0	2,286	4.8	912	66.4
Bicycle or walked	8,428	18.7	8,358	17.6	-70	-0.8
Motorcycle or other means	331	0.7	207	0.4	-124	-37.5
Worked at home	1,990	4.4	2,425	5.1	435	21.9
TRAVEL TIME TO WORK						
Workers who did not work at home	43,185	100.0	44,969	100.0	1,784	4.1
Less than 5 minutes	2,529	5.9	2,084	4.6	-445	-17.6
5 to 9 minutes	7,057	16.3	7,349	16.3	292	4.1
10 to 14 minutes	9,171	21.2	9,717	21.6	546	6.0
15 to 19 minutes	9,449	21.9	9,395	20.9	-54	-0.6
20 to 29 minutes	9,252	21.4	9,691	21.6	439	4.7
30 to 44 minutes	3,792	8.8	4,298	9.6	506	13.3
45 or more minutes	1,935	4.5	2,435	5.4	500	25.8
Mean travel time to work (minutes)	16.4	(X)	17.8	(X)	1.3	(X)
TIME LEAVING HOME TO GO TO WORK						
Workers who did not work at home	43,185	100.0	44,969	100.0	1,784	4.1
5:00 a.m. to 6:59 a.m.	6,050	14.0	5,976	13.3	-74	-1.2
7:00 a.m. to 7:59 a.m.	12,590	29.2	11,960	26.6	-630	-5.0
8:00 a.m. to 8:59 a.m.	10,325	23.9	10,244	22.8	-81	-0.8
9:00 a.m. to 9:59 a.m.	3,710	8.6	4,511	10.0	801	21.6
10:00 a.m. to 11:59 a.m.	2,688	6.2	2,967	6.6	279	10.4
12:00 p.m. to 11:59 p.m.	7,177	16.6	8,304	18.5	1,127	15.7
12:00 a.m. to 4:59 a.m.	645	1.5	1,007	2.2	362	56.1

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

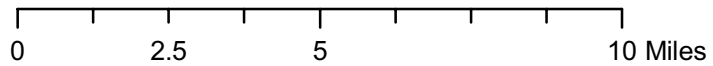
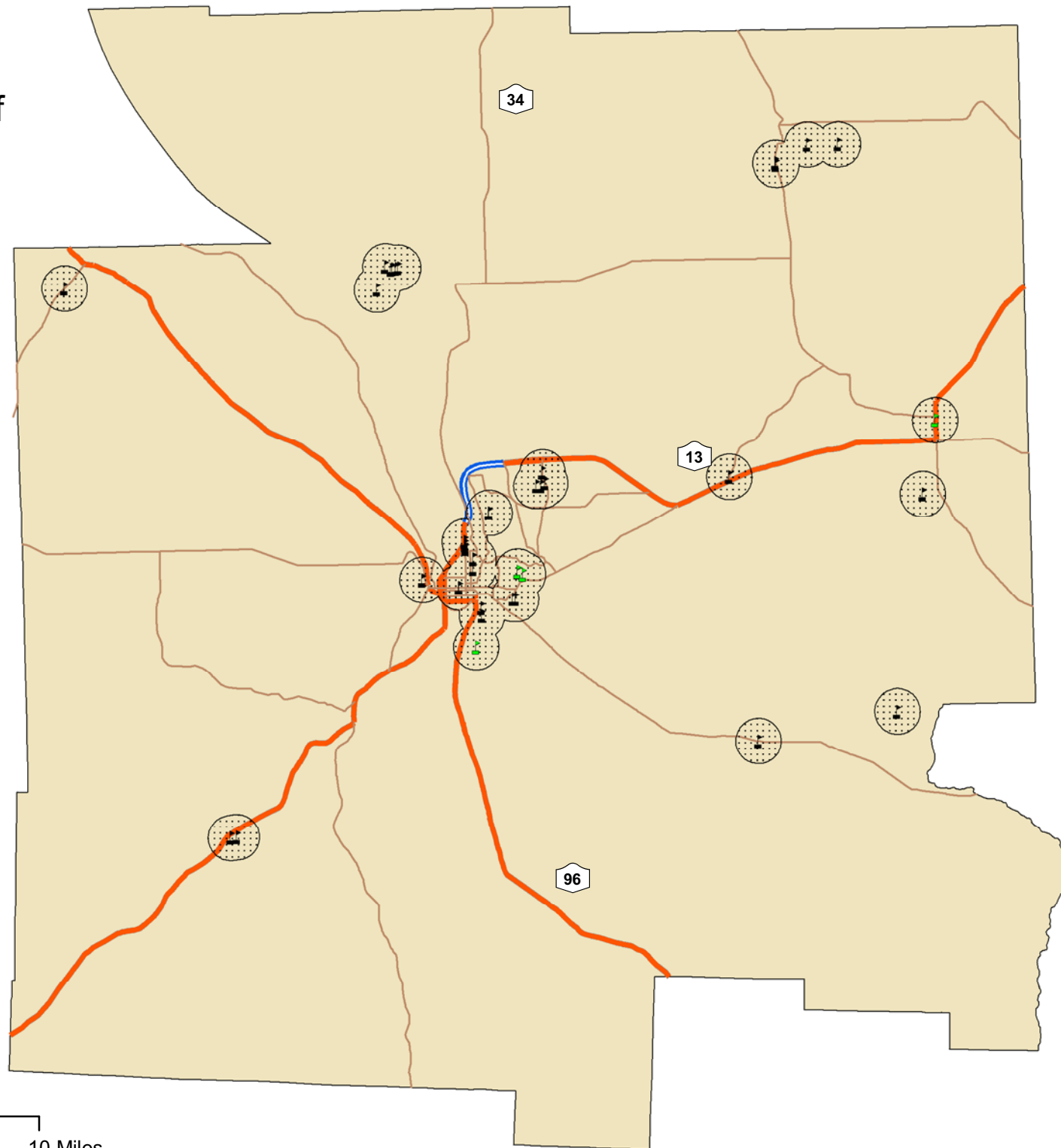
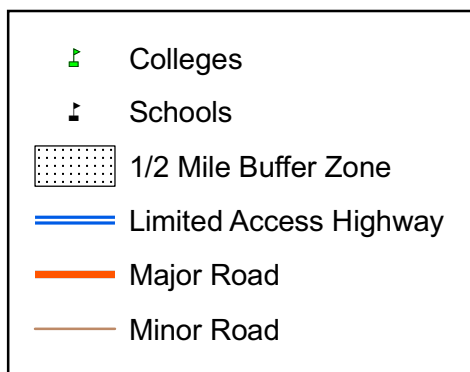
Through the use of census data and geocoded locations for specific spatial attributes, it is possible to identify key features within the county. For the purposes of this phase of IHI's project, Healthcare and Education facilities were identified as types of community destinations which can help describe 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 Tompkins 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.

Please see Education map on following page.

Areas in Tompkins County Within Walking Distance of Education Facilities

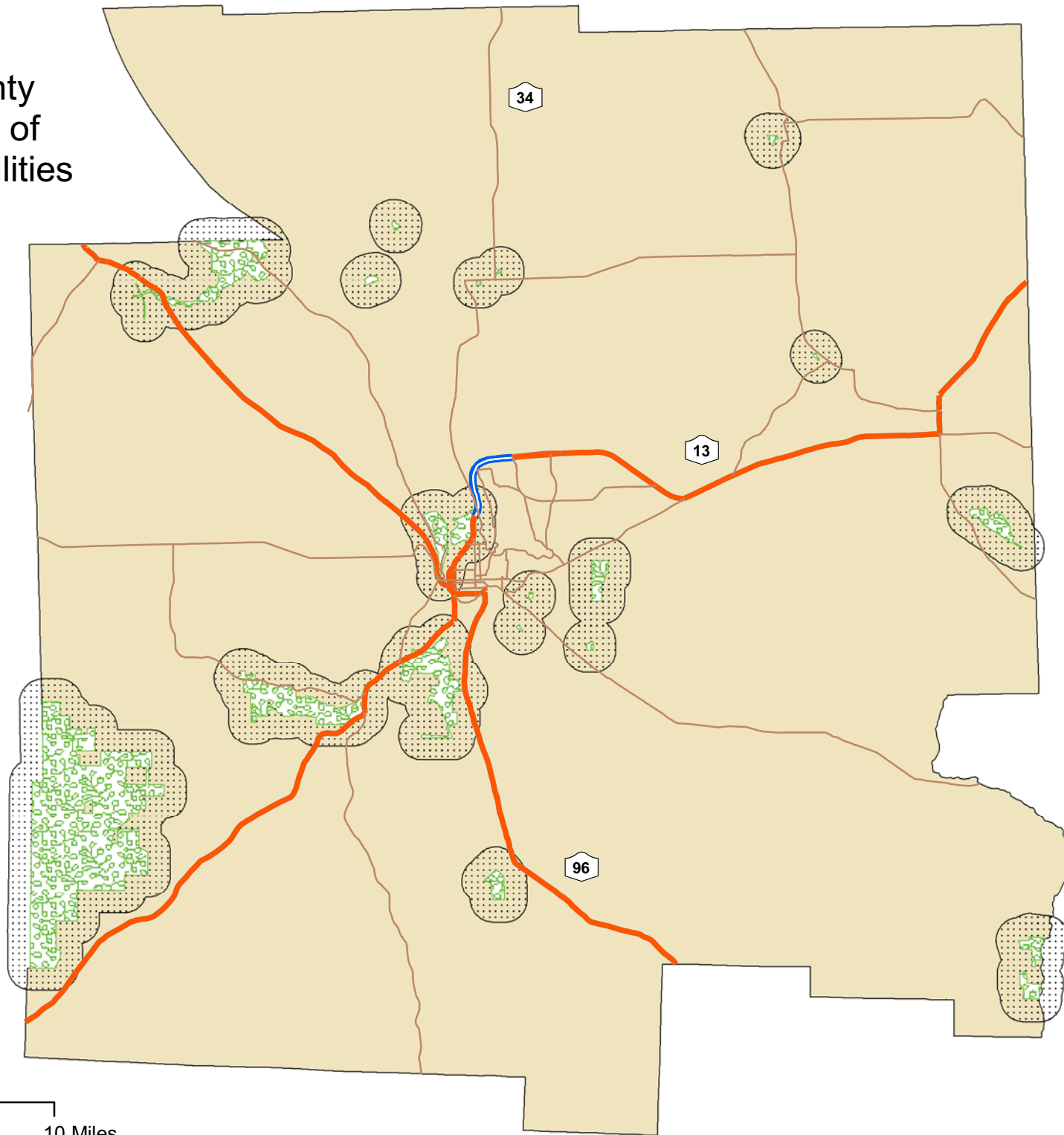
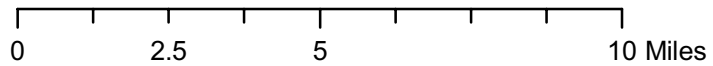
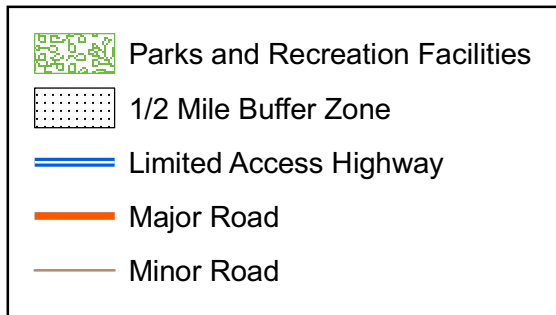


Parks

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. Tompkins County is fortunate to have a significant amount of parks and public lands focused along lakeshores, rivers, and in local communities.

Please see Parks map on following page.

Areas in Tompkins County Within Walking Distance of Parks and Recreation Facilities









Health Institutions

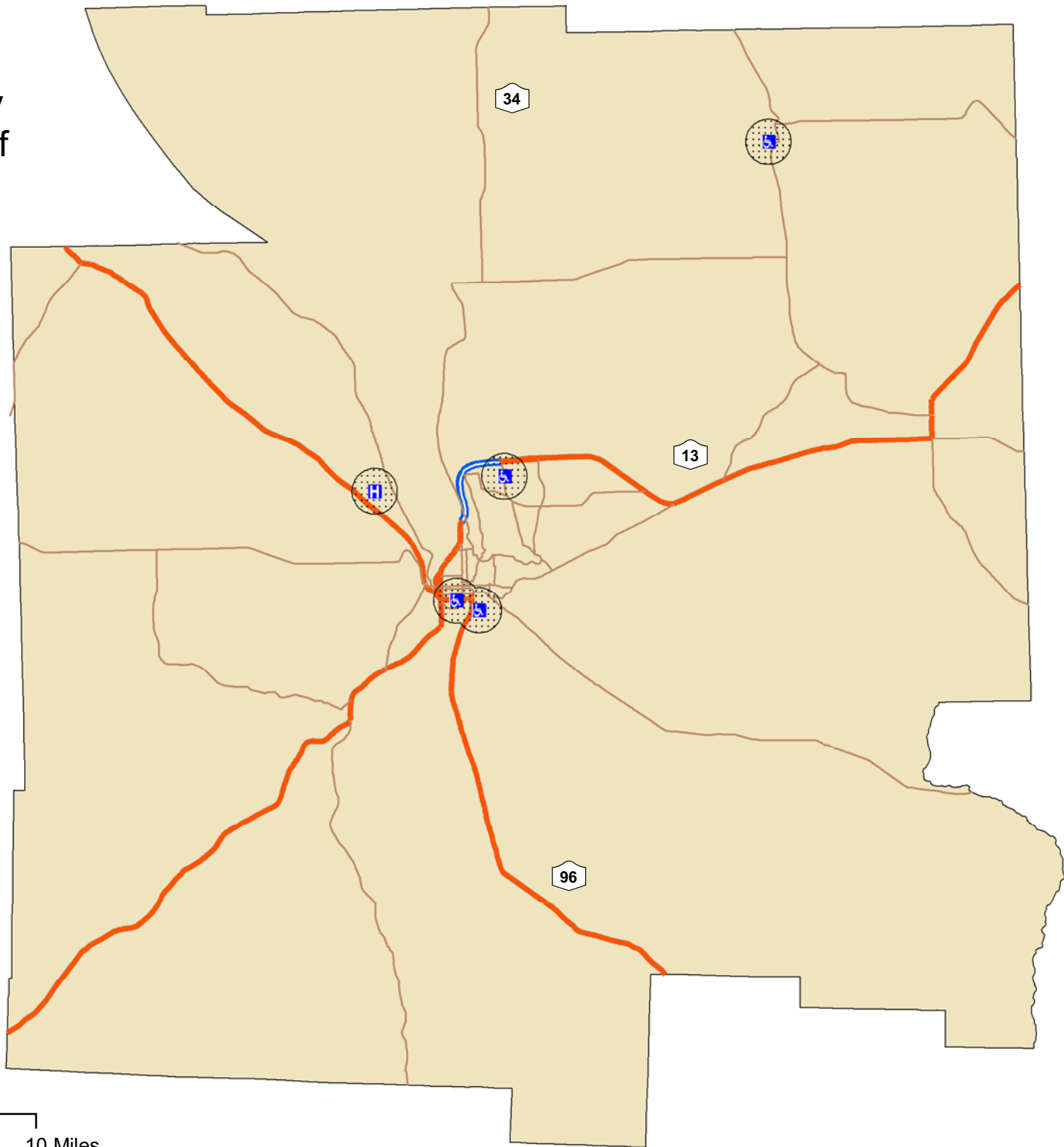
Just as schools and parks can provide walk-able community destinations, health institutions can play a similar role in being a place that encourages physical activity and fitness by being a role model as a destination. This is often not the case with large hospitals and medical centers, and there are 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.

Please see Health Institutions map on following page.

Areas in Tompkins County Within Walking Distance of Medical Facilities



-  Nursing Homes
-  Hospitals
-  1/2 Mile Buffer Zone
-  Limited Access Highway
-  Major Road
-  Minor Road



0 2.5 5 10 Miles

Transportation Infrastructure

For many people, local streets and roads define access to jobs, education, healthcare and recreation. Unfortunately however, data is not currently available on the state level 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.

In Tompkins County paved shoulder data is available because the county conducted its own survey. The survey indicated that out of the 1,350 miles of roads in the county, over 1,100 have paved shoulders. The local Metropolitan Planning Organization (MPO) in the area, Ithaca-Tomkins County Transportation Council published information on their website regarding safe areas and highway shoulders. The website is here: <http://www.co.tompkins.ny.us/itctc/>

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

TOMPKINS COUNTY REGION 3 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	Caroline	0131		2,910	7.3	71.0	29.4	100.4	7.3	0.2	107.9	
	Danby	0214		3,010	12.1	72.2	24.0	96.2	12.1	0.0	108.2	
	Dryden	0240	029P	11,200	32.6	117.3	50.4	167.7	32.6	0.0	200.4	
	Enfield	0270		3,370	11.0	44.5	24.5	68.9	11.0	0.0	79.9	
	Groton	0352		3,320	9.0	53.5	45.6	99.0	9.0	0.0	108.0	
	Ithaca	0423	029P	14,930	20.1	48.6	25.3	73.9	20.7	0.0	94.5	
	Lansing	0449		7,100	20.2	91.6	37.5	129.1	20.2	0.5	149.8	
	Newfield	0573		5,110	14.3	91.3	26.9	118.3	14.3	0.0	132.6	
	Ulysses	0844		3,190	16.0	36.0	41.9	78.0	16.0	0.0	93.9	
	SUBTOTAL				54,140	142.5	626.0	305.6	931.6	143.0	0.7	1075.3
	VILLAGES	Cayuga Heights	1085	029	3,270	0.8	21.1	0.0	21.1	0.8	0.0	21.8
		Dryden	1137		1,830	3.2	9.2	0.0	9.2	3.2	0.0	12.4
		Freeville	1186		510	1.7	3.0	0.0	3.0	1.7	0.0	4.7
Groton		1208		2,470	2.4	10.5	0.0	10.5	2.4	0.0	13.0	
Lansing		1562	029	3,420	4.9	16.8	1.7	18.5	4.9	0.0	23.4	
Trumansburg		1491		1,580	2.2	10.3	0.0	10.3	2.2	0.0	12.6	
SUBTOTAL				13,080	15.2	70.9	1.7	72.6	15.2	0.0	87.8	
CITY	Ithaca	2021	029	29,290	12.4	68.8	0.0	68.8	4.8	8.4	82.0	
SUBTOTAL				29,290	12.4	68.8	0.0	68.8	4.8	8.4	82.0	
COUNTY TOTAL		----	----	96,510	170.1	765.7	307.3	1073.0	163.0	9.1	1245.1	

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.

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).

Infrastructure Investment Analysis

To identify the costs of transportation, including public works infrastructure for roads, transit systems and school transportation, a review was conducted of the annual New York State Comptroller's Office 2000 Special Report on Municipal Affairs that provides data on county and local government spending. The Special Report identifies Health costs as:

"...total expenditures for county hospitals and nursing homes, public health administration, mental health programs, addiction control services and all other health services provided by the county.

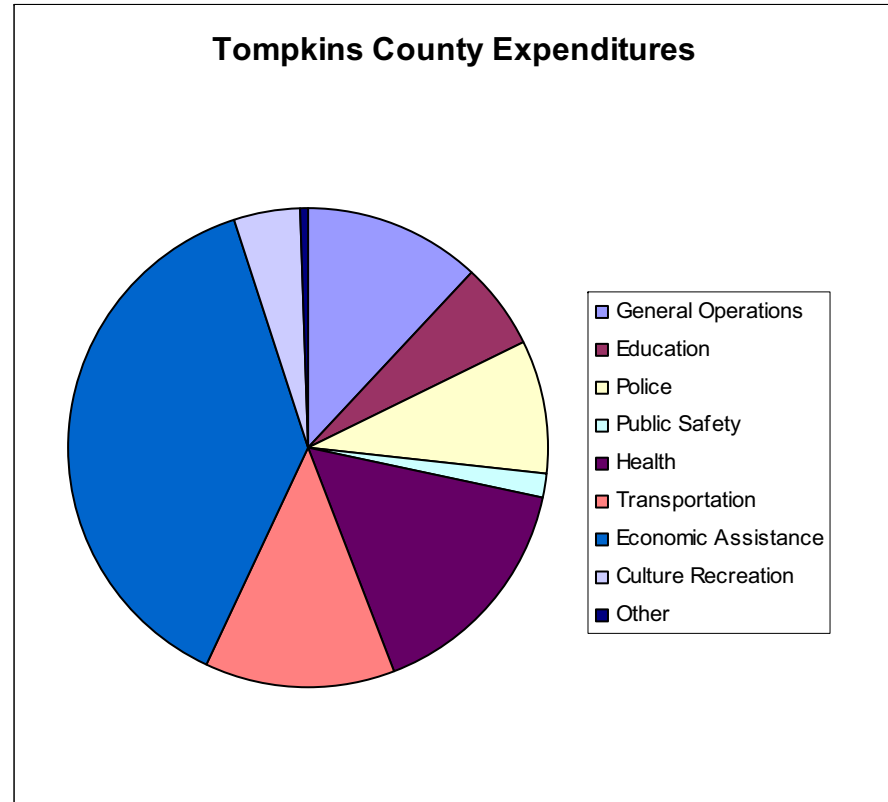
The report further identifies Transportation as:

"...expenditures for maintenance and improvement of county roads and bridges, snow removal, landscaping of roads, etc. It also includes expenditures for other transportation related activities (such as airports, bus operations and railroads) and off-street parking.

In Tompkins County, direct health care expenditures totaled more than \$14 million in the year 2000. Transportation expenditures totaled almost \$12 million for the same period. During this period, Education expenditures were over \$5 million.

New York State school districts, outside of New York City, spend over \$ 1 Billion transporting students to and from school each year.

Communities in Tompkins County spend \$509.74 to \$731.57 per student each year in transportation costs



Source: NYS Comptroller's Special Report on Local Government Finances for New York State

IV. Initiatives for Tompkins County

Town of Ithaca Town wide Transportation Plan

The overall goal of the Transportation Plan is to foster a transportation system that enhances the quality of life in the Town and is sensitive to the area's environmental amenities. It encourages the current transportation system, largely automobile focused, to expand services for public transit availability and non-motorized access. Specific goals and objectives reflect the vision and character of the Town as it develops its transportation system, as well as implement and support the Town of Ithaca's Comprehensive Plan.

Planning on the County level, from Ithaca-Tompkins County Transportation Council

Goal I: Make bicycling safer

Goal II: Promote bicycling as a viable form of transportation

Goal III: Create a local transportation system that is bicycle-friendly

Goal IV: Promote awareness of and sensitivity to bicycling issues and enhance cyclist skills

Goal V: Protect people and property while encouraging bicycling

Source: <http://www.co.tompkins.ny.us/itctc/lrp/2025lrpCh2-draft-040604.pdf>

Tompkins County has a number of other innovative and exciting initiatives related to healthy infrastructure that are currently underway. They include, but are by no means limited to:

- The Cayuga waterfront trail
- Curb you car coalition
- Sustainable Tompkins, and initiative of Ithaca College
- Biking/Walking Cornell
- City of Ithaca Bicycle and Pedestrian Advisory Council
- Ithaca Master Bicycle Plan

V. Community Infrastructure Prescriptions

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

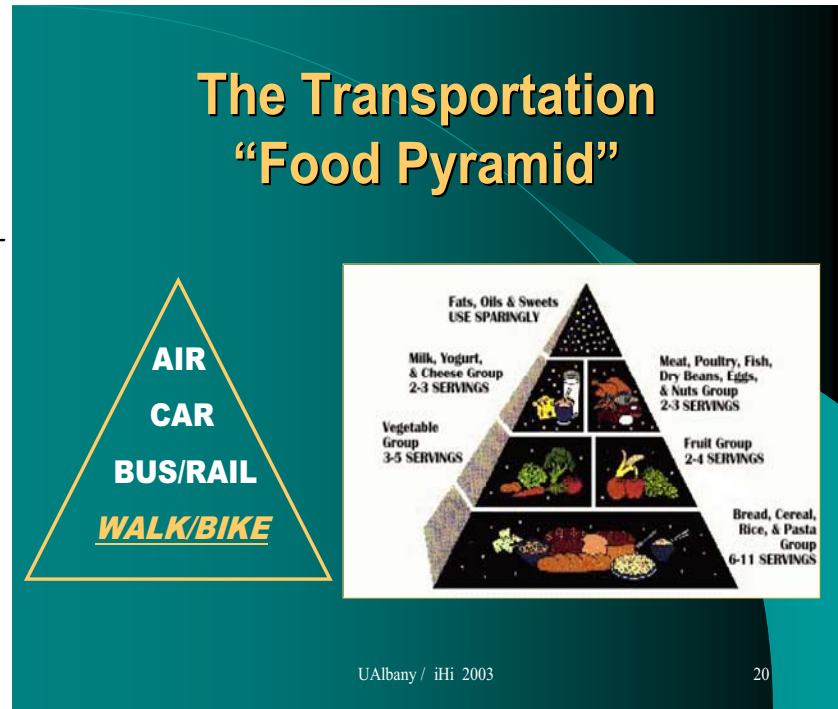
This report is part of our efforts to develop an approach for identifying connections between public health, transportation infrastructure and community decision-making. With that caveat in mind, the following discussion can provide some useful concepts both for Tompkins County and for the future development of the iHi program. One way of summarizing the data collected for this document is to connect the physical activity and transportation needs of Tompkins 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

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

Tompkins County Health Department: www.co.tompkins.ny.us/health/

Tompkins County Planning Department: www.co.tompkins.ny.us/planning/

Ithaca-Tompkins County MPO: <http://www.co.tompkins.ny.us/itctc/>

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.....

Fax.....

Email.....

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