

Healthy Infrastructure Plan



Bronx County, New York

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Updated January 2007

Funding for this project is provided by the Healthy Heart Program in the New York State Department of Health and The Research Foundation of the State University of New York grant # 1029948-1-29616. Support has been provided by the State University of New York at Albany, in cooperation with the Mosholu Preservation Foundation at Montefiori Medical Center, Bronx, N.Y.

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I. Introduction

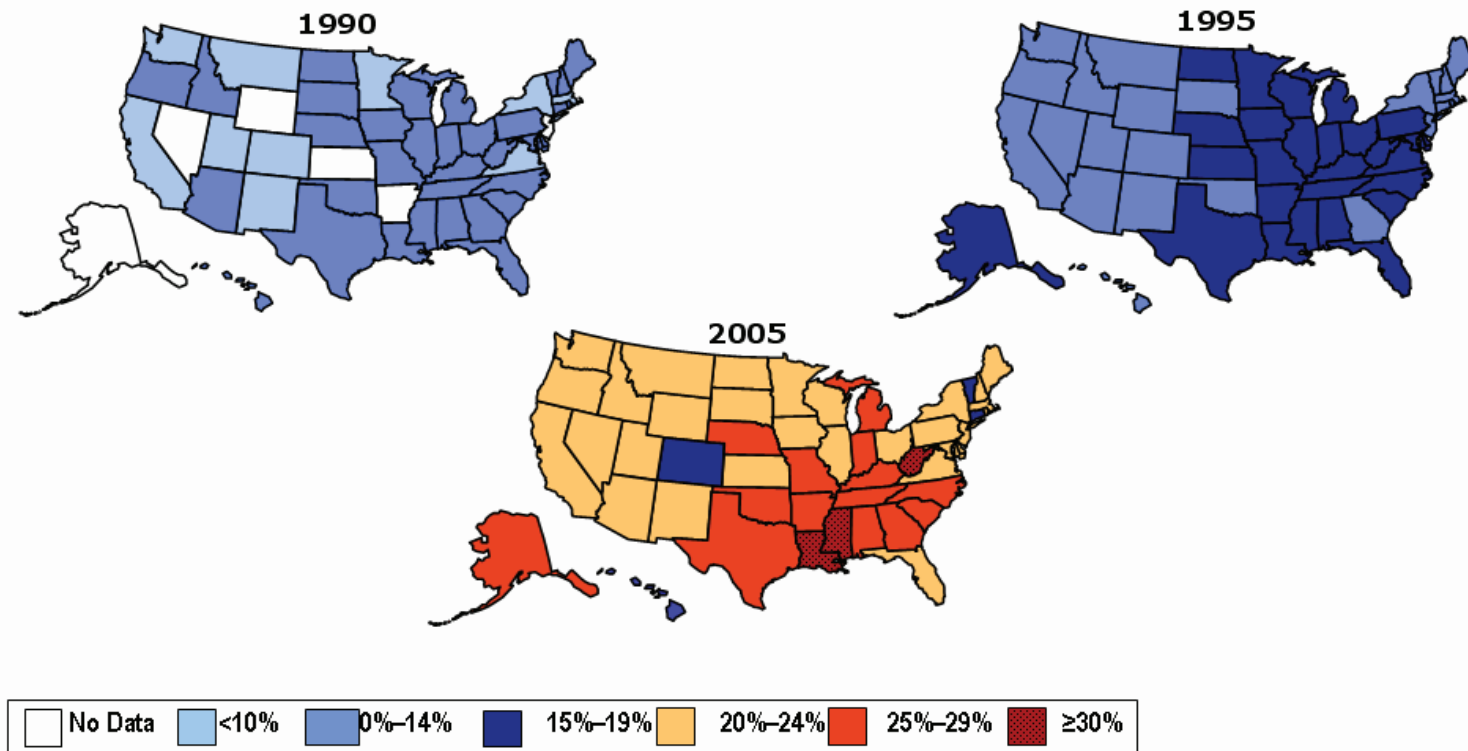
The *Initiative for Healthy Infrastructure* (iHi) project at *University at Albany* (SUNY) is designed to facilitate statewide efforts to create physical environments which fosters healthy active lifestyles. This undertaking includes a cross-disciplinary approach in addressing this issue through teaching,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

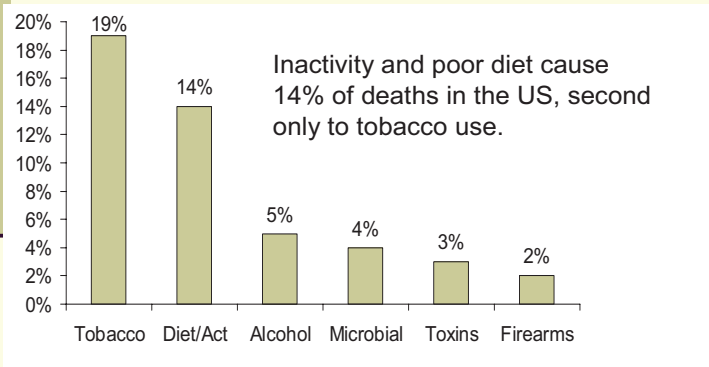
Obesity Trends* Among U.S. Adults BRFSS, 1990, 1995, 2005

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

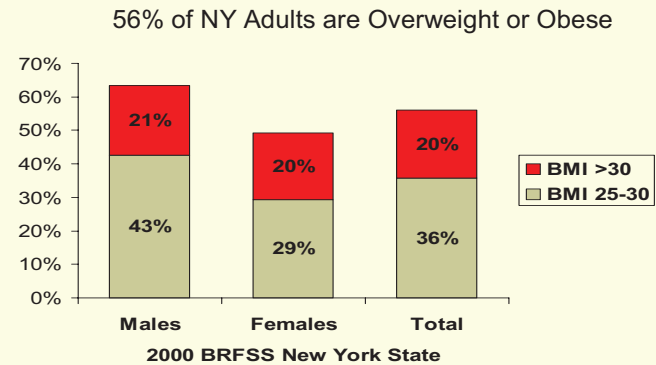


Cardiovascular disease (CVD) is the leading cause of death, disability and health care expenditures among New York State residents. In 1998, more than 70,000 New Yorkers died of cardiovascular disease, accounting for 45% of all deaths. According to data from the 2001 Behavioral Risk Factor Surveillance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

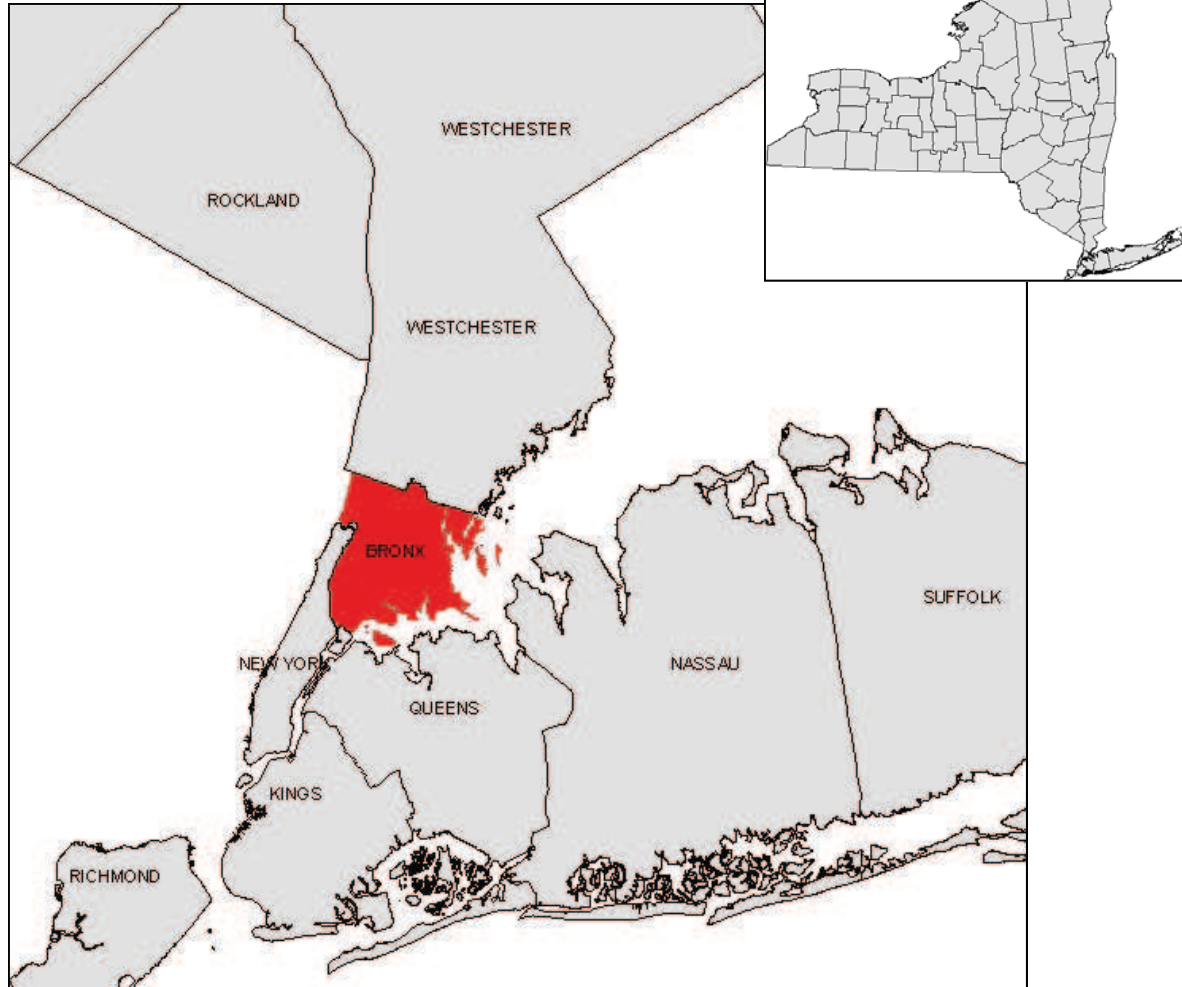


Overweight and Obesity Among NYS Adults (2001 BRFSS)



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.

Bronx County
Prepared by iHi 2007



The population of the Bronx is approximately 1.3 million people. The County is located north of New York County and south of Westchester County, and is bordered by the Hudson River and the western end of Long Island Sound. The median household income is \$27,550 (2003), with 26.8% of the population living below the poverty level. The county land area covers 42 square miles, with a population density of 31,709 people per square mile.

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

Source: US Census and Bronx County

II. Community Health Data

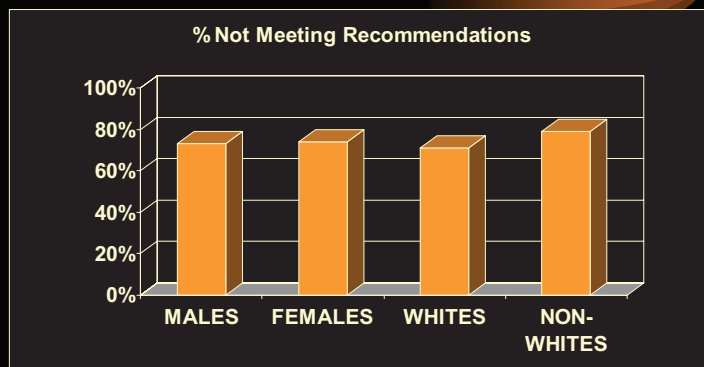
Bronx County is fortunate to have a detailed set of data for assessing public health. The New York State Behavioral Risk Factor Surveillance System (data) provides a general overview for statistical comparisons between state, national and county data. The following sections use available local and statewide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

NYS BRFSS

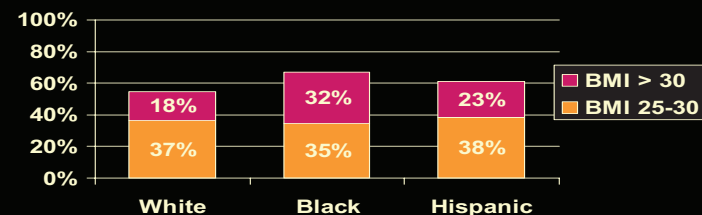
The national trends and data are reflected in the public health data provided by NYS DOH from the 2000 and 2001 BRFSS. The two charts below show levels of physical activity statewide and obesity prevalence in ethnic groups among NYS adults.

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 Bronx County

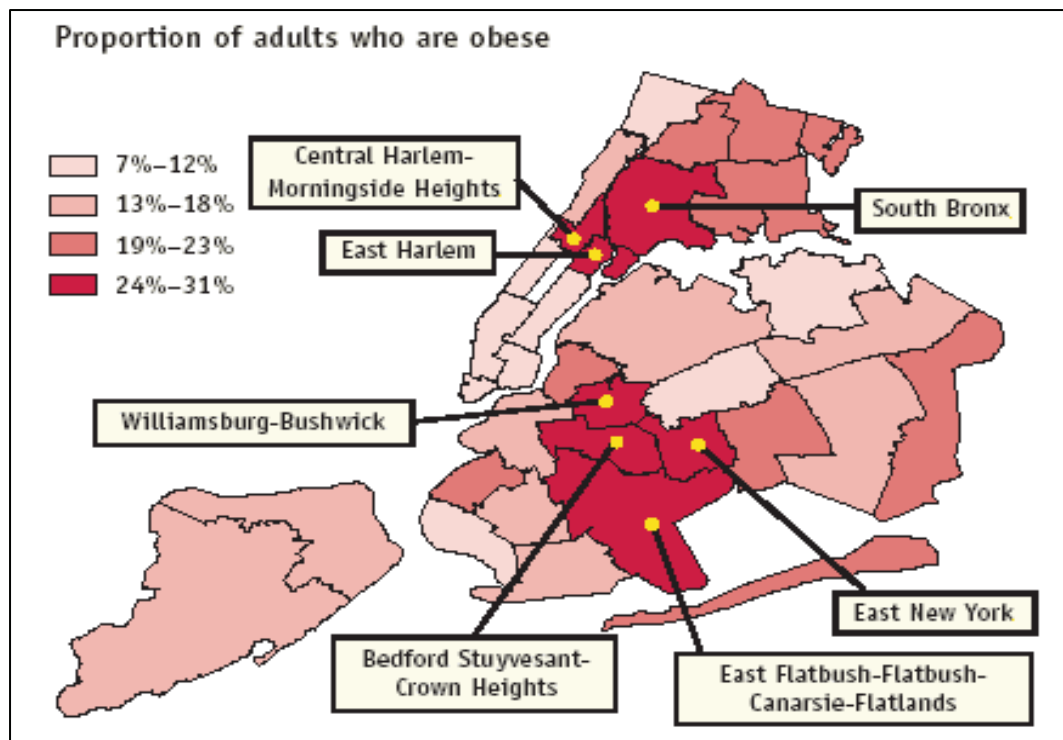
	Population (2000 data)	Total Deaths (per 100,000)	Total Deaths (rate)	Cerebrovascular Disease (#)	Cerebrovascular Disease (rate)	Diseases of the Heart (#)	Diseases of the Heart (rate)
NYS	18,976,457	157,425	829.6	7,935	41.8	57,924	305.2
Bronx	1,332,650	10,142	761.0	342	25.7	3,787	284.2

*Data above is from the New York State Department of Health. Visit <http://www.health.state.ny.us/statistics/chip/bronx.htm> for the complete Bronx County profile

NYC Department of Health and Human Hygiene

“The **2006 New York City Community Health Profiles** capture the health of 42 New York City neighborhoods. These comprehensive reports provide detailed information on significant health issues and serve as a critical resource for improving health, community by community.” Information is available at <http://www.nyc.gov/html/doh/html/data/data.shtml>.

A map from the survey is to the right.



ISSUES: Crime, Social and Cultural

In a study entitled, “The Health of the Northeast Bronx,” published under Community Health Profiles by the NYC Department of Health, 2003, 30% of adults stated that they feel their neighborhood is unsafe. In addition, 26% of the resident population (age 25 years and older) did not have an education beyond high school, and 16% of the area population was living in poverty. These factors can affect the ability for residents to have access to - and opportunity for - physical activity as part of their daily lifestyle. In a November, 12, 2003 report called “*How Healthy is our Neighborhood?*,” developed at Montefiore Medical Center, M.Estaban, G.Groning, E.Jackson, A. Mays and M.Vaca looked at physical activity, obesity and diabetes in the Fordham and Bronx Park neighborhoods. They identified issues of affordability, availability, prevalence of alcohol/drugs, fast food, parks and fitness centers in the neighborhood. A similar study at Montefiore called “*Community Mapping of Physical Activity Resources*,” was produced by S.Nanda, C.Russell, J. de la Llana, M. Ukanwa, O. Osinusi and S. Matippa to map physical activity resources near the Williamsbridge Family Health Center, with an emphasis on gyms and public parks. Both reports noted a lack of awareness of the issue, lack of time, and safety / security of outdoor sites as limiting factors in encouraging physical activity. Neither study investigated sidewalks, crossings, trails and bikeways within the neighborhoods as opportunities for routine physical activity.

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, Bronx 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, “Bronx County Traffic Safety Data”, dated February 2004, the Institute for Traffic Safety and Research provides the following summary of Bronx 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 Bronx County

TABLE 1 Accident Summary Totals		
Category Totals	All Accidents	Police Reported
Total Accidents	11,623	7,158†
Fatal Accidents	53	53
Non-Fatal Personal Injury Accidents	9,086	7,083
Reportable Property Damage Accidents	2,484	22†
Vehicles	22,281	13,263
Drivers Involved	18,676	11,634
Vehicle Occupants	28,943	19,987
Special Accident Series		
Pedestrian/Motor Vehicle Accidents	1,587	1,515
Bicycle/Motor Vehicle Accidents	337	328
Motorcycle Accidents	195	165
Fatalities		
Persons Killed (1)	56	56
Drivers Killed	16	16
Passengers Killed	7	7
Pedestrians Killed	30	30
Bicyclists Killed	3	3
Other	0	0
Non-Fatal Injuries		
Persons Injured (1)	13,511	10,794
Drivers Injured	6,863	5,037
Passengers Injured	4,664	3,872
Pedestrians Injured	1,556	1,486
Bicyclists Injured	327	321
Other	101	78
† 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	7,158	100.0
Fatal (K) Accidents	53	0.7
Personal Injury Accidents		
Serious (A)	577	8.1
Moderate (B)	782	10.9
Minor (C)	5,334	74.5
Unknown Severity	390	5.4
Property Damage (O) Accidents	22	0.3

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 Bronx 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 Bronx 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: Bronx County, New York

Subject	1990 Census		Census 2000		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
POPULATION						
Total population	1,203,789	100.0	1,332,650	100.0	128,861	10.7
In households	1,163,536	96.7	1,285,507	96.5	121,971	10.5
In group quarters	40,253	3.3	47,143	3.5	6,890	17.1
HOUSEHOLD SIZE						
Total households	423,191	100.0	463,242	100.0	40,051	9.5
1-person household	117,030	27.7	126,765	27.4	9,735	8.3
2-person household	105,414	24.9	113,242	24.4	7,828	7.4
3-person household	76,823	18.2	86,003	18.6	9,180	11.9
4-person household	59,945	14.2	66,666	14.4	6,721	11.2
5-or-more-person household	63,979	15.1	70,566	15.2	6,587	10.3
Mean number of persons per household	2.75	(X)	2.78	(X)	0.03	(X)
VEHICLES AVAILABLE¹						
Total households	423,191	100.0	463,242	100.0	40,051	9.5
No vehicle available	257,465	60.8	283,236	61.1	25,771	10.0
1 vehicle available	122,180	28.9	134,043	28.9	11,863	9.7
2 vehicles available	35,144	8.3	37,011	8.0	1,867	5.3
3 vehicles available	6,676	1.6	5,874	1.3	-802	-12.0
4 vehicles available	1,137	0.3	1,148	0.2	11	1.0
5 or more vehicles available	589	0.1	1,930	0.4	1,341	227.7
Mean vehicles per household	0.52	(X)	0.52	(X)	>0	(X)
WORKERS BY SEX¹						
Workers 16 years and over	429,777	100.0	415,075	100.0	-14,702	-3.4
Male	222,267	51.7	207,350	50.0	-14,917	-6.7
Female	207,510	48.3	207,725	50.0	215	0.1
MEANS OF TRANSPORTATION TO WORK						
Workers 16 years and over	429,777	100.0	415,075	100.0	-14,702	-3.4
Drove alone	107,020	24.9	112,159	27.0	5,139	4.8
Carpooled	40,769	9.5	38,726	9.3	-2,043	-5.0
Public transportation (including taxicab)	243,201	56.6	222,835	53.7	-20,366	-8.4
Bicycle or walked	31,084	7.2	31,063	7.5	-21	-0.1
Motorcycle or other means	2,324	0.5	2,536	0.6	212	9.1
Worked at home	5,379	1.3	7,756	1.9	2,377	44.2
TRAVEL TIME TO WORK						
Workers who did not work at home	424,398	100.0	407,319	100.0	-17,079	-4.0
Less than 5 minutes	4,884	1.2	4,560	1.1	-324	-6.6
5 to 9 minutes	16,247	3.8	14,563	3.6	-1,684	-10.4
10 to 14 minutes	30,206	7.1	25,835	6.3	-4,371	-14.5
15 to 19 minutes	37,283	8.8	33,716	8.3	-3,567	-9.6
20 to 29 minutes	49,358	11.6	49,579	12.2	221	0.4
30 to 44 minutes	94,577	22.3	89,558	22.0	-5,019	-5.3
45 or more minutes	191,843	45.2	189,508	46.5	-2,335	-1.2
Mean travel time to work (minutes)	38.9	(X)	43.0	(X)	4.1	(X)
TIME LEAVING HOME TO GO TO WORK						
Workers who did not work at home	424,398	100.0	407,319	100.0	-17,079	-4.0
5:00 a.m. to 6:59 a.m.	93,054	21.9	89,152	21.9	-3,902	-4.2
7:00 a.m. to 7:59 a.m.	139,275	32.8	130,871	32.1	-8,404	-6.0
8:00 a.m. to 8:59 a.m.	93,953	22.1	81,047	19.9	-12,906	-13.7
9:00 a.m. to 9:59 a.m.	22,525	5.3	23,806	5.8	1,281	5.7
10:00 a.m. to 11:59 a.m.	12,773	3.0	15,460	3.8	2,687	21.0
12:00 p.m. to 11:59 p.m.	54,874	12.9	55,611	13.7	737	1.3
12:00 a.m. to 4:59 a.m.	7,944	1.9	11,372	2.8	3,428	43.2

1 See the entry for this item in the Technical Notes in the root directory or state subdirectories (filename: tech_notes.txt).
 >0 Value is too near zero to display.
 (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.



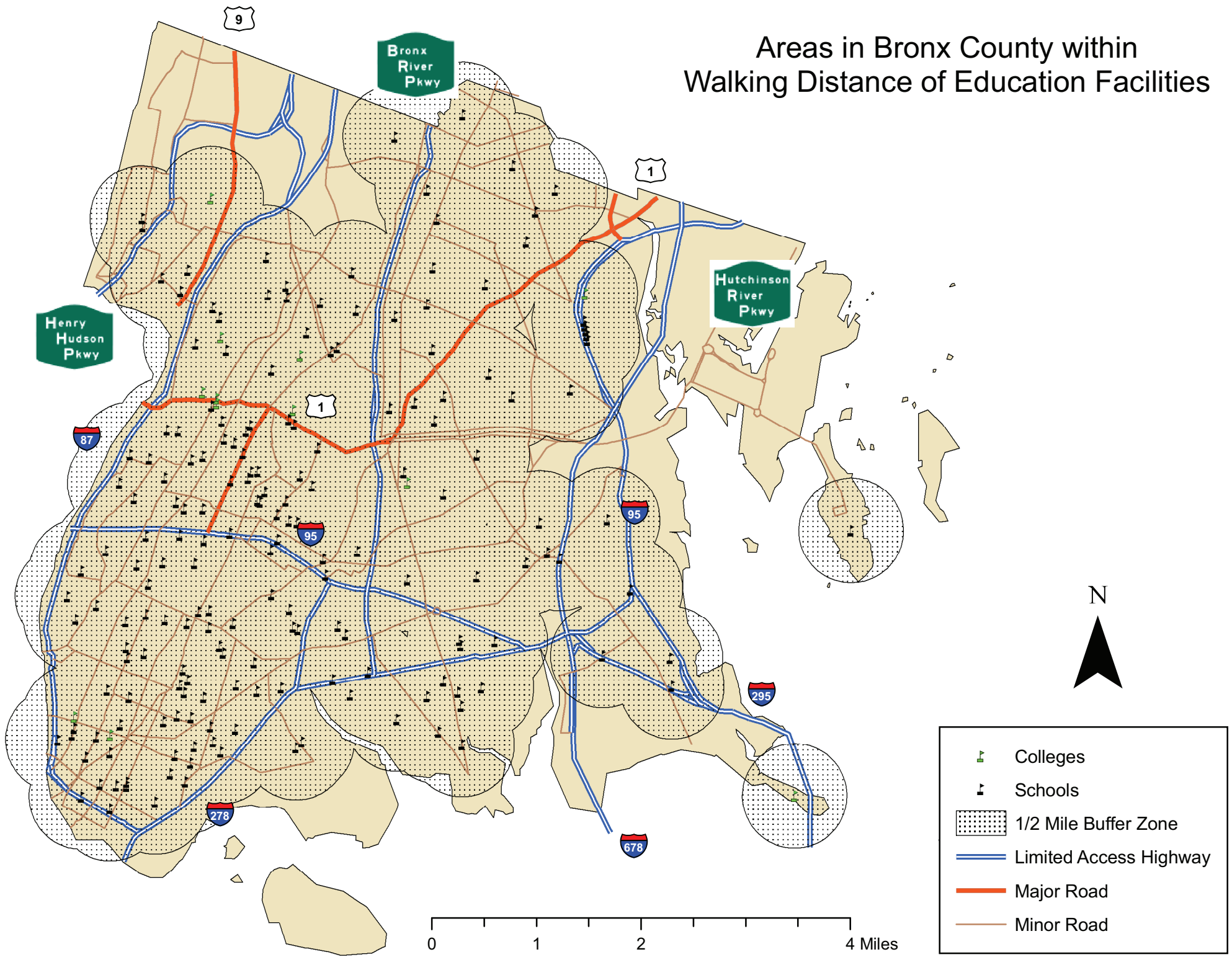
Examples of varying levels of pedestrian accessibility, to Parks, Schools and Healthcare: clockwise from top left: a) bicycle and pedestrian lane markings near Lehman College, b) Gun Hill road at Montefiore Medical Center, c) a neighborhood school zone and d) crossing Jerome Avenue at Van Cortlandt Park. Photo credits: J.Olson, iHi

Education

Access to schools is a part of the daily travel routine for Bronx 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 93 percent of the county population lives within walking distance of schools.

Please see Education map on following page

Areas in Bronx County within Walking Distance of Education Facilities

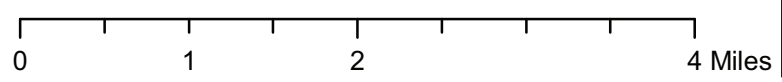
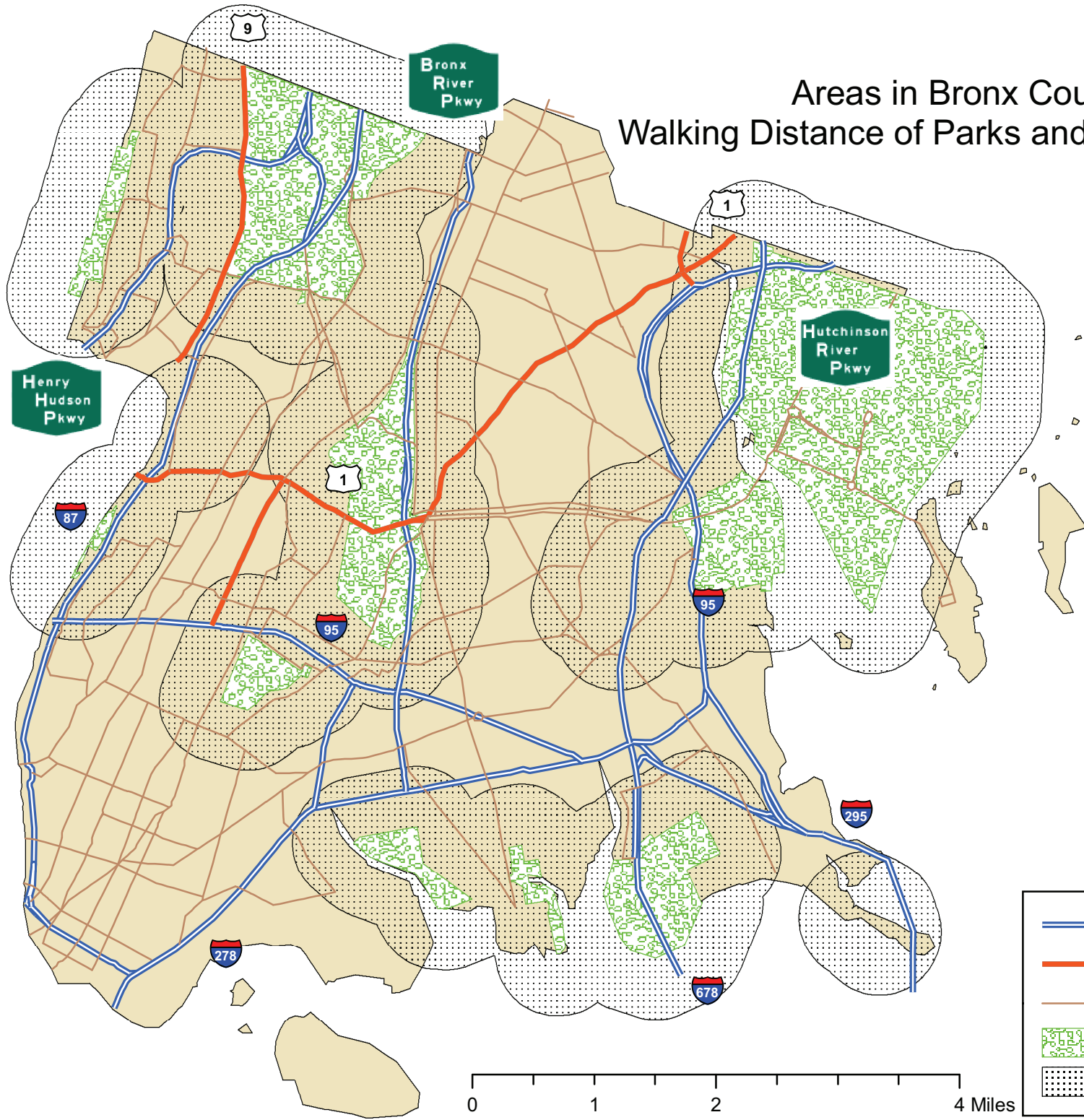


Parks

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. Bronx County is fortunate to have a significant amount of parks and public lands. Approximately 95 percent of the county population lives within walking distance of a park. It is important to note however that some of these parks may be small with limited space and facilities; a smaller percentage of the Bronx population lives within walking distance of larger parks.

Please see Parks map on following page

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



- Limited Access Highway
- Major Road
- Minor Road
- ▨ Parks and Recreation Facilities
- ▨ 1/2 Mile Buffer Zone







Health Institutions

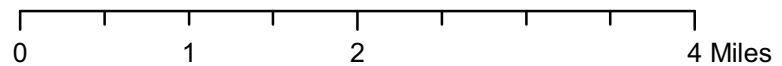
Just as schools and parks can provide walk-able community destinations, health institutions can play a similar role in being a place that encourages physical activity and fitness by being a role model as a destination. This is often not the case with large hospitals and medical centers, and there are 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 68 percent of the county population lives within walking distance of a healthcare facility.

Please see Health Institutions map on following page

Areas in Bronx County within Walking Distance of Medical Facilities



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



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 Bronx County highway system is provided on the following page.

BRONX COUNTY REGION 11 COUNTY 1

(Estimated)

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
CITY	New York	2034	043	1,332,650	41.9	734.2	0.0	734.2	31.7	22.4	788.3
COUNTY TOTAL		----	----	1,332,650	41.9	734.2	0.0	734.2	31.7	22.4	788.3

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).

IV. Initiatives for Bronx County

The Bronx has a number of major initiatives underway which will provide significant opportunities for active lifestyles, recreation and physical fitness. Since these efforts were not all necessarily created for a public health purpose, they are often not presented in this context. However, taken as a whole, it is possible to envision the Bronx as a place where residents, visitors and employees have unique opportunities to enjoy a healthy infrastructure in the future.

New York City Greenways: In the early 1990's, when the federal transportation legislation known as ISTEA (the Intermodal Surface Transportation Efficiency Act) was passed, Congress provided significant new resources for bicycle and pedestrian facilities. In 1993, New York City adopted its first official Greenways plan, a visionary document that called for a 350 mile interconnected system of multi-use paths throughout all five boroughs. It is important to note that the first phases of this system were developed using federal ISTEA Enhancement and CMAQ (Congestion Mitigation and Air Quality) Funds. Current phases are being built with funding from a variety of sources, including TEA-21 (the successor legislation to ISTEA), the Transportation Equity Act for the 21st Century, which is scheduled for reauthorization this year.

'In his State of the City address, Mayor Bloomberg announced that the city would complete a longstanding plan for a recreational path circling Manhattan. "*The success of the Hudson River Park demonstrates the need to make our entire waterfront accessible to walkers and cyclists,*" he said...The mayor put his promise for a waterfront greenway in the category of "*our livelihood, jobs, and development.*" This suggests that he will take a broader approach to economic development, and that he understands that investing in parks and recreation is a key factor in making the city a great place to live and do business in the 21st century. His focus on greenways is also pragmatic, because federal funding is available for 80 percent of greenway construction through the TEA-21 legislation that promotes alternate transportation...'

Source: "*The New Parks Chief: Greenways Are Good,*" by Anne Schwartz, Gotham Gazette.com February, 2002

This renewed focus will hopefully extend to completion of the Greenway System in the Bronx and other boroughs. According to the January, 28, 2003 edition of Waterwire, the newsletter of the Metropolitan Waterfront Alliance,

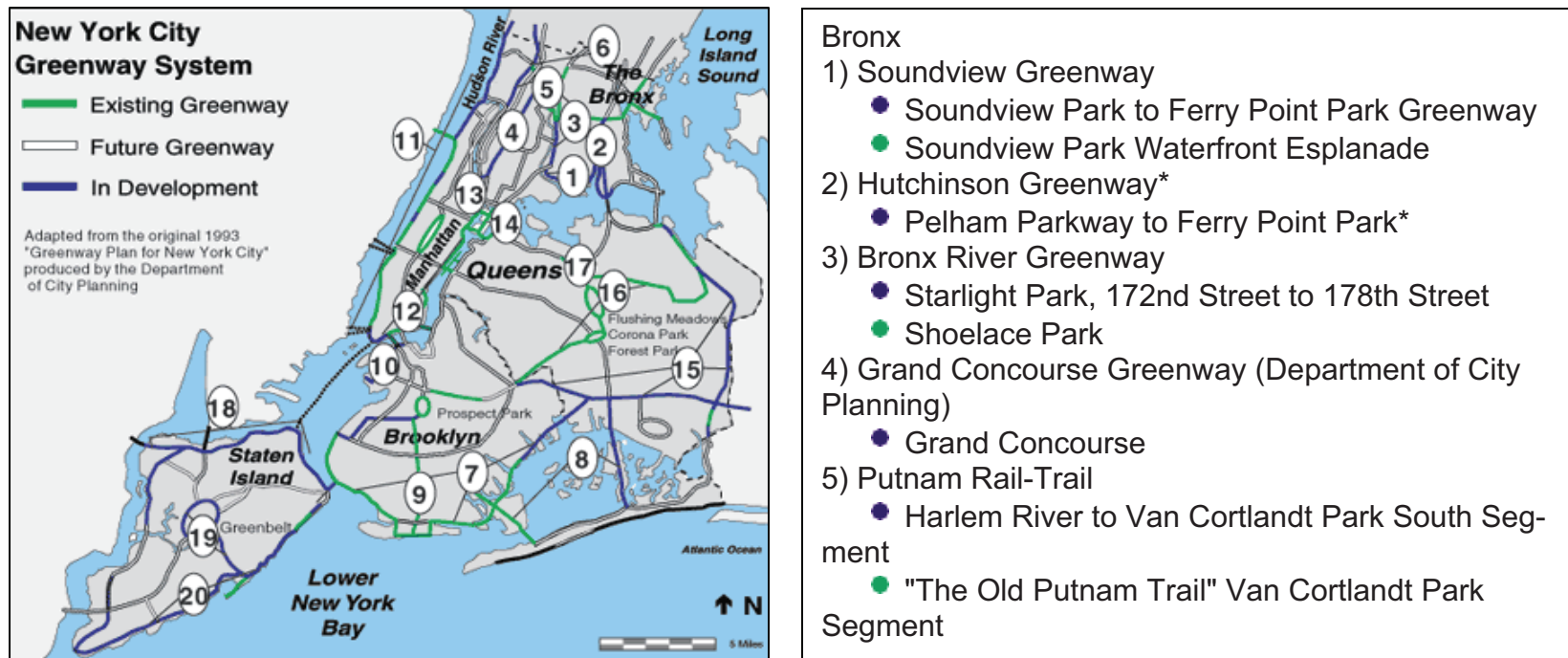
"In the Bronx, Sustainable South Bronx and [The Point CDC](#) have been awarded funding from [Empire State Development Corporation](#) to study the feasibility of creating a greenway in Hunts Point and Port Morris along the East River. In addition to open space concerns a greenway in the South Bronx would mitigate air quality and congestion concerns for neighborhoods that have dealt with inequitable environmental justice situations for too long. Majora Carter, Executive Director of Sustainable South Bronx, notes that the community "*should expect this and more.*"

For the latest Greenway System Information: http://www.nycgovparks.org/sub_things_to_do/facilities/af_bike_maps.html

Bronx Greenways

The Greenway System in the Bronx was initially proposed in The Bronx Greenway Plan released by the Borough President's office in August, 1993. The plan stated, "...Today a park which acts only as a "destination" is not enough. In a dense urban environment such as New York, we also need park-like areas which encourage travel, and which link our assets. The Bronx Greenway intends to do just that: create green bicycle / pedestrian paths which tie landmarks, parks, institutions and even communities into a more cohesive whole."

The 1993 Bronx Plan has been included in the overall New York City greenways system, and the map below illustrates the status of major greenway projects, with Bronx greenways as noted below:



Source: http://www.nycgovparks.org/sub_things_to_do/facilities/af_bike_maps.html#bronxrivergw

Bronx River Greenway

The Bronx River Greenway is considered a centerpiece of the regional greenway system. While the Bronx has a significant amount of park land, the majority of these parks are located in the north Bronx. The Greenways Plan seeks to equalize this distribution, and the 11.4 mile Bronx River corridor will create a new north-spine for increased mobility and physical activity across the center of the Bronx from north to south. The project is supported by the Bronx River Alliance which, “*serves as a coordinated voice for the river and works in harmonious partnership to protect, improve and restore the Bronx River corridor and Greenway so that they can be healthy ecological, recreational and educational and economic resources for the communities through which the river flows.*” (www.bronxriver.org). Essential to the project will be ensuring increased access to the trail from cross roads and adjacent neighborhoods – a difficult challenge at many locations where railroad lines, roadways and other barriers to access exist. A map of the central section of the Greenway is provided below, along with an image highlighting the diverse recreational opportunities the Greenway provides to Bronx residents and visitors.



Sources:

(l) The annual Bronx River flotilla event, <http://www.bronxriver.org/index.cfm>

(r) The Bronx River Greenway will provide access to major destinations including the Bronx Zoo and NY Botanical Gardens http://www.lehman.cuny.edu/geography/images2/french_charley.pdf

Bicycle Network Development

Under the ISTE A CMAQ program, New York City initiated a city-wide bicycle infrastructure program called the Bicycle Network Development project. The project proposes to provide bicycle lanes and routes on an interconnected network of city streets. This system will also link with the Greenway System, and will make it possible for residents and visitors to safely reach destinations throughout the City. The Bronx section of the Bicycle Network is available at: <http://www.nyc.gov/html/dcp/html/bike/cwbn.shtml>

Pedestrians and Traffic Calming

New York City has a sidewalk system that is estimated at more than 10,000 miles. Unlike many communities, the majority of the streets in the Bronx have sidewalks – the greater challenges to walking are street crossings and conflicts with motor vehicles. Traffic Calming is a current term for engineering techniques which slow motor vehicle speeds and provide balanced street designs for motorists, pedestrians and bicyclists. There are a number of important traffic calming initiatives in the Bronx, including a traffic calming Demonstration Project on the Grand Concourse, and the Safe Routes to Schools initiative discussed in a following section. These projects provide the potential to make every neighborhood a place where the street is part of the public realm for all citizens, and a place where people feel safe walking or bicycling. It should also be noted that both the Bronx River Parkway and the Grand Concourse have hosted ‘car free Sundays’ – a significant opportunity for large numbers of people to spend a day walking, bicycling, skating and enjoying these facilities.

Take a Walk, New York

New York City is a great place to walk, and there are a number of guided tours and programs aimed at encouraging people to see ‘the sidewalks of New York.’ One recent program of note is “Take a Walk, New York,” which is a project of the Neighborhood Open Space Coalition and is intended to encourage walking for health and fitness. The program is described as follows:

“Take a Walk New, York!, a program of free, guided urban adventure walks taking place on weekends in all five boroughs is about to begin its third year. The program is a wonderful way for New Yorkers to walk for health while exploring their city. Take a Walk, New York! is designed and implemented by the Neighborhood Open Space Coalition, and is a component of the New York City Department of Health & Mental Hygiene’s Listen to Your Heart Campaign. The Take a Walk, New York! program is open to everyone.”

Source: <http://www.walkny.org/Step1.html>

Note: The ‘Take a Walk’ website is linked to President’s Council on Physical Fitness, . (<http://www.presidentschallenge.org>) providing an opportunity for individuals to connect their personal health to a national program.

RWJ / Sustainable South Bronx

In 2001, the Robert Wood Johnson Foundation (RWJ) announced a call for proposals for a new program called Active Living By Design. Of the more than 900 projects that applied for the program, only 25 were selected nationally, one of which is in the Bronx. This is evidence of the importance of providing healthy solutions in the Bronx as a model for other communities. The project is described as follows:

Project Description:

"The central focus of this project is the South Bronx Greenway, an urban greenway planned with a 4-mile waterfront esplanade, adjacent pocket parks and street changes that include traffic calming and 'parks outside the park' - green street-scaping along routes to the greenway. The project will encompass educational and incentive programs for physical activity based in local schools; using the expertise and reach of trained pediatric healthcare providers to promote physical activity; targeted outreach to major employers promoting the physical activity benefits of the greenway; an immense and visionary effort by a coalition of groups to decommission the underutilized Sheridan Expressway in an effort to free up 28 acres for alternative community use; a pedestrian bridge to a large island park with impressive sports facilities; and a community plan to reroute truck traffic to improve pedestrian safety in order to promote walking as well as addressing key air quality issues."

Visit: <http://www.activelivingbydesign.org/> and <http://www.ssbx.org/> for more information.

New York Metropolitan Transportation Council (NYMTC)

The local MPO in Bronx County produces a long range transportation plan. This organization also develops the local Transportation Improvement Program (TIP) for Bronx County. Funded projects and projected slated for funding, or proposed infrastructure improvements/additions can be found in the TIP: <http://www.nymtc.org/> (click on the site map)

V. Community Infrastructure Prescriptions

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

‘Street Doctor’ Residency Program

Healthcare institutions, such as Montefiore Medical Center, are among the largest employers in the Bronx. Montefiore has community outreach centers located throughout the Bronx, and training for residents at these centers presents an opportunity to encourage healthcare professionals to work towards encouraging active lifestyles. The fields of social medicine, social justice and public works infrastructure could be engaged to create a program of ‘street doctors’ – interdisciplinary teams who could diagnose streets and neighborhoods for barriers to active living.

Source: Unpublished reports by Montefiore Medical Residents, provided by staff

Bronx Arterial Needs MIS

One of the largest public works proposals in the Bronx is the Arterial Needs Major Investment Study (MIS), a long term plan for the major highways in the Bronx. The public involvement process of the Study included addressing the concerns that many arterial roads are barriers to walking and bicycling. For example, the Study identified bike lanes on fifteen potential streets which run perpendicular to the Cross Bronx Expressway. This is a good example of integrating healthy infrastructure solutions within existing public works projects.

Source: *Bronx Arterial Needs Major Investment Study: Potential Alternatives and Alternative Packages*, Draft Report for Steering Committee and Joint Working Groups, March 2002, Urbitran Associates.

Encouragement and Promotion Programs

Safe Routes to Schools, Take a Walk New York, Sustainable South Bronx and other programs offer significant potential to improve public health through increased physical activity. While the existing programs are good pilot projects, they are not being implemented at a scale and scope that can reach the entire Bronx community. In addition to the fiscal issues, there are potential cultural barriers to implementation that require extensive outreach, social capital and community involvement.

Walking Access Program – The Denver Model

The Trust for Public Land published a 2003 report entitled “*The Excellent City Park System, What Makes it Great and How to Get There,*” by Peter Harnik.

One of the ‘excellent practices’ in the report is the Denver Parks and Recreation program to ensure that 90% of Denver residents are within a six block walk of a park. This was accomplished using a G.I.S. technique similar to the radius analysis conducted by iHi for this document – with the additional step that Denver followed up with a detailed inventory of all barriers to walking access within that radius. An infrastructure program was then provided to ensure that sidewalks, safe crossings and other facilities were provided within the perimeter of each park or recreation area. In the future, Denver is working to tighten the radius down to four blocks, or about one-third of a mile.

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 Bronx County. Please see the iHi NY Safe Routes to School document on our website here: <http://www.albany.edu/~ihi/2briefing.pdf>.

NYC DOT Safe Routes to School Information: <http://www.nyc.gov/html/dot/html/safety/saferoutes.html>

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 Bronx County can be found here: <http://www.completestreets.org/index.html>.

Local Sidewalk Program / Winter Maintenance

The City has a commitment to its residents and visitors to provide safe and accessible pedestrian transportation networks and therefore regularly inspects sidewalks. According to City code, the owner of adjacent property is responsible for maintaining (including snow and ice removal) and repairing sidewalks unless a tree's roots or a utility company doing construction causes the sidewalk defect. If repairs are not made, the City's Sidewalk and Inspection Management Division fixes sidewalks at the adjacent property owner's expense. In 1994 the City also passed a law to control the placing of news stands on sidewalks to mitigate sidewalk obstruction via multiple news racks at certain locations. In addition, the City is currently updating curb ramps to comply with ADA regulations. Also, the City is installing "talking" signals to assist visually impaired pedestrians. The City sweeps and cleans crosswalks of ice and snow during winter weather. When a snow emergency is declared, special regulations take effect. Source: <http://www.nyc.gov/html/dot/> to the greatest extent possible.

VI. Funding Options

Bicycle and Pedestrian Improvements can be made possible in Bronx 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 Bronx 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 Bronx 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/>

The Transportation "Food Pyramid"

AIR
CAR
BUS/RAIL
WALK/BIKE

Fats, Oils & Sweets
USE SPARINGLY

Milk, Yogurt, & Cheese Group
2-3 SERVINGS

Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3 SERVINGS

Vegetable Group
3-5 SERVINGS

Fruit Group
2-4 SERVINGS

Bread, Cereal, Rice, & Pasta Group
6-11 SERVINGS

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Additional Important Links

New York City Health Department: <http://www.nyc.gov/html/doh/html/home/home.shtml>

New York City DOT: <http://www.nyc.gov/html/dot/home.html>

New York City Department of City Planning: <http://www.nyc.gov/html/dcp/>

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.....

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Phone.....

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