

Rural Community Health in Connecticut: Challenges and Opportunities

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**Prepared for the
Connecticut State Office of Rural Health**

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**Connecticut
State Office
of Rural Health**

Health care branching
out to rural communities

Rural Community Health in Connecticut: Challenges and Opportunities

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I. Introduction

The Connecticut State Office of Rural Health (CT-ORH formerly CT-SORH), commissioned research and data collection to (1) identify barriers to accessing healthcare services in rural Connecticut, (2) determine healthcare services available to Connecticut's rural residents and (3) support community efforts across rural Connecticut to improve the health status of residents. This report tells the "story" of rural health in Connecticut and provides data and tools that local healthcare providers, administrative bodies and coalitions can use to address health issues plaguing Connecticut. CT-ORH retained the firm of Holt, Wexler & Farnam, LLP (HWF) to assist in collecting and analyzing extensive data in support of this project and preparing this report.

a. The Connecticut Office of Rural Health

The Connecticut Office of Rural Health (<http://www.ruralhealthct.org>) was established in 1994 as the rural health planning body under the Connecticut Department of Public Health (CT DPH). In 1999 CT-ORH became an independent office operating under the auspices of the Northwest Connecticut Community College (NCCC) and assumed its current name. Though the Office was established with the support of the CT DPH, the impetus for the creation of the CT-ORH was the 1991 matching grant program launched by the Department of Health and Human Services. Currently, Offices of Rural Health exist in all 50 states across the United States and work closely with state departments of public health.¹ The CT-ORH receives its funding from the Department of Health and Human Services, Health Resources & Services Administration through the Office of Rural Health Policy.

CT-ORH currently operates out of Winsted, Connecticut, on the campus of Northwestern Connecticut Community College. The office is staffed by Director, Barbara Berger, Projects' Coordinator, Mary Winar and continuously works closely with several CT DPH officers and directors as well as with the CT-ORH Advisory Board.

CT-ORH pursues its mission to "work together to promote the health of persons living in rural Connecticut through education, communication and partnerships, by focusing on the enhancement, access and promotion of quality healthcare for rural Connecticut"² through three overall directions identified in its Strategic Plan (2001) with the assistance of its Advisory Board:

- To serve as a clearinghouse for information on rural health. CT-ORH identifies information available, provides resource to groups working in the rural health area to tell the story of rural Connecticut, and identifies key issues affecting rural areas. This work supports the Office's efforts to foster collaboration at the community and regional levels.
- To assist in the recruitment and retention of health care providers. In this work, CT-ORH works closely with the Connecticut Primary Care Association, and the Area Health Education Centers (AHEC).

¹ <<http://ruralhealth.hrsa.gov/funding/50sorh.htm>>

² CT- Office of Rural Health www.ruralhealthct.org

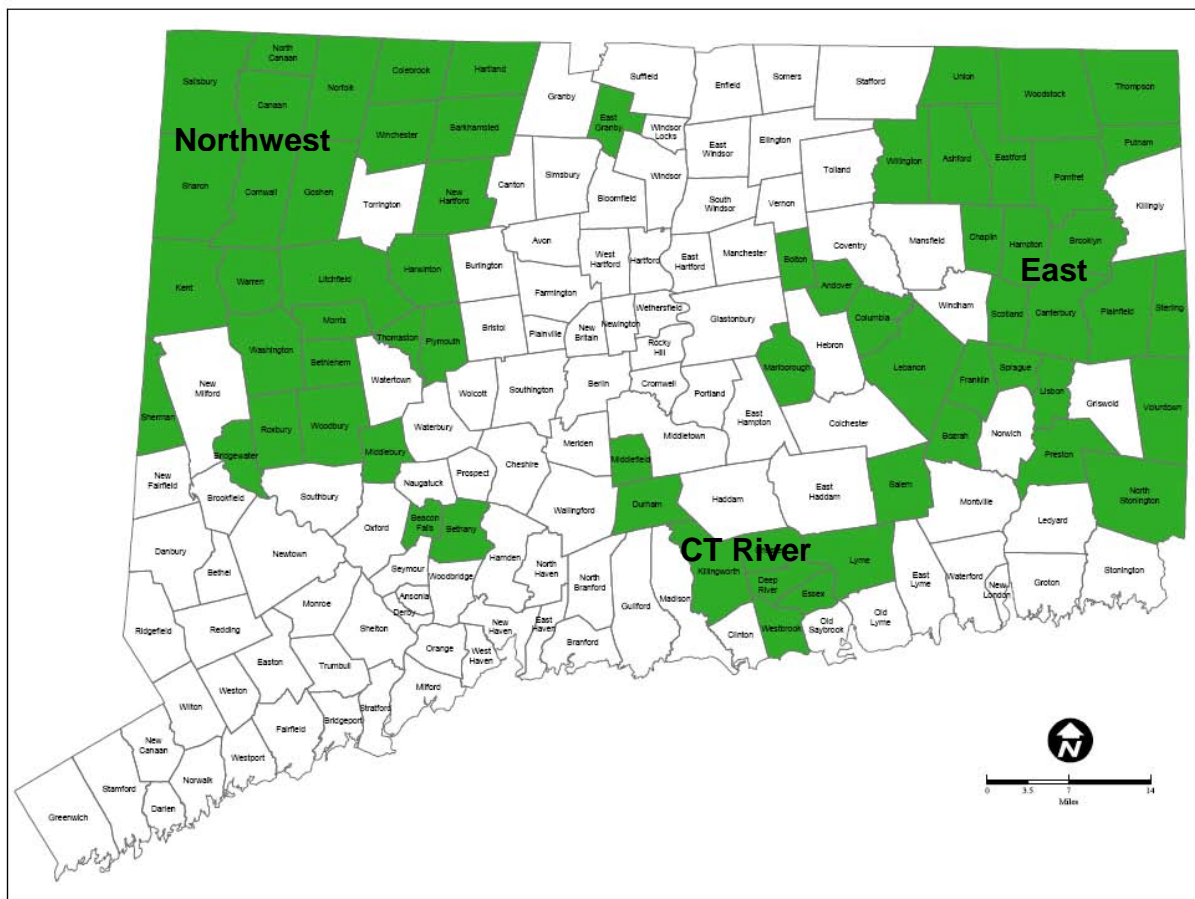
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- To foster collaborative efforts to improve health services and care in rural Connecticut. CT-ORH convenes other groups and stakeholders interested in rural health issues to plan and implement initiatives. The Office facilitates groups of town officials and rural legislators convening on specific health issues affecting their districts. Examples of recent initiatives include developing a federally qualified health clinic in the Winsted area, partnering with Generations to integrate mental health services into primary care settings, and working with towns on strategies to address paramedic needs.

b. Definition of Rural Connecticut

CT-ORH's definition of rural, adopted by the Advisory Board June 2004, uses the 2000 U.S. Census data and OMB designations. All towns in a designated Micropolitan Statistical Area with a population of less than 15,000 and those towns in Metropolitan Statistical Areas with a population of less than 7,000 are designated rural for the purposes of the CT Office of Rural Health.³ This results in 65 rural towns (Figure 1.1, list in Appendix D).

Figure 1.1 Rural Towns of Connecticut



³ CT-Office of Rural Health www.ruralhealthct.org/towns

As the demographics, healthcare services, and health status of rural residents have been examined, rural Connecticut has been divided into three zones based on location to best examine the variances across rural areas. The conclusions regarding rural Connecticut have been drawn based upon data collected and summarized for these three zones identified as the Northwest Region, the East Region, and the Connecticut River Valley (List in Appendix D, Maps 1-3 in Appendix E).

c. Methodology

HWF has assembled extensive health and related demographic data from numerous sources for this study, with the intent to make it available to all rural health stakeholders. HWF compiled as much data at the town level as possible; however, some indicators were only available at the county or state level. All indicators for which data is available at the town level are summarized by rural vs. non-rural areas and by the three zones previously identified. The complete town level datasets are available online through the CT Office of Rural Health website at www.ruralhealthct.org/data. The data collection process involved:

- **Reviewing previous reports and needs assessments related to rural health in Connecticut.**
- **Collecting extensive indicator data from state, federal and local sources** (see Appendix C for full list) that are analyzed here and offered in their complete form on-line through the CT-ORH web site.
- **Implementing a healthcare provider survey during April and May 2006.** The survey was distributed by mail to 125 healthcare providers located within Connecticut's rural towns. The purpose of the survey was to determine what barriers to healthcare services people living in rural areas face, as well what healthcare services are deficient in rural areas.
- **Interviewing, individual healthcare providers** over a two month timeframe to better understand what significant barriers face rural residents from the perspectives of healthcare providers.

d. Organization of the Report

This report presents a summary and analysis of the data collected between March and June, 2006.

- Section II presents demographics of rural Connecticut
- Section III reviews the health status of rural Connecticut
- Section IV analyses the challenges and opportunities facing rural Connecticut based on research
- Section V presents a set of recommendations for consideration by the Connecticut Office of Rural Health
- The Appendices include a bibliography, persons interviewed, rural towns and zones, maps and the FTA Proposed definition of a Locally-Coordinated Public Transit-Human Services Transportation Plan

II. Demographics of Rural Connecticut

The population of rural Connecticut towns was 312,407 in 2004 (8.9% of the State's population), and has been increasing at a rate faster than the rest of the state (Table 2.1). Data here and in many other tables and charts are broken down by the three analysis areas used for the study (see Appendix D, Maps 1-3 in Appendix E for list of towns by area). Data has shown that the population grew faster in the East, presumably associated with the development of the nearby casinos, the available of more affordable land than adjacent areas, and improved access routes to Boston, Providence, and Hartford.

Table 2.1 Population by Rural Status and Sub-Areas

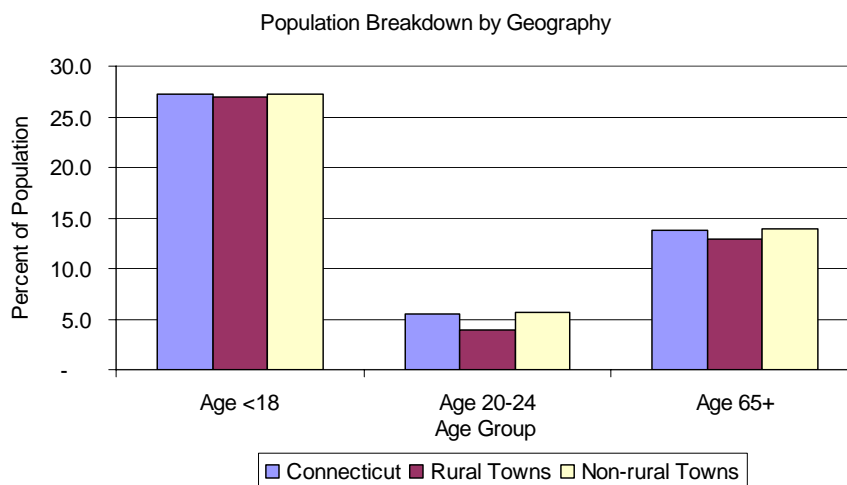
Area	Population, 2000	Population, 2004	% Change
East	135,005	142,162	5.3%
Northwest	122,403	128,254	4.8%
CT River	40,014	41,991	4.9%
Rural Towns	297,422	312,407	5.0%
State	3,405,565	3,503,604	2.9%

Source: US Census, 2000 SF-1 and Population Estimates 2004

Age

- The age breakdown of the population in rural areas is similar to that of the rest of the state (Figure 2.1)

Figure 2.1



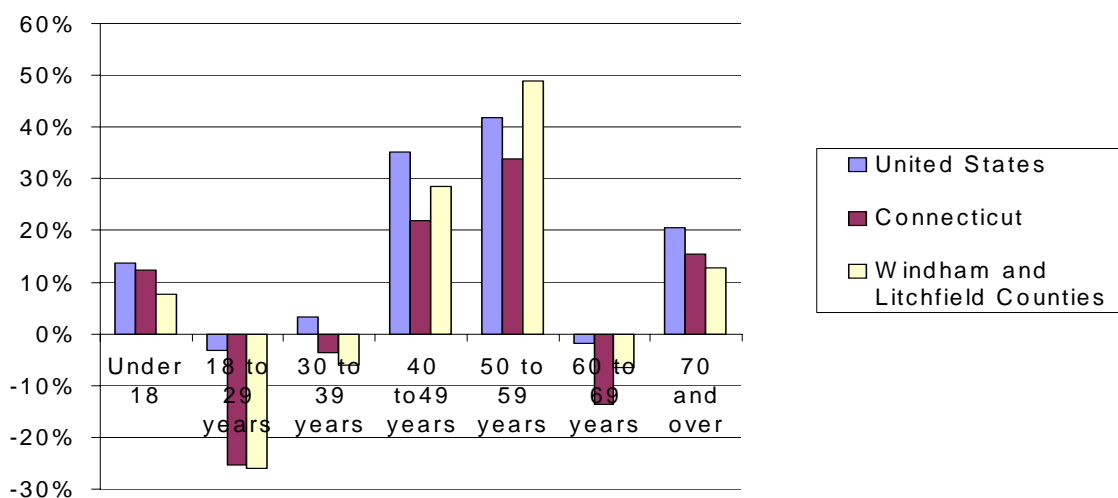
Source: US Census, 2000

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- Connecticut has lost population in the 18-39 age range between 1990 and 2000. This trend is exacerbated in the rural areas of Connecticut (Figure 2.2)

Figure 2.2

Percent Change in Population by Age Group, 1990-2000

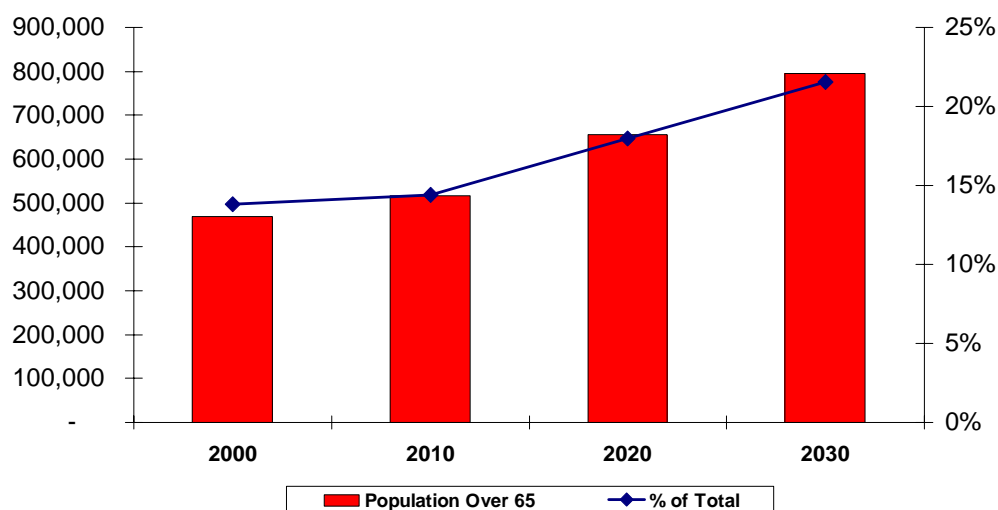


Source: US Census, 2000

- Connecticut's population is projected to age dramatically over the next two decades (Figure 2.3) which has profound implications for the health system.

Figure 2.3

Connecticut Population Over 65, Total and % US Census Projections



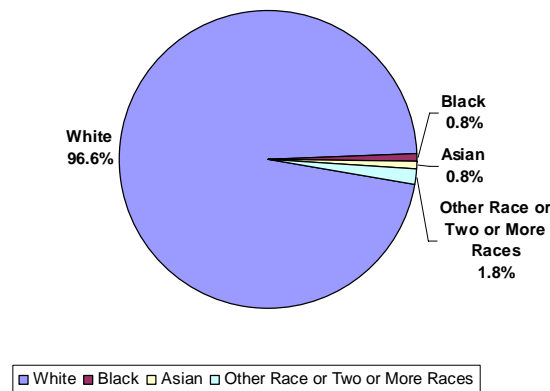
Source: US Census, 2000

Race / Ethnicity

- There are very few minorities in rural areas (Figure 2.4 and 2.5). However, the African-American and Hispanic birth rates have been higher than White birth rates for the last few years. Given the persistent disparities in health outcomes by race and ethnicity in the state and nation (e.g. in birth outcomes and diabetes), this lower level of diversity in rural areas explains in part the higher health status of rural residents.
- There were 2,356 African Americans in rural areas in 2000 (0.8%) and 2,257 people of Asian descent (0.8%) (although more Asian have since been recruited to work in the casinos in the Northeast).

Figure 2.4

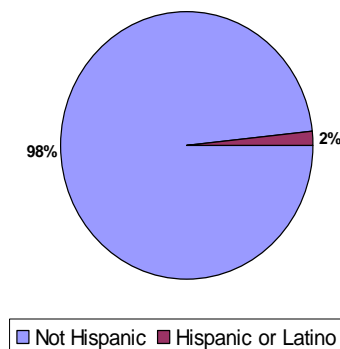
Racial Breakdown of Rural Connecticut



Source: US Census, 2000

Figure 2.5

Rural Area Population by Hispanic Ethnicity



Source: US Census, 2000

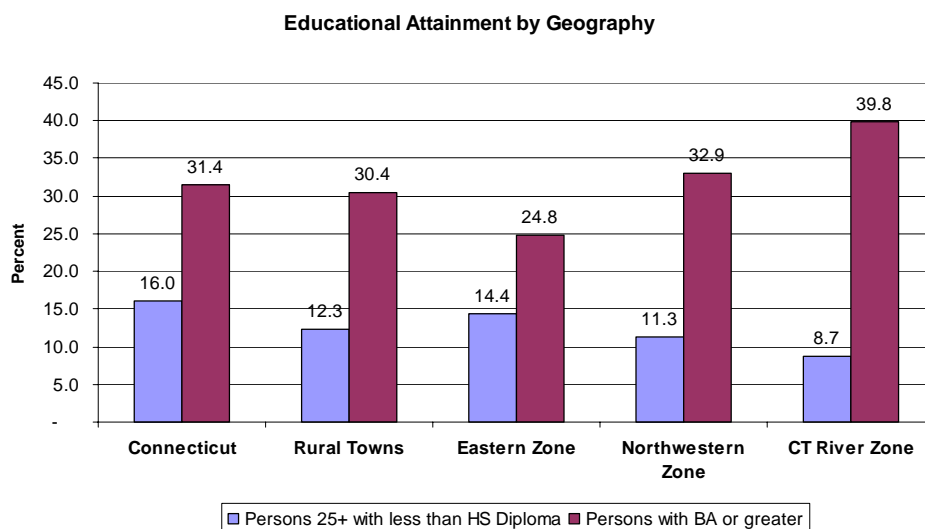
Immigration

- Providers cite increasing numbers of undocumented workers accessing services, many of whom are not counted in the Census. Therefore, the immigrant population is likely understated in official statistics, especially Asians, Haitians and Russians, although no current data is available, suggesting a fertile area for additional research to understand the trends.
- Available data suggests that rural residents are less likely to be foreign born. According to the 2000 Census, 10.9% of Connecticut's population was foreign-born. 4.3% of Windham County residents and 5.4% of Litchfield County residents were foreign-born.⁴ Among public school students, rural districts report only 1.5% of students speaking a language at home other than English in 2004, compared to 14.3% statewide.⁵
- Net international migration was only 14% of total population change for Windham and Litchfield Counties in 2000-2004 compared to 73% for the State.⁶

Educational Attainment

- The educational background of the population in rural areas is similar to that of the rest of the state (Figure 2.6). However, there are fewer individuals with less than a high school education. Additionally, the breakdown of college education varies greatly within the rural areas.

Figure 2.6



Source: US Census, 2000

⁴ U.S. Census, 2000.

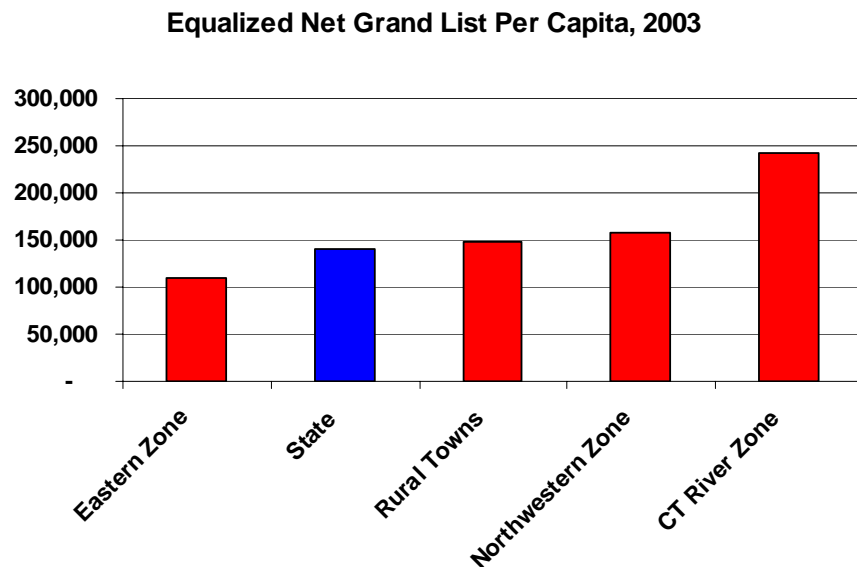
⁵ Connecticut Department of Education, Strategic School Profiles.

⁶ U.S. Internal Revenue Service Data on Migration from Tax Returns, 2000 and 2004

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- Eight of the 26 school districts serving rural towns have cumulative 4 year dropout rate in 2004 higher than the state average of 8.8%.⁷ This issue is more pronounced in the East (Map 4 in Appendix E). 12 rural districts had rates below 4.0%.
- The net equalized grand list per capita is a measure of the ability of a town to raise taxes to support education. On this measure, the East at \$110,242 is 78% of the state figure of \$140,602 while the Northwest and Connecticut River towns are on average higher than the state (Figure 2.7).

Figure 2.7



Employment

- Between 2000 and 2005, total employment grew in rural areas by 0.5 % compared to a decline of 0.9 % in the state. 10.6% of the state's jobs are in rural areas, double the percentage of the population. The East saw the most absolute job growth (1,873 jobs). The Northwest jobs declined at greater rate (-2.2%) than the statewide rate (Table 2.2)
- Rural towns have lower unemployment than the state and a higher employment growth (Figure 2.8).

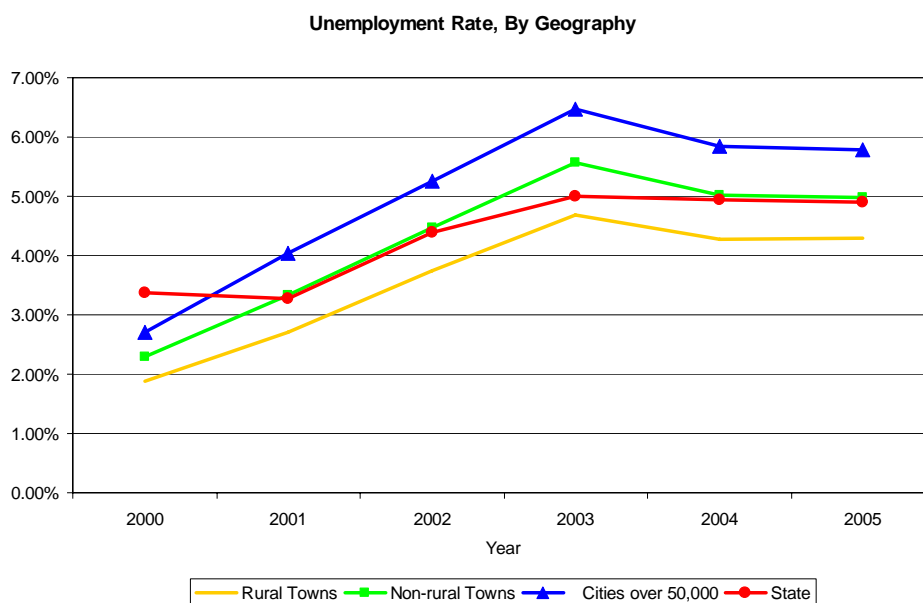
⁷ The highest were Plainfield (24.3%), Putnam (17.3%), Winchester (16.7%), Regional School District 4 (14.4%), Thompson (12.3%, and Regional School District 11 (11.3%).

Table 2.2 Employment Change, 2000-2005, by Area

Area	Total Employment 2005	Change 2000-2005	% Change
Rural Towns	183,520	871	0.5%
Eastern Zone	85,939	1,873	2.2%
Northwestern Zone	75,257	(1,666)	-2.2%
CT River Zone	37,389	894	2.4%
Cities Over 50,000	637,908	(32,056)	-4.8%
State	1,727,934	(15,572)	-0.9%

Source: Connecticut Department of Labor

Figure 2.8



Source: Connecticut Department of Labor

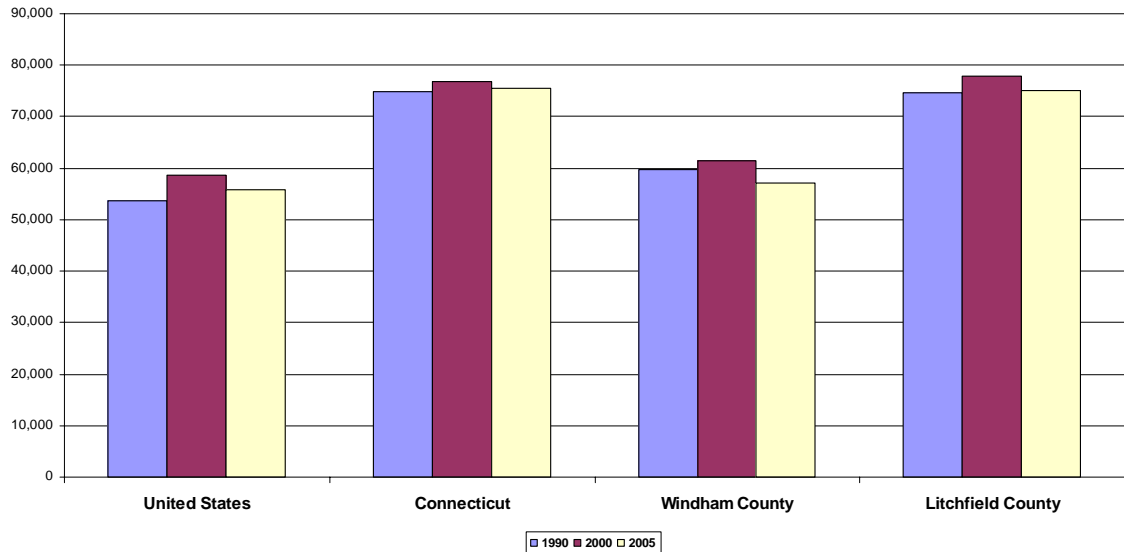
Income/Poverty

- The Median Family Income in 2005 for Litchfield County was \$74,791 and Windham County was \$57,163 (the lowest income of any county in the state), while the state figure was \$75,541. Median family income has declined slightly since 2000 (in 2005 dollars)(Figure 2.9).
- Income trends are being affected by larger economic shifts in the state. Between 2004-05 the five employment sectors with the greatest number of openings statewide paid on average \$35,857 annually. During the same time period the five sectors with the largest losses paid on average, \$63,587 annually, resulting in a \$28,000 gap between the jobs that are being added and those are being shed.⁸

⁸ Voices for Children, The State of Working Connecticut, September 2006

Figure 2.9

Median Family Income, 1990, 2000, and 2005 in 2005 Dollars

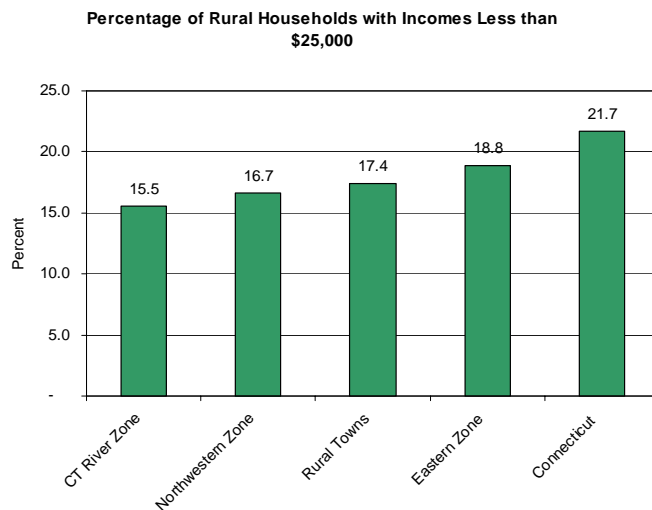


Source: U.S. Census, 1990 and 2000; American Community Survey, 2005

- The percentage of households with incomes in 1999 below \$25,000 was lower in rural towns (17.4%) than for the state (21.7%) (Figure 2.10) (see Map 5 in Appendix E).
- Recent trends show a significant rise in the number of individuals enrolled in State Administered General Assistance health care program and the HUSKY A (Medicaid) program since 2000, an indication of an increasing poverty population as well as increased efforts at outreach and enrollment (Figures 2.11 and 2.12). These increases occurred despite reported barriers to enrollment posed by decreased enrollment staff, complex requirements, and required recertification.

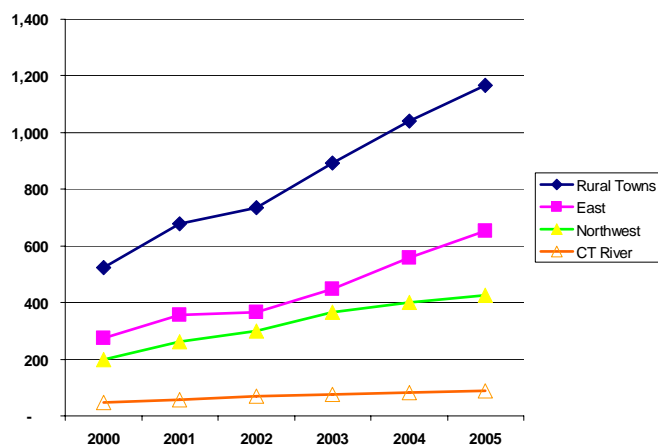
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Figure 2.10



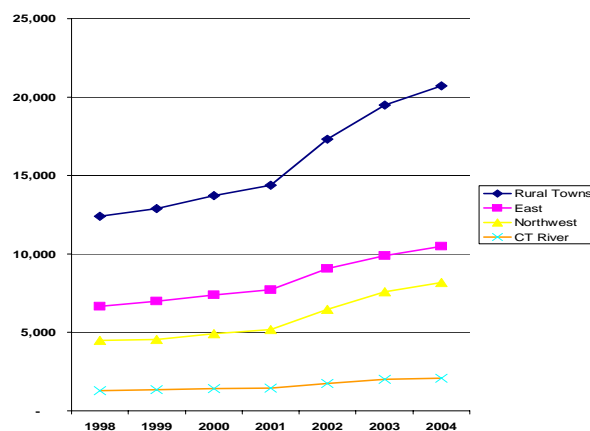
Source: US Census, 2000

Figure 2.11



Source: Department of Social Services Administrative Reports, 1998-2004

Figure 2.12



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- At the county level, the percentage of families in poverty increased in Windham County from 5.7% in 2000 to 7.3% in 2005. In Litchfield County, this percentage declined from 2.7% to 1.9% in the same period.⁹

Table 2.3 Individuals with Incomes below the Poverty Level, by Area, 1999		
Area	Number	% of All
Rural Towns	12,468	4.3
Eastern Zone	6,436	5.0
Northwestern Zone	5,004	4.0
CT River Zone	1,028	2.6
Connecticut	259,514	7.9
Source: U.S. Census, 2000		

- Town level data on poverty is not available after 2000. Rural towns have a lower rate of poverty than the rest of the state. The percentage of individuals below the poverty rate was 4.3% in rural towns in 2000, well below the state rate of 7.9%. Only one town in the top 20 of Connecticut's 169 towns ranked by household income was considered rural (Roxbury). Five of the bottom 20 towns were rural (Thompson, Sprague, Putnam, Plainfield, and North Canaan).

- In 1999, two of the 20 towns with the highest percentage of individuals below the poverty level were rural (Willington and Salisbury).

Eight of the 20 towns with the lowest percentage in poverty were rural (Killingworth, Salem, Lyme, Chester, East Granby, Middlefield, New Hartford, and Durham).

- Four rural towns had more than 14% of their residents enrolled in public health insurance programs in 2004, ranking among the highest in the state (Table 2.4)

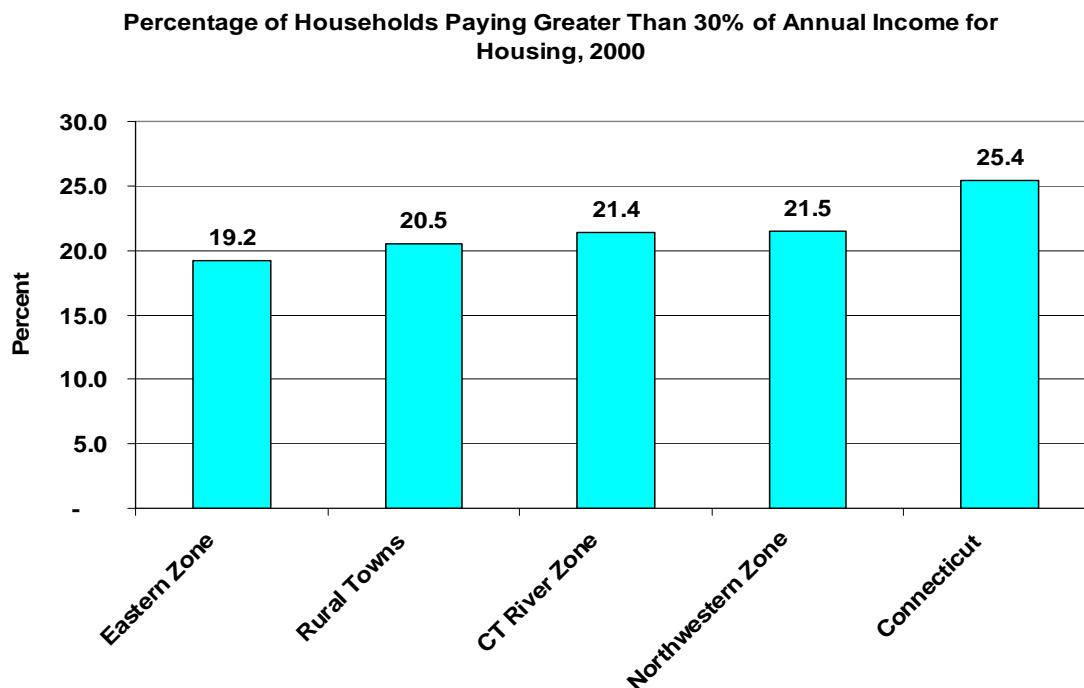
Table 2.4 Medicaid and SAGA Medical Enrollees, Number and Percent of Total Population, 8 Rural Towns, 2004				
Town	Rural Zone	Number	% of Town Pop.	Town Rank in State
Putnam	E	1,636	17.7%	157
Canaan	NW	188	17.0%	156
Winchester	NW	1,806	16.6%	155
Plainfield	E	2,183	14.2%	150
Sprague	E	348	11.6%	143
Ashford	E	439	10.1%	137
Plymouth	NW	1,215	10.0%	136
Hartland	NW	207	10.0%	134
		8,022	13.8%	
Source: DSS Records				

Housing

- Residents of rural areas pay slightly less for housing as a percentage of income than the rest of the state (Figure 2.13). Nevertheless, affordable housing is a serious issue across rural areas due to dramatic increases in housing values across the state (Figure 2.14). Many towns in Northeast Connecticut are seeking to limit new housing development through zoning regulations that are increasingly restrictive which will impede affordable housing development and increase housing costs.

⁹ U.S. Census, 2000 and American Community Survey, 2005.

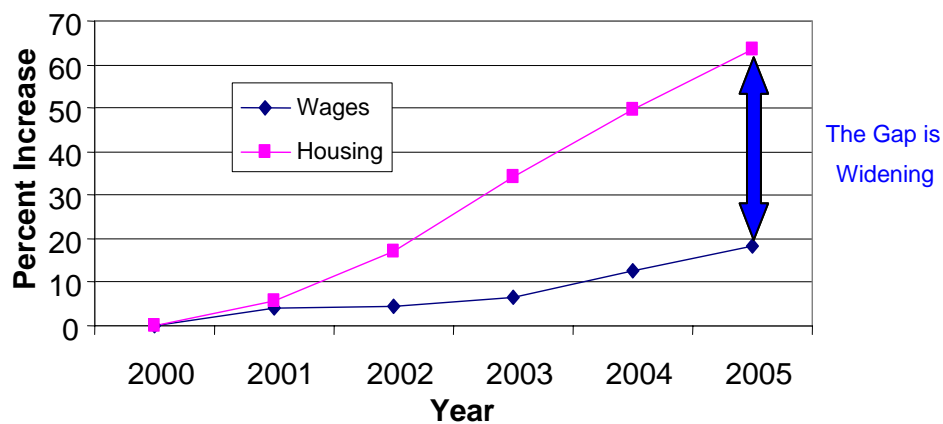
Figure 2.13



Source: US Census, 2000

Figure 2.14

Between 2000 and 2005, housing prices in Connecticut increased by 63.6% while wages increased by 18.5%

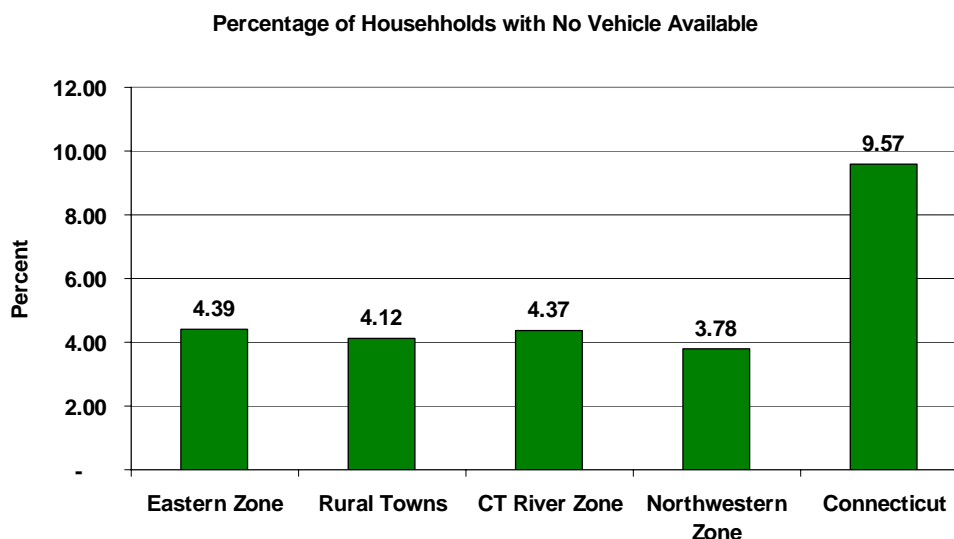


Source: DataCore Partners and Partnership for Strong Communities econometric study, December 2005

Transportation

- Public transportation in rural areas is extremely limited, and rural providers cite transportation as one of the top barriers to care.
- While there are fewer rural households with no vehicle than in the rest of the state, this reflects the lack of rural public transportation services and the resulting higher need for an automobile (Figure 2.14). Providers point out that many residents have only one car, which is needed to go to work and that many, particularly the elderly, do not have access to a car to get to appointments during the day.

Figure 2.15



Source: US Census, 2000

III. Health Status of Rural Connecticut

Residents of rural Connecticut face most of the same health issues as those faced in the rest of the state, and in the nation. However, the demographics outlined above, lifestyle and cultural differences, and issues of access to care present different challenges as well. The following discussion of health status outlines the health picture across Connecticut in the areas of chronic diseases, cancer, mental health/substance abuse, maternal and child health, family and community safety, and oral health. Each section is organized around the indicators that bear tracking for that area. The context of why this indicator is important and then the headline points for the condition are presented. The distinctive rural considerations are highlighted where data is available.

a. Chronic Disease

An estimated 99 million Americans have chronic conditions, 41 million of whom have daily activity limitations due to the condition, and 12 million are unable to live independently. Chronic diseases predominate among the leading causes of death. Many are considered preventable through healthier lifestyles (i.e. more physical activity and

improved nutrition).¹⁰ Once a person has a chronic disease, there are emerging, promising approaches to disease management that improves the quality of life for the individual suffering from the disease, and contains health care costs by reducing the severity of the condition. Prime examples of diseases that are mitigated with effective management programs are asthma and diabetes.

i. Asthma

Indicators

- Number of Emergency Department visits for Asthma per 10,000 population
- Number of hospitalizations for Asthma per 10,000 population

Why is This Important?

Asthma is a serious, debilitating condition that is manageable with proper treatment and self-care. The rate of persons with asthma has increased substantially in recent years, and Connecticut's asthma prevalence is approximately equal to that of the United States. While asthma attacks can trigger costly ED visits, proper preventive care should eliminate the need for these visits.

Headlines

- Asthma is among the most common childhood illnesses and disproportionately affects children in low-income families.
- An estimated 7.3% of Connecticut adults (180,000) reported having asthma. The rate was substantially higher for women (9.1%) than men (5.4%).
- Each year in Connecticut, there are approximately 4,100 hospitalizations and 22,000 emergency department visits with asthma as a primary diagnosis.¹¹
- The rate of ED use and hospitalization for asthma is significantly lower in rural areas than in non-rural areas (38.5 vs. 65.1 per 10,000 for ED use; 6.5 vs. 12.9 per 10,000 for hospitalization) (Figures 3.1 and 3.2). It is possible that doctors in rural areas are helping patients control their asthma more effectively.
- Asthma is more common and more severe among people of color and among people who live in urban areas. The incidence of asthma is higher in Hispanic and African-American children and is higher in Bridgeport and Hartford than in New Haven or other towns in Connecticut.¹²
- A trend is associated with poverty (correlating with access to medical coverage and care and environmental factors). Individuals with income less than \$25,000 were

¹⁰ The Centers for Disease Control has profiled examples of successful campaigns against various chronic diseases: <http://www.cdc.gov/nccdphp/publications/exemplary/>

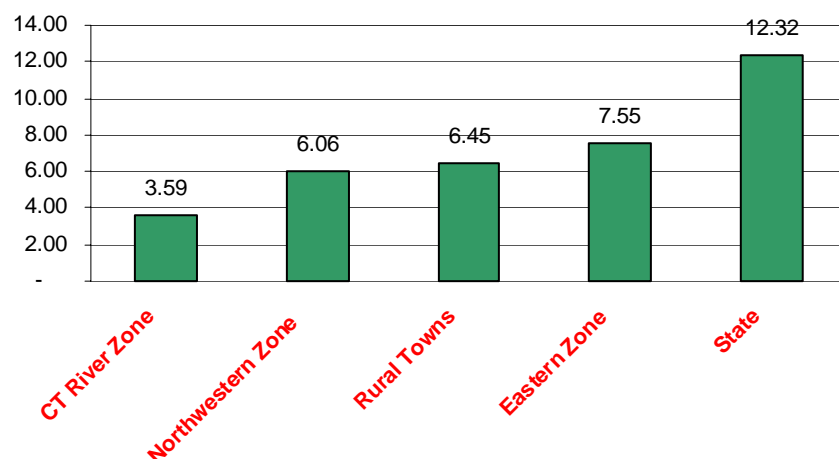
¹¹ Connecticut Department of Public Health. (2005). Asthma in Connecticut: A Surveillance Report. Hartford, CT. www.dph.state.ct.us/BCH/new_asthma/pdf/asthma_2005_surveillance_report.pdf

¹² The Children's Health Council. *Asthma and Asthma Related Healthcare for Children in HUSKY A*. 20023. <http://www.ckidslink.org/publications/h03huskyFy02asthmarpt08.pdf>

more likely to be hospitalized or have an unscheduled doctor's visit due to asthma. Additionally, approximately 9% of children on HUSKY have asthma.

Figure 3.1

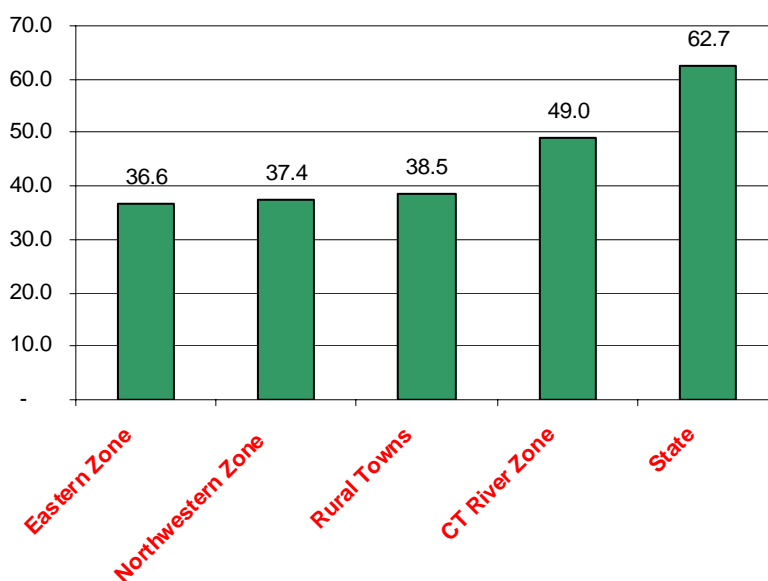
Number of Hospitalizations for Asthma Per 10,000 Population, 1996-2002



Source: Connecticut Department of Health, Asthma in Connecticut 2005, A Surveillance Report

Figure 3.2

Emergency Department Visits for Asthma per 10,000 Population, January 1996-September 2000



.Source: Connecticut Department of Health, Asthma in Connecticut 2005, A Surveillance Report

ii. Diabetes

Indicators

- Age-adjusted Hospitalization Rates (by race/ethnicity), discharges per 100,000 population
- Diabetes Prevalence over Age 18 (by race, ethnicity, gender, age group, income)
- Age-adjusted premature death rates
- Diabetes Mellitus Mortality
- Diabetes Related mortality

Why is this important?

- In 2001, Connecticut spent \$66 million on hospitalizations directly related to diabetes and \$888 million on hospitalizations for all diabetes-related causes.¹³
- The direct (medical care) and indirect costs (lost productivity and premature mortality) of diabetes in Connecticut were estimated at \$1.7 billion in 2003.¹⁴
- Cardiovascular disease and lower extremity amputation are significantly more common in those with diabetes.
- As shown in Table 3.3, there is a strong correlation between poverty and incidence of diabetes. Additionally, Type II Diabetes, the most common form, is usually caused by poor nutrition and lack of exercise. In Connecticut, less than a third of Connecticut residents eat five or more servings of fruit per day and one in four do not participate in any physical activity.¹⁵

Headlines

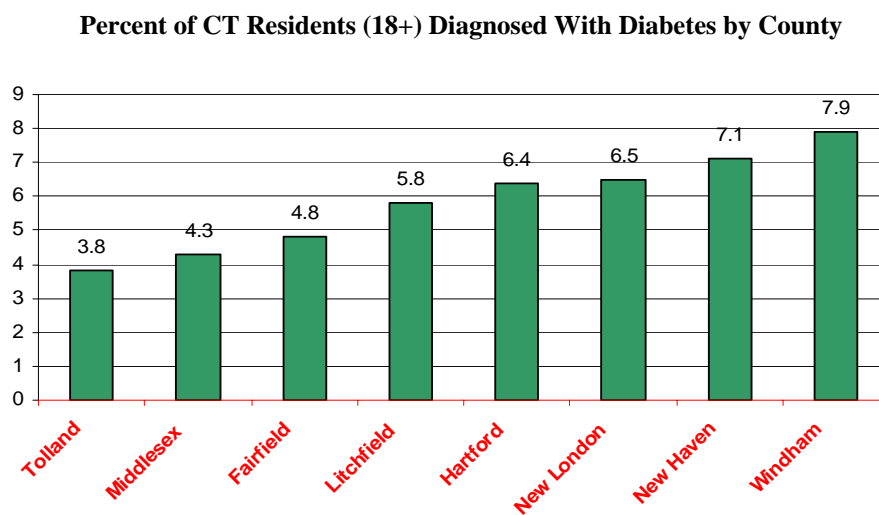
- The rate of deaths from diabetes for people ages 50-74 in rural areas (26.5 per 100,000) was lower than the state as a whole (31.7). The rate in the East (33.8) was higher than the state and significantly higher than in the Northwest (21.9) and Connecticut River (19.1) areas. This reflects the association of diabetes prevalence with socio-economic status.
- There is very little data on diabetes at the town level except for number of deaths.
- Over 2,000 people died statewide from diabetes mellitus between 2002 and 2004. This does not include those for whom complications from diabetes resulted in their death.
- Windham County in the rural Northeast has the highest incidence of diabetes in Connecticut with 7.9% (including the Willimantic urban area). Litchfield County in rural Northwest is 5.8%, approximately the state average.

¹³ Diabetes Plan for Connecticut

¹⁴ Connecticut Department of Public Health, The Burden of Diabetes in Connecticut, draft, 2006

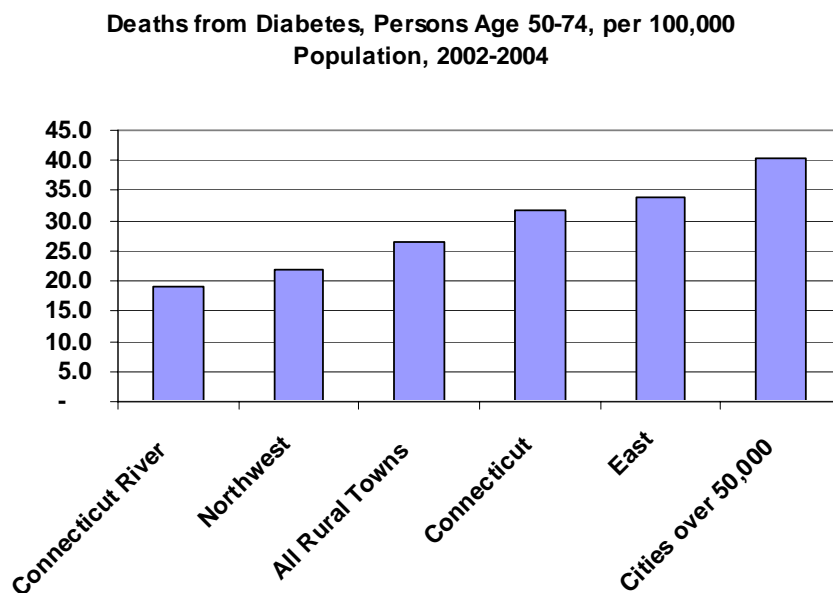
¹⁵ Andrews, Ellen. May 2001. Health Resource Capacity Assessment for Danielson, CT. New Haven, CT: Connecticut Health Policy Project.

Figure 3.3



Source: BRFSS 2002-2004

Figure 3.4



Source: CT DPH Vital Records Mortality Files

Table 3.1

**Age-Adjusted Hospitalization Rates for Diabetes by Race/Ethnicity
(# per 100,000 population)**

All Connecticut	126.1
White, non-Hispanic	96.9
Black, non-Hispanic	367.1
Hispanic	243.8

Source: Connecticut Department of Public Health, The Burden of Diabetes in Connecticut, unpublished document, 2006

Table 3.2

**Age-Adjusted Premature Death Rates for Diabetes by Race/Ethnicity and Gender
(# per 100,000 population)**

	Male	Female
All Connecticut	140.3	96.5
White, non-Hispanic	105.9	75.2
Black, non-Hispanic	297.9	256.2
Hispanic	211.8	138.8

Source: Connecticut Department of Public Health, The Burden of Diabetes in Connecticut, unpublished document, 2006

- 5.9% of people over 18 years old in Connecticut are diagnosed with diabetes. There are significant disparities in prevalence by race, income, and educational background.

Table 3.3 Diabetes Prevalence by Demographic Factors

<p>Prevalence by Race/Ethnicity</p> <ul style="list-style-type: none"> • Hispanic – 4.9% • Other – 4.9% • White – 5.9% • Black – 8.6% 	<p>Prevalence by Gender</p> <ul style="list-style-type: none"> • 6.3% of males have diabetes as opposed to 5.6% of females.
<p>Prevalence by Household Income Breakdown</p> <ul style="list-style-type: none"> • Less than \$15,000 – 13.3% • \$15,000 - \$24,999 – 9.1% • \$25,000 - \$34,999 – 8.0% • \$35,000 - \$49,999 – 6.3% • Greater than \$50,000 – 3.5% 	<p>Prevalence by Education Breakdown</p> <ul style="list-style-type: none"> • Less than High School Degree – 11.4% • High School Degree / GED – 7.2% • More than High School – 5.9% • College Graduate – 4.1%

Source: Connecticut Department of Public Health, The Burden of Diabetes in Connecticut, draft, 2006

iii. Heart Disease/Stroke¹⁶

Indicators

- Age-adjusted mortality rate from cardiovascular disease

Why is This Important?

- Each year, cardiovascular disease (CVD) exacts a high toll, both direct and indirect on the state of Connecticut. In 2001, CVD contributed to 8,582 deaths in Connecticut—29% of all deaths, and of those deaths 28% occurred in people younger than 75. Although it mainly affects the elderly, it is the second leading cause of premature death in adults aged 45 – 75. The death toll, though, masks the larger effects of CVD. Lengthy hospitalizations and expensive treatments strain the health care system while the disabilities brought on by CVD reduce the productivity of those suffering from CVD. All told, Connecticut lost \$1.2 billion to coronary heart disease in 2001, \$500 million to stroke, and \$500 million to congestive heart failure, which translates to a financial burden of over \$600 on every resident of the state.¹⁷
- While the loss of life due to CVD remains a significant problem, death rates for all forms of CVD have declined steadily from around 300 per 100,000 in 1995 to just under 250 per 100,000 in 2001.
- Nationally, individuals living in rural population are increasingly at risk for cardiovascular disease because of lifestyle factors such as smoking, high-fat diets, and sedentary lifestyle. Additionally, access problems such as long distances to cardiac care centers, and availability of technology at more local medical centers.¹⁸

Headlines

- There was an annual average of 683 deaths from diseases of the heart in rural areas in 2002-2004. The death rate from heart disease is slightly lower compared to the state as a whole, but there was less improvement than there was statewide since 1999-2001 (see Figures 3.5 and 3.6).
- CVD disproportionately affects African Americans, both men and women, though men do have a higher risk – 62.1 cases per 100,000 population statewide. The risk for whites and people of Hispanic origin is about half that for African Americans.¹⁹
- There are four major preventable risk factors that contribute to CVD development including smoking, physical inactivity, hypertension, and being overweight. In Connecticut, these four factors contribute to over half of all heart disease deaths.²⁰

¹⁶ The CT DPH website has an overview of cardiovascular disease in Connecticut:
http://www.dph.state.ct.us/OPPE/sha99/cardiovascular_disease.htm

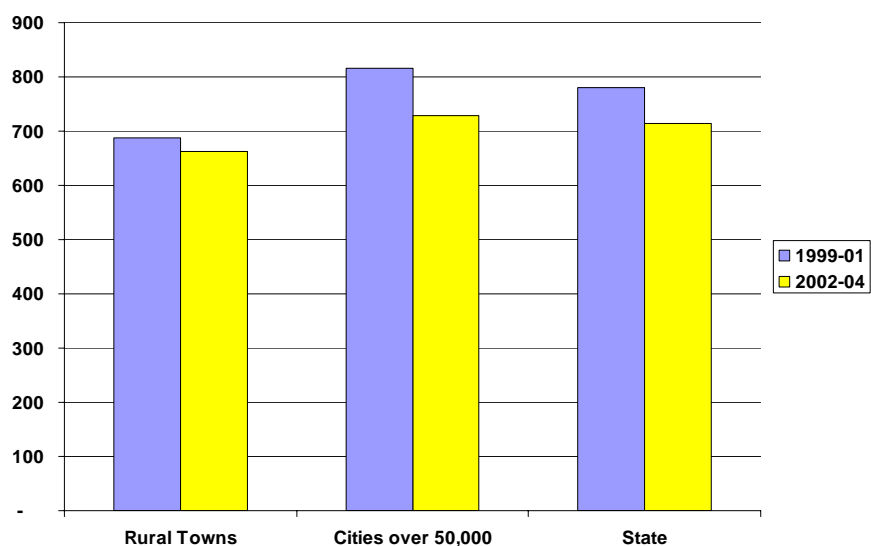
¹⁷ Center for Disease Control. (2005). *Profiling the Leading Causes of Death in the United States: Connecticut*. Atlanta, Georgia

¹⁸ Rural Healthy People 2010

¹⁹ *Looking toward 2000-State Health Assessment*

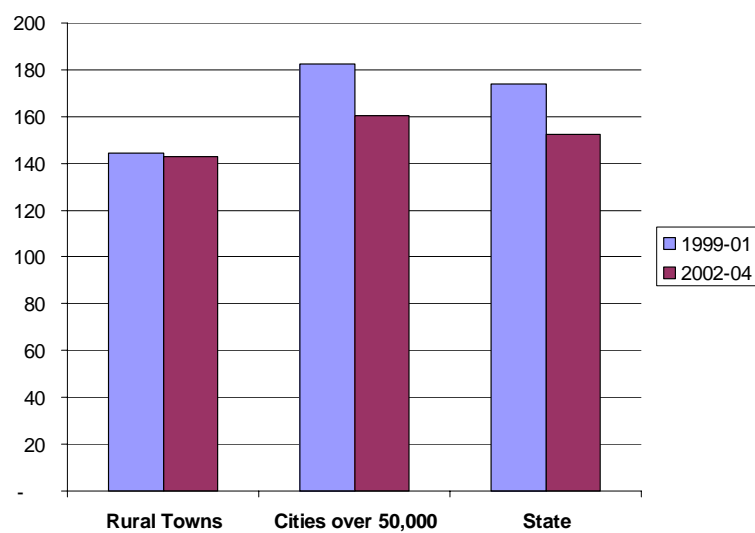
²⁰ Connecticut Department of Public Health

Figure 3.5
Death Rate, Diseases of the Heart, by Area



Source: Connecticut Department of Public Health Mortality Data analyzed by Holt, Wexler & Farnam, LLP

Figure 3.6
Death Rate, Cerebrovascular Disease, by Area



Source: Connecticut Department of Public Health Mortality Data analyzed by Holt, Wexler & Farnam, LLP

iv. Obesity

Indicators

- Percent of children passing all four physical fitness tests in school.
- Prevalence by gender and race/ethnicity

Why is This Important?

- Obesity is a contributing factor for asthma and other respiratory problems, hypertension, diabetes, coronary heart disease, depression, gallbladder disease, osteoarthritis, sleep apnea, stroke and some cancers.²¹
- The average obesity cost per year in the State of CT is \$856 million annually.²²

Headlines

- In 2004, 54% of CT's adult population was either overweight (36.5%) or obese (19.7%).
- Obesity in Connecticut is increasing. Based on data from the BRFSS, 19.7% of Connecticut were considered obese in 2004, up from 11.7% in 1990.
- 36.5% of Connecticut residents were considered overweight in 2004, up from 32.8% in 1990.
- One of the only town level indicators of overweight and obesity is the percent of children passing all four physical fitness tests in school. In 2003-2004, 34.8% of students statewide passed all four physical fitness tests. Five of the 20 towns with the worst fitness percentage were rural (Thompson, New Hartford, Barkhamsted, Colebrook, and Norfolk). Seven of the 20 towns with the highest passing rate were rural (Preston, Marlborough, Andover, Middlebury, Washington, Roxbury, and Bridgewater). Overall, rural towns were fairly evenly distributed along the list of towns ranked by fitness test proficiency.
- The LedgeLight Health District, working with the Town of Ledyard, piloted a community approach to reducing overweight and obesity in rural areas that mobilized considerable local resources and raised awareness of the issue. This work was the basis for development of a toolkit by the Connecticut Association of Directors of Health to guide communities through the process of developing community-wide plans to combat overweight and obesity.²³

²¹ The Obesity Challenge in CT. <http://www.dph.state.ct.us/bch/HEMS/Aofficialfact.pdf>.

²² CT Health Scorecard 2006.

²³ See the Healthy Eating Active Living Toolkit, accessible at <http://www.cadhl.org/CADHResources/tabid/59/Default.aspx>

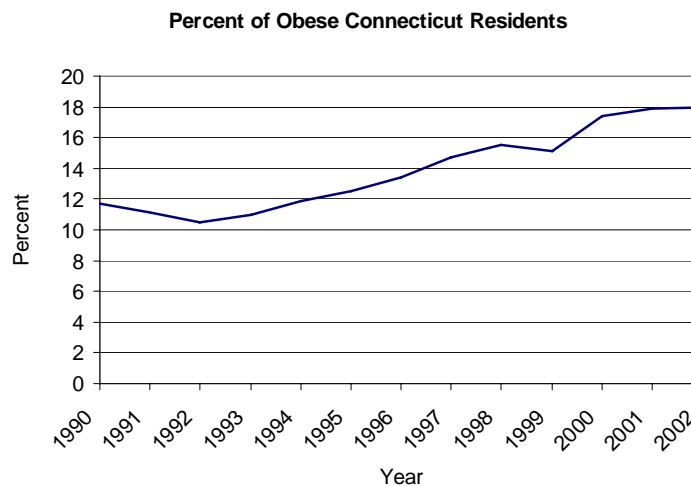
Table 3.4 Percentage of Students Passing All Four Physical Fitness Tests in School, Selected Rural Towns, 2003-2004

Rural Towns Among 20 with Lowest Pass Rates	Percentage passing all three tests 2003-2004
Thompson	14.6
New Hartford	23.7
Barkhamsted*	26.6
Colebrook*	26.6
Norfolk*	26.6

Rural Towns Among 20 with Highest Pass Rates	Percentage passing all three tests 2003-2004
Preston	53.8
Marlborough**	50.3
Andover**	50.3
Middlebury#	49.4
Washington&	48.1
Roxbury&	48.1
Bridgewater&	48.1

* Data is taken from regional district 7 ** Data is taken from regional district 8
 # Data is taken from regional district 15 & Data is taken from regional district 12
 Source: Connecticut Department of Public Health

Figure 3.7



Source: Centers for Disease Control, BRFSS 1990-2002

v. HIV/AIDS

Indicators

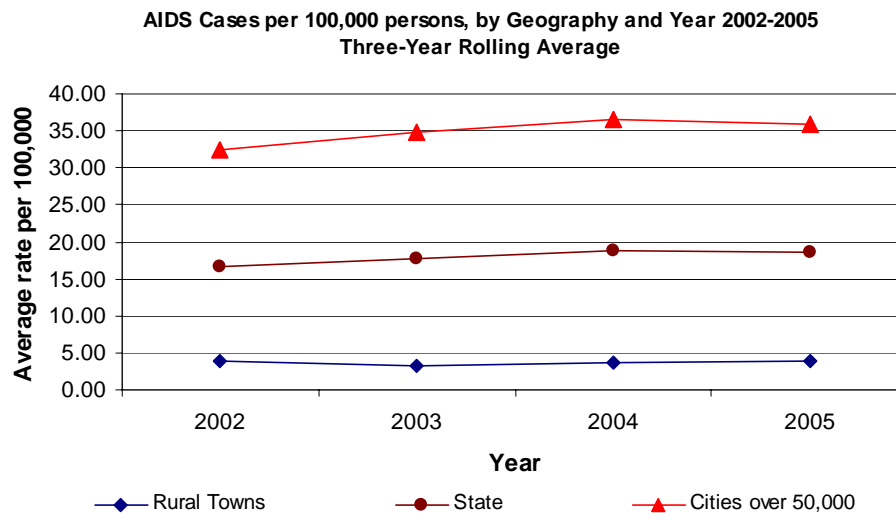
- New Cases, Rate Per 100,000, Three Year Rolling Average
- Number of New Cases, Three Year Rolling Average

Why is This Important

- The rate of new AIDS cases reported in the state were far lower in the rural areas in recent years, but the challenge of providing services to lower income persons with AIDS is greater in the rural areas. Issues for isolated populations (e.g. gay teens) may be more serious in rural areas. Prevention to ensure the continuation of this low rate and treatment for those with HIV/AIDS require resources and access to care for the rural population.

Headlines

Figure 3.8



Source: Connecticut Department of Public Health

- Rural areas in the United States represent 20% of the population, and but have reported 5%-8% of AIDS cases. Additionally, the South represents 68% of these rural AIDS cases.
- AIDS in rural Connecticut is not nearly the problem that it is in Connecticut's cities or the state (Figure 3.8). However, drug abuse (particularly methamphetamine) raises serious concerns for future AIDS cases. Additionally, men contracting AIDS through homosexual relations represent 60% of rural AIDS cases nationally. The stigmatization of HIV and homosexuality can often lead to a barrier to treatment.²⁴

b. Cancer

Indicators

- Cancer incidence rate per 100,000

Why is This Important?

- Cancer is the second leading cause of death in the state of Connecticut. However, public health intervention and education can reduce the incidence of cancer. Lung

²⁴ University of California San Francisco. 2006. *What are rural HIV prevention needs?*

cancer, the leading cause of cancer death is clearly related to the incidence of smoking, which is higher in rural areas. Public education and outreach to reduce smoking can have a positive influence on lung cancer. Nutritional education can help in this area as well; better diets can reduce the instances of colon cancer and breast cancer. Additionally, emphasis on screening will lead to earlier detection and better cure rates.

Headlines

- There was an annual average of 289 deaths from cancer in rural areas from 2002-2004. The rate of deaths from cancer for people ages 50-74 in rural areas (397 per 100,000) was about the same as the state (403). The rate in the East was somewhat higher than in the Northwest and Connecticut River areas.
- Cancer ranks higher than heart disease (a sub-category of cardiovascular diseases) in terms of age-adjusted death rates to persons under age 65 and age-adjusted years of potential life lost (YPLL) under age 65 in the U.S. and Connecticut. The temporal decline in death rates for heart disease under age 65 has been greater than that for cancers.²⁵
- The incidence of cancer in Connecticut, 485.6 per 100,000 population in 2003, is higher than other states in the nation (Table 3.5). Although cancer rates are currently declining, there were 18,426 cases in 2003.²⁶ The annual death rate from cancer was significantly higher in Windham County than in any other county or in the state.
- The Incidence of cancer was considerably higher for males across all counties and was somewhat higher in Tolland County than the rest of the state.

Table 3.5 Cancer Incidence and Death Rates, 1999-2003 (except as noted)

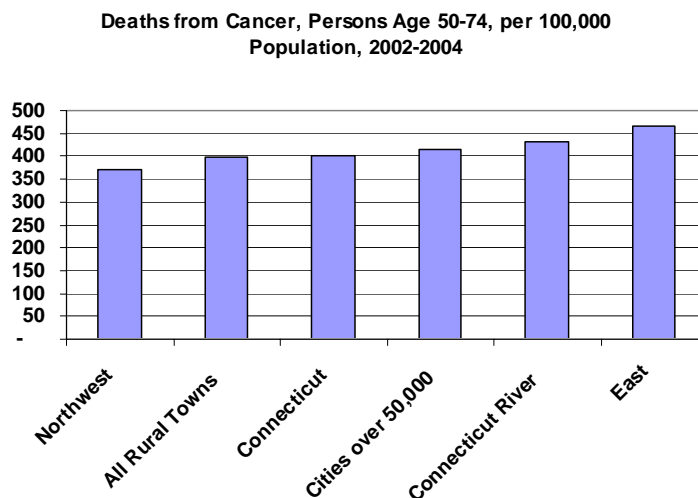
County	Annual Count	Annual Incidence Rate	Annual Death Rate
Connecticut (1999-2003)	18,809	508	186.5
Connecticut (2003)	18,426	485.9	
United States	1,240,046	462.2(2002)	195.7
Litchfield County	1,067	508.8	181.9
Windham County	519	473.4	223.3

Source: National Cancer Institute (<http://statecancerprofiles.cancer.gov/index.html>)

²⁵ Bower, C.E., M.A. Hooper, P. Daniels, A. Jimenez, and M.B.C. Serdechney. 2005. *Healthy Connecticut 2000 Final Report*. Hartford, CT: Connecticut Department of Public Health

²⁶ CT Health Scorecard 2006

Figure 3.9



Source: Connecticut Department of Public Health Mortality Data analyzed by Holt, Wexler & Farnam, LLP

- DPH plans focus on cancers of the lung, breast, and uterine cervix, along with melanomas of the skin. These types of cancer were selected on the basis of high incidence rates (lung and breast), knowledge of major causal factors (i.e., smoking for lung cancer, and excessive sun exposure for melanoma) and availability of effective screening tests that can detect cancers at an early stage (breast and cervix). Because early detection could prevent a portion of breast and cervical cancer mortality, screening utilization among Connecticut women is an important public health indicator. Invasive cervical cancer is much less commonly diagnosed than breast cancer, but it is more preventable (in terms of morbidity and mortality) through screening.
- Colon cancer is the third most commonly diagnosed cancer in Connecticut but detection and treatment of early-stage cancers reduces mortality. Recently reported evidence supports screening for colorectal cancer among persons 50 years of age and older.
- Prostate cancer is the most commonly diagnosed cancer among men and breast cancer for women.

Table 3.6 Cancer Incidence and Death Rates, 1999-2003, by Cancer Site and County

Cancer Site	<i>Windham County</i>			<i>Litchfield County</i>			<i>State</i>
	Recent Trend	Deaths per year over rate period	Annual Death Rate over rate period	Recent Trend	Deaths per year over rate period	Annual Death Rate over rate period	Annual Death Rate over rate period
Lung & Bronchus (Males)	stable	39	83.0	stable	49	54.3	61.2
Lung & Bronchus (Females)	rising	32	51.8	rising	48	39.6	41
Prostate (Males)	falling	13	31.2	stable	24	28.3	24.5
Colon & Rectum (Males)	falling	13	28.9	falling	19	20.8	21
Breast (Females)	stable	16	25.0	falling	29	24.0	23.6
Colon & Rectum (Females)	stable	14	21.1	falling	23	16.6	14.6
Pancreas (Males)	**	8	16.1	stable	12	13.3	13.9
Leukemia (Males)	stable	6	13.1	similar	7	7.5	11.5
Esophagus (Males)	stable	5	10.9	rising	9	10.0	9.1
Pancreas (Females)	stable	7	10.5	stable	12	9.7	8.8
Non-Hodgkin Lymphoma (Males)	**	4	10.0	rising	11	12.9	9.8

- In 2000, Connecticut's Department of Health analyzed behavioral risk factors for cancer by community socio-economic status and found negative correlations between status and risk (lower the status, the higher the risk).

c. Mental Health/Substance Abuse

Indicators

- Percent of Persons with Serious Psychological Distress
- Emergency Room admissions by diagnosis and age (not available)
- Rate of adults entering substance abuse treatment per 10,000 population
- Rate of inpatient Admissions for Alcohol Morbidity
- Alcohol Related Motor Vehicle Accident and Vehicle Fatality Rates

Why is This Important?

- Mental health is one of the most prevalent diseases that affects individual well-being and has a large economic impact in terms of both costs of care and lost productivity. Increased community prevention and more effective and available treatment could improve conditions for many individuals and families. Additionally, people with mental illness can often end up in the correctional system or other institution without proper treatment. There is a critical shortage of mental health providers in Northeast and in Northwest Connecticut.

Headlines

Mental Health

- In Connecticut, during a single year, there are an estimated 600,000 adults with mental illness (including 135,000 with serious mental illness) and 85,000 children with serious emotional disturbance, yet it is estimated that only about half receive any form of public or privately funded treatment.²⁷
- In 2004 DMHAS released a report synthesizing statewide priority services based on regional need. A consistent theme was expressed throughout all regional reports that the system (prevention, intervention, treatment, and recovery) is overburdened and under resourced. Through the collection of regional reports, the result commanded the recommendation of four (4) statewide identified needs; housing, service infrastructure, vocational and employment services and transportation.²⁸
- DMHAS is in the early stages of planning for a Mental Health System Transformation grant that will guide investments in increasing the capacity of the mental health system to respond to community needs.²⁹
- The State's Children's Mental Health System, Community KidCare, is jointly administered by DCF and DSS. KidCare Care Coordination data reveals that 710 Children statewide received care coordination services in fiscal year 2002-2003 (no breakout is available for rural areas). The capacity now exists to serve approximately 1200 children per year. There are waitlists for care Coordination due to unavailability of Care Coordination at the time of referral. 76% of these children live with one or both biological parents 62% of the children served have no current DCF involvement.
- Shortages of mental health services in rural areas have tangible effects. Children especially spend longer time periods in the emergency departments before finding placement. One rural health provider recounted an incident of a suicidal teenager waiting 72 hours in an emergency department to be placed.
- An estimated 9.5% of persons aged 18 and older in the Eastern service region (about 29,000 people) and 9.2% in the Northwestern service region (about 40,000) are estimated to have serious psychological distress (service regions include more than the similarly labeled rural areas) (Table 3.7).

²⁷ Report of the Governor's Blue Ribbon Commission on Mental Health, 2000

²⁸ Connecticut Department of Mental Health and Addiction Services, Reports on Statewide Priority Services: A Synthesis of Regional Needs, June 2004.

²⁹ <http://www.dmhas.state.ct.us/transformation.htm>

Table 3.7 Serious Psychological Distress in Past Year among Persons Aged 18 or Older, by Service Region, Percentages (Annual Averages Based on 2002, 2003, and 2004 data)

Area	%	95% Confidence Interval
Connecticut	8.7	(7.38-10.29)
Eastern	9.5	(7.23-12.39)
North Central	9.2	(7.23-11.74)
Northwestern	9.2	(7.12-11.91)
South Central	8.0	(6.16-10.33)
Southwest	8.0	(5.96-10.56)

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2002, 2003, and 2004

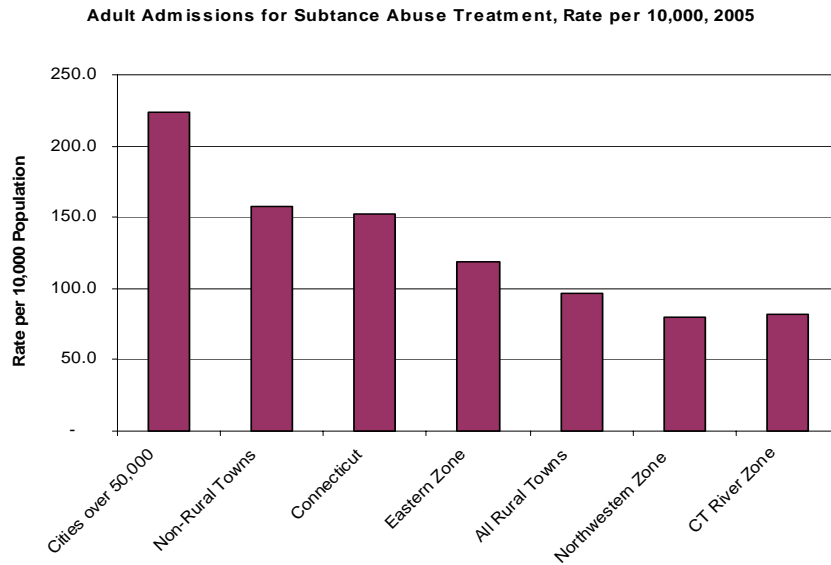
Substance Abuse

- The rate of adult admissions for substance abuse in rural towns is less than half the rate in cities with over 50,000 population (Figure 3.10). Among rural areas, the rate is higher in the East.
- The Northeastern region identified the three highest needs to be addressed: (1) the need to reduce past month of alcohol use by high school students, (2) reduce underage liquor law violations, and (3) address driving under the influence.³⁰
- According to the Connecticut Coalition to Stop Underage Drinking, Connecticut's average high school use is 28% above the national average.³¹
- The rate of admissions for substance abuse is lower in rural towns than the rest of the state, and among rural areas, they are higher in the East (Figure 3.10). Table 3.8 estimates persons with substance dependence by the five state service regions.
- The rate of alcohol-related motor vehicle accidents and fatalities is far higher in rural towns than in the rest of the state (Figure 3.12)
- The rate of inpatient admissions for alcohol abuse is lower in the rural areas (Figure 3.11).

³⁰ Northeast Communities Against Substance Abuse. *Report to the Community*. Drug-Free Communities Support Grant. 2005.

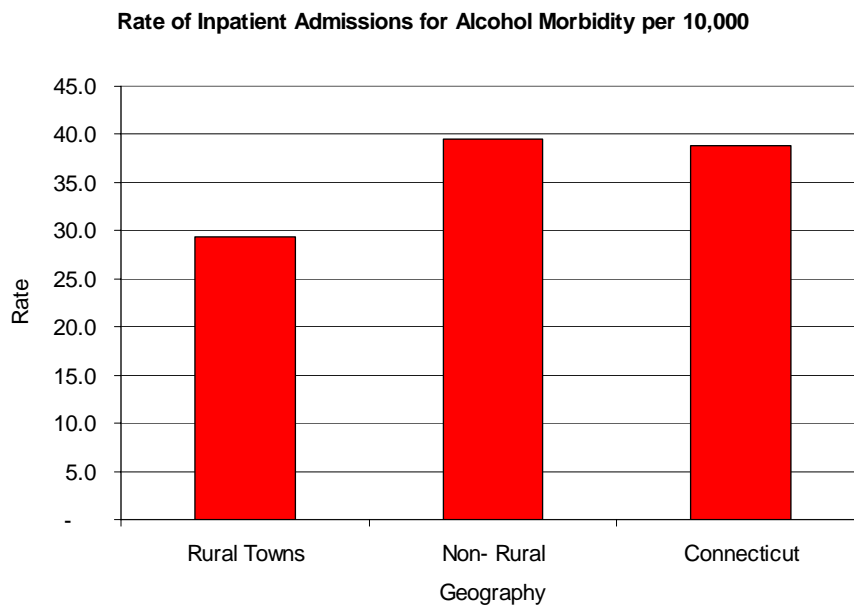
³¹ Northeast Communities Against Substance Abuse. *SPF-SIG Data Report*. 2005. Dayville, CT

Figure 3.10



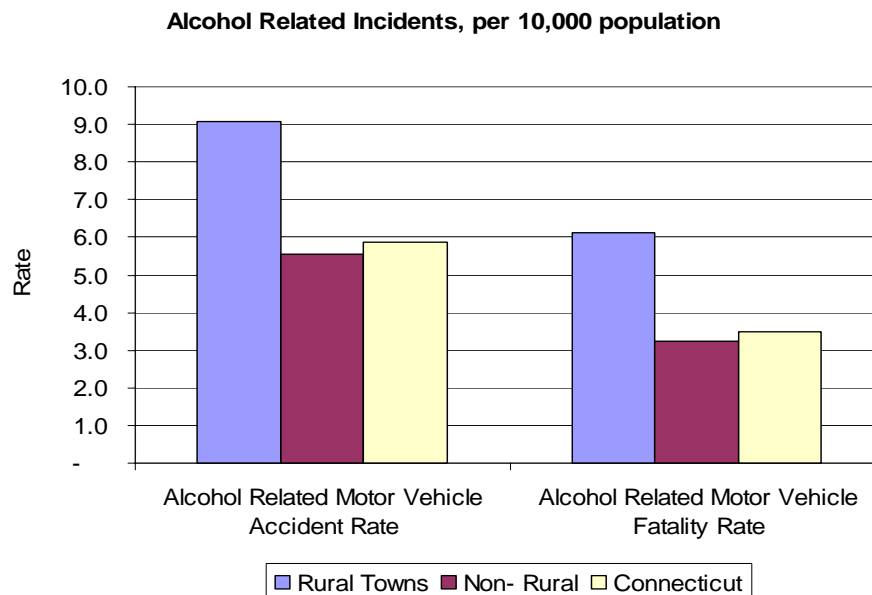
Source: DMHAS, Office of Health Care Access

Figure 3.11



Source: Connecticut Department of Transportation

Figure 3.12



Source: Department of Healthcare Access

Table 3.8 Estimated Percents of Adults Meeting Lifetime and Past Year DSM-IV Criteria for Substance Dependence or Abuse in the Connecticut Adult Household Population by Region.

Health & Human Service Region	Meets DSM-IV Criteria for <u>Lifetime</u> Substance Dependence	Meets DSM-IV Criteria for <u>Past Year</u> Substance Dependence or Abuse
Southwest	13.0	8.3
South Central	9.7	5.5
Eastern	11.0	7.0
North Central	12.2	9.5
Northwest	9.1	7.6

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2002, 2003, and 2004

d. Other Diseases

Indicators

- Lyme Disease Cases by Area (rate per 100,000 population)
- Chlamydia, Gonorrhea, and Syphilis Cases by Area (rate per 100,000 population)

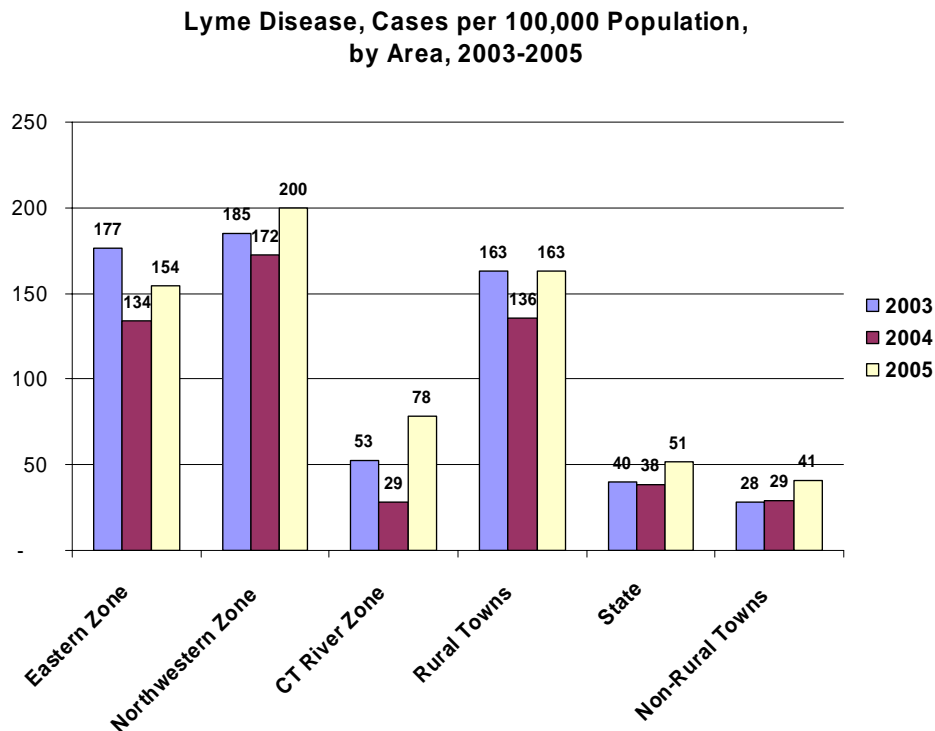
Why is This Important?

- Lyme disease is a debilitating disease that is treatable with early detection suggesting the value of community prevention and education efforts.
- Sexually transmitted diseases left untreated have serious effects. Chlamydia is also associated with human papillomavirus which increase the risk of cervical cancer.

Headlines

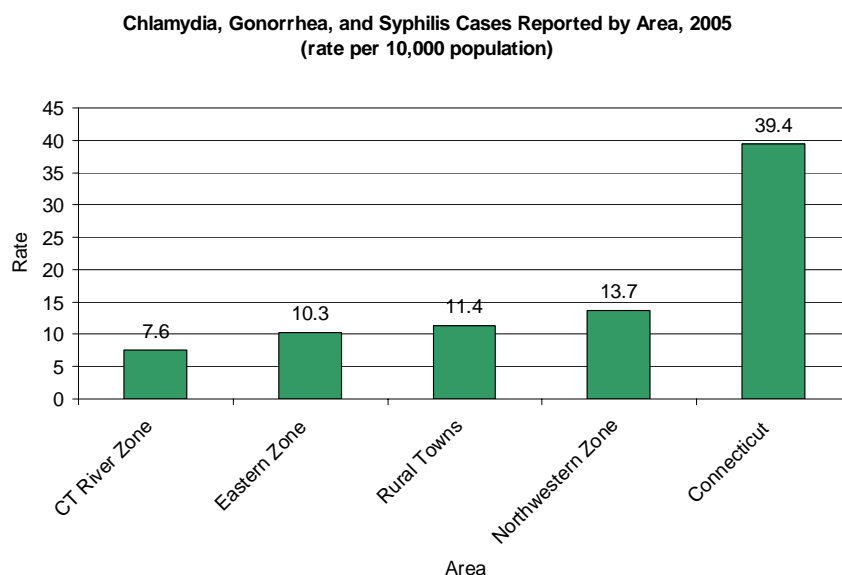
- Connecticut has maintained the highest incidence of Lyme disease of any state in the nation since 1992.³²
- In 2005 seven of the towns with the highest rates of Lyme Disease in the state were in the Northwest; two were in the East.
- Rural towns had rates of Lyme disease over three times the state average and four times those in the non-rural communities (Figure 3.13)

Figure 3.13



- The rate of contraction of sexually transmitted diseases is much lower in rural areas than the state as a whole (Figure 3.14). Interviews suggest that this may be due to the tighter community and social bonds in rural areas.

Figure 3.14



Source: Connecticut Department of Public Health

e. Maternal and Child Health

Indicators

- Babies born at Low and Very Low Birth Weight per 1,000 Live Births
- Births to Mothers with Non-adequate Prenatal Care per 1,000 Live Births

Why is This Important?

- Low birth weight and premature births are major sources of both infant mortality and morbidity. Long term impairments associated with low birth weight and preterm birth includes cerebral palsy, autism, mental retardation, vision and hearing difficulties, learning disabilities, and delayed development.
- Risk factors for infant death include low birth weight, preterm births, delayed or lack of prenatal care, mother under age 20 or over age 40, low educational attainment of mother, maternal smoking during pregnancy, and more than three previous births.
- The Maternal and Child Health program of the Connecticut Department of Public Health performed a comprehensive needs assessment during August 2004 through

³² The Connecticut Department of Public Health
<http://www.dph.state.ct.us/BCH/infectiousdise/tickborne/lyme.htm>

May 2005 to identify state Maternal and Child Health priorities, to arrange programmatic and policy activity around these priorities, and to develop state performance measures for monitoring the success of these efforts.³³ The Maternal and Child Health needs assessment was designed to be population-based, community-focused, and framed within a family context.³⁴

Headlines

- Pregnant women's entry into prenatal care was about the same overall for rural and non-rural areas of the state, but within the Northwest portion of the rural areas, a number of towns had significantly higher rates of non-adequate prenatal care (Map 8 in Appendix E). The rate for the Northwest rural towns as a whole was 137/1000 live births vs. 110/1000 for all rural areas and 137/1000 for the state.
- Birth outcomes in rural Connecticut were better than the state as a whole, with a rate of children born with low birth weight in 2003 of 62.3 vs. 73.6 statewide (Figure 3.15). The infant death rate was similarly lower, with the three year rolling average declining between 1999 and 2003 to 4.2 per 1,000 live births compared to 6.0 statewide (Figure 3.16) (Map 9 in Appendix E).

³³ All documents related to this planning are available for download at https://perfddata.hrsa.gov/mchb/mchreports/States_Narratives/states_Narrative.asp

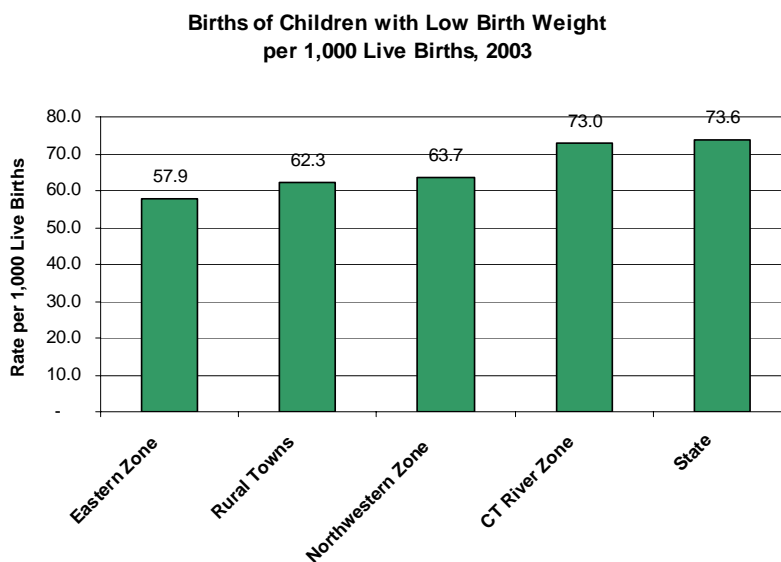
³⁴ Connecticut Department of Public Health. Maternal and Child Health Needs Assessment. 2005.

Table 3.9 Birth Risk Factors by Area, 2003

Indicator	CT River Zone	Eastern Zone	Northwest-ern Zone	All 65 Rural Towns	State	Rural % of State
Total Births	351	1,414	1,444	3,209	42,659	7.5%
Number with Low Birth Weight	44	113	43	200	3,139	6.4%
Number with Non-adequate Care	27	184	143	354	5,862	6.0%
Number with Late or No Care	27	130	86	243	4,655	5.2%
Number with Very Low Birth weight	9	22	10	41	649	6.3%
Number Born to Mothers < 20 Years Old	10	76	67	153	3,143	4.9%
Number Born to Mothers < 18 Yrs Old	5	21	19	45	1,067	4.2%
Number Born to Mothers < 15 Yrs Old	-	-	1	1	63	1.6%
Non-adequate Care, Rate/1000	76.9	130.1	99.0	110.3	137.4	0.80
Late or No Care, Rate/1000	76.9	91.9	59.6	75.7	109.1	0.69
Low Birth Weight, Rate/1000	125.4	79.9	29.8	62.3	73.6	0.85
Very Low Birthweight, Rate/1000	25.6	15.6	6.9	12.8	15.2	0.84
% of Births to Mothers < 20 Years Old	2.8%	5.4%	4.6%	4.8%	7.4%	0.65
% of Births to Mothers < 18 Years Old	1.4%	1.5%	1.3%	1.4%	2.5%	0.56
% of Births to Mothers < 15 Years Old	0.0%	0.0%	0.1%	0.0%	0.1%	0.21

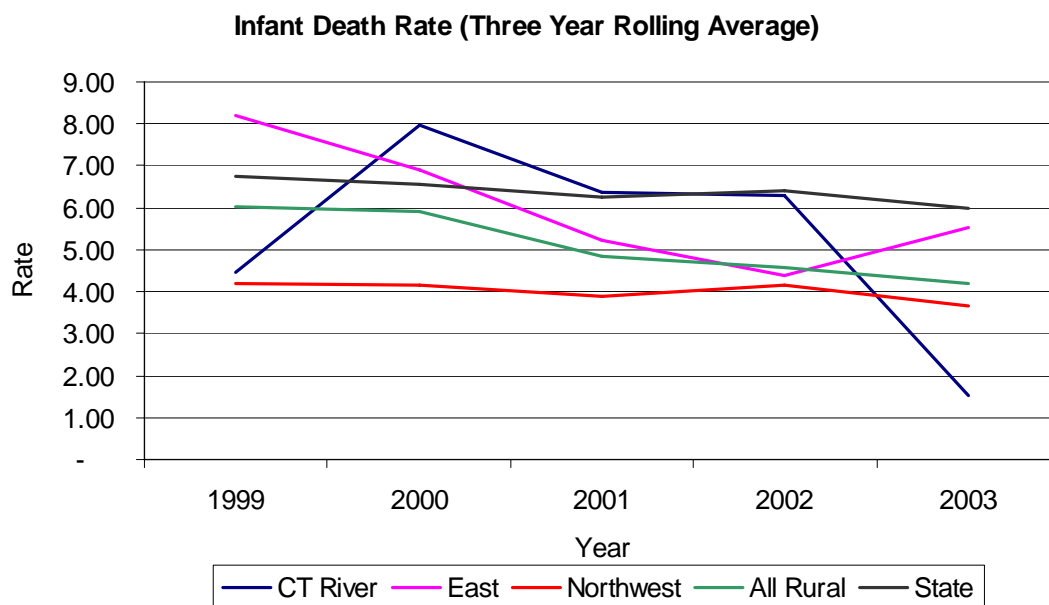
- Given the increase in Medicaid recipients, disparities in outcomes bear watching.
- In 2002, babies born to mothers in HUSKY A were significantly more likely than babies born to other mothers to be low birth weight (9.7% vs. 7.1%) or very low birth weight (1.9% vs. 1.4%).
- Medicaid mothers were less likely to receive prenatal care beginning in the first trimester (79.3% Medicaid versus 91.5 % for the Non-Medicaid population).

Figure 3.15



Source: CT Department of Public Health Registration Reports, 2001-2003

Figure 3.16



Source: Connecticut Department of Public Health Registration Reports, 1999-2003

f. Family and Community Safety

Indicators

- Property Crime Rate
- Violent Crime Rate
- Rate of Child Abuse and Neglect

Why is This Important?

- Crime rates are a significant indicator of community health and safety.
- Child abuse contributes to poor educational and life outcomes for children

Headlines

- Rates of property and violent crime are significantly lower in rural towns than in non-rural towns or the state as a whole, contributing to a high quality of life (Figures 3.17 and 3.18).
- The rate of substantiated child abuse and neglect cases per 10,000 population was one third the level in rural areas as it was in the state as a whole (Table 3.7), although the rate went down by a slower rate in rural areas from 2000-2005 (-7%) than in non-rural areas (-27%).
- Windham County is reported to have the highest incidence of child sexual abuse. This is significant since many primary care providers are in a position to prevent or intervene when this is reported to them.

Figure 3.17

Property Crime Rate, 2004

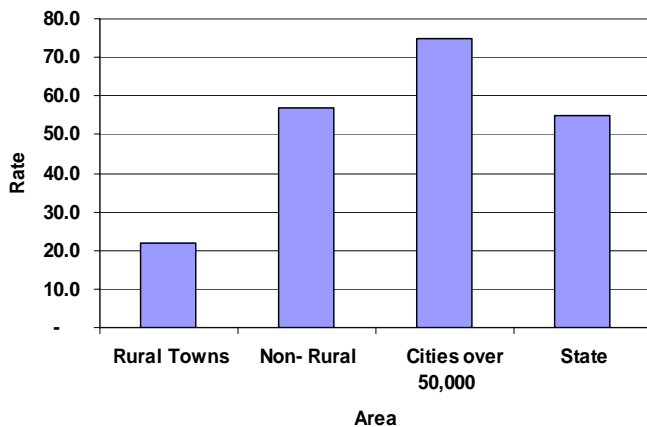
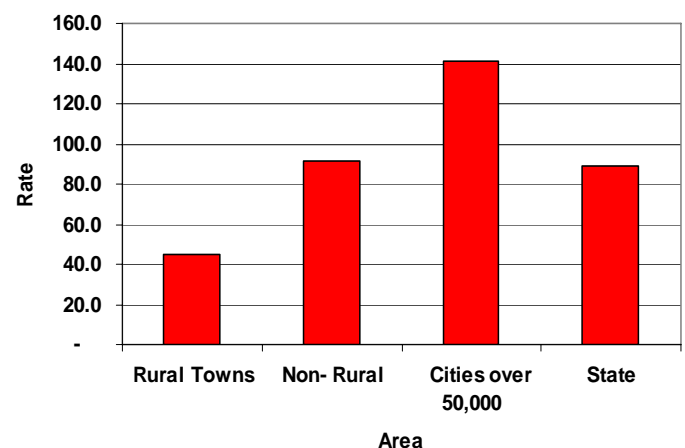


Figure 3.18

Violent Crime Rate, 2004



Source: Connecticut Department of Public Safety

Table 3.10 Substantiated Cases of Abuse or Neglect by Area, 2000 and 2005
(Number and Rate per 10,000 population)

Area	2000	2005	change	% change
Connecticut	15,402	11,226	(4,176)	-27.1%
Rural Areas	441	432	(9)	-2.0%
Non-rural Areas	14,374	10,424	(3,950)	-27.5%
Rate Per 10,000 Popul.				
Connecticut	45.14	31.94	(13)	-29.2%
Rural Areas	14.78	13.75	(1)	-7.0%
Non-rural Areas	46.16	32.57	(14)	-29.4%

g. Oral Health

- Number of providers accepting children in HUSKY insurance program
- Number of emergency room visits for oral health problems?

Why is This Important?

- Tooth decay is the most common chronic disease of childhood.
- Pain and infection from poor oral health can lead to poor concentration and eating habits, as well as other medical conditions.
- There is evidence of a link between gum disease in women and underweight birth.³⁵
- Fewer than half of Connecticut children had any dental care.
- According to Pediatric Dentistry, every dollar of oral health preventive care saves \$10 in emergency room care.

Headlines

- As a result from the Surgeon General's report on Oral Health in America, the Connecticut Department of Public Health, Office of Oral Public Health has begun the process of setting goals and strategies to develop a statewide oral health plan to (1) promote oral health, (2) improve quality of life, and (3) eliminate health disparities. The oral health plan is intended to set priorities, organize efforts and guide resource allocations for the public and private sectors to improve the oral health of Connecticut's children and adults (with special emphasis on the vulnerable populations) as an important component of general health and well-being.³⁶
- 60% of children did not receive any preventive dental care in 2004. Preventive care was higher for Hispanic children than White or African-American children.³⁷

³⁵ Connecticut Oral Health Initiative

³⁶ CT Department of Public Health. Draft Statewide Oral Health Plan

³⁷ Connecticut Voices for Children. March 2006. *How is the HUSKY Program Performing?*

- As of 2005, there are 2,591 dentists in the state of Connecticut. Of these, only 385 accept Medicaid.³⁸
- Rural healthcare providers identified access to dental care as one of the top five services not currently being met in rural areas. Additionally, there is an average three month waiting period for children who receive HUSKY to see a dentist in Connecticut.³⁹

IV. Health Service Access

Rural Connecticut is served by a well developed network of hospitals and primary care providers (see Appendix E, Maps 1-3). In preparing for the provider survey, HWF identified the following health services other than hospitals serving predominately the rural towns: eight community health center facilities operated by seven providers, five agencies offering services to victims of domestic violence, 16 home health care providers, 19 non-hospital sites offering mental health services, 14 substance abuse treatment providers, and 54 primary care practices.

Five hospitals serve rural areas (Day Kimball, Putnam; Sharon, Sharon; Windham, Willimantic; Johnson Memorial, Stafford Springs, and Charlotte Hungerford, Torrington). Backus Hospital also gets patients from Plainfield and Canterbury. There is also a well-developed network of emergency medical services overseen by the Department of Public Health Office of Emergency Medical Services (OEMS), including “well-established pre-hospital system, with four levels of EMS providers,” and a network of acute care hospitals.⁴⁰ The OEMS is conducting various studies of this system and taking steps to improve it. The State is creating a trauma registry that will facilitate emergency medical systems planning in the future.

A detailed analysis of the supply of and demand for health provider capacity was beyond the scope of this study, but the evidence from the surveys and interviews support a conclusion that the rural areas are well served with primary care providers and local hospital services, but many people have to travel out of the rural areas for specialty services. Some practice groups have opened satellite offices in suburban areas to reduce the need for rural residents to travel the full distance to major medical centers for specialty care. These practices may not serve residents with Medicaid however. Primary care providers tend to be concentrated around the hospitals and often difficult to access by low income people from other towns. In addition, many of these providers have full practices and will take only limited numbers of uninsured or state insured people. There is thus a real disparity in access to health services even though it may appear that there are sufficient providers.

The primary issues emerging from this study have less to do with the health services infrastructure than with issues of the need for prevention and public health interventions

³⁸ Connecticut Oral Health Initiative

³⁹ www.ctoralhealth.org

⁴⁰ American College of Surgeons *Trauma System Consultation*, State of Connecticut, Hartford, Connecticut, February 26 - March 1st, 2006

for conditions that are prevalent across rural and urban areas (e.g. overweight, diabetes), disparities in access to existing services by income level and insurance status and some aspects of the way services are delivered. Another capacity issue often mentioned is the difficulty community health centers and rural hospitals have in recruiting and retaining professional staff. Several towns at the edge of the rural areas that serve rural residents have been designated Health Professional Shortage Areas (see Appendix E, Map 10 for current designations).

Rural Health Issues and Opportunities

Three methods were used to draw conclusions surrounding access to healthcare services within Connecticut's rural areas. (1) a healthcare provider survey, (2) individual healthcare provider interviews and (3) discussions held with members of the CT-ORH Advisory Board were conducted over a two month timeframe to better understand what significant barriers face rural residents.

The survey was supplemented by telephone interviews conducted on separate occasions with administrators of healthcare facilities who serve significant numbers of the rural population in Connecticut⁴¹ and with discussions at meetings of the Rural Health Advisory Board.

- 27 healthcare providers responded to the survey 11 (40.7%) were healthcare administrators, 8 (29.6%) were physicians, 3 (11.1%) were healthcare directors and 5 (18.5%) comprised other types of providers. Survey respondents represented providers from hospitals (3.7%), primary care practices (25.9), community healthcare centers (11.1%), home healthcare agencies (18.5%), mental health facilities (11.1%), substance abuse facilities (3.7%), and other healthcare organizations (25.9%).
- Healthcare providers identified transportation services as the most significant barriers to accessing healthcare for rural residents (Table 4.1). Other factors identified by providers ranked in order from greatest to least include: (1) financial constraints or the lack of healthcare insurance coverage, (2) the time period to wait for a healthcare appointment, (3) lack of knowledge of services available, (4) lack of walk-in services, (5) language barriers, and (6) office hours.
- Consumers have identified difficulties obtaining a primary care provider once they not longer have insurance or Medicaid coverage. Most providers request insurance information as the time appointments are made.⁴²

⁴¹ Interviewees included the Executive Director of Generations Healthcare Center, the Director of Community Healthcare at Sharon Hospital, the Assistant Director of the Torrington Area Health District; the Assistant Director of the Northwest Mental Health Authority; a Thompson Connecticut school social worker and a representative from the Northwest Kidcare Network.

⁴² Information provided by Patricia Beckenhaupt, Northeast Department District of Health.

Table 4.1 Barriers to Healthcare Services

Factors rated as Barriers to healthcare services for people living in the rural areas (with “1” as severe, “4” not an issue).	
Transportation	2.52
Financial Constraints (lack of healthcare insurance coverage)	2.58
Time period to wait for an appointment	2.68
Lack of knowledge of services available	2.79
Lack of walk-in services	2.84
Language barriers	3.16
Office Hours	3.20

- Healthcare providers identified that transportation services as the most needed service within rural communities that are not currently available at the level required for rural residents. In addition to transportation, substance abuse services, translation services, domestic violence services, and dental care were rated as the top five services needed within rural communities.

Table 4.2 Rank of Community Needs for Services

How well are community needs for these services being met in the rural areas you serve? Rate on a 1-4 scale, where 1 is 'Not Met at all' and 4 is 'Completely Met.'			
Average Rating			
Transportation Services	1.96	Sexually Transmitted Disease Services	2.80
Substance Abuse Services	2.24	Early Intervention Screening Services (Birth-5 years)	2.80
Translation Services	2.27	Postnatal Care	2.83
Domestic Violence Services	2.32	Asthma Care	2.84
Dental Care	2.35	Primary Healthcare Services	2.85
Mental Health Services	2.38	Home Care Assistance	2.85
Dialysis	2.50	Family Planning Services	2.88
Diabetes	2.75	Vision Care	2.91
HIV/AIDS Care	2.75	Women's Health Services	2.96
Prenatal Care	2.80	Hospice Care	3.04
9 people wrote in obesity services			

Health care providers reported taking a number of steps to help patients overcome barriers to accessing services:

- 8 healthcare providers identified that they took steps to connect patients to other services rather than leave the patients to do it on their own.
- 12 healthcare providers initiated home based services, such as house calls.
- 10 healthcare providers extended hours and made other changes to the operations of the practice to make the atmosphere more family friendly.
- 12 healthcare providers initiated transportation services or connecting with volunteer drivers and other local programs to increase transportation availability to their patients.
- Other strategies included new staff, new services (e.g. enrollment on site, open NA/AA meetings), outreach and telemonitoring.

These findings were generally consistent with other recent rural health needs assessments. In the Health Resource Capacity Assessments for Danielson and Putnam, Connecticut, many of the same concerns were identified.⁴³ These assessments were administered by the Northeast District Department of Health through grants from the state DPH and the CT ORH. Danielson, Connecticut is a borough within the town of Killingly in northeastern Connecticut, and has demographics that are indicative of much of rural Connecticut. Putnam is also located in rural northeastern Connecticut. Transportation to services in Danielson was listed as a serious issue; over 12% of Danielson residents do not have access to a car. Although there is public transportation

⁴³ Andrews, Ellen. May 2001. Health Resource Capacity Assessment for Danielson, CT. New Haven, CT: Connecticut Health Policy Project.
Andrews, Ellen.. May 2001. Health Resource Capacity Assessment for Putnam, CT. New Haven, CT: Connecticut Health Policy Project.

in Northeast CT provided by the Northeast Connecticut Transit District, the services – in terms of routes, times, and stops - do not in generally provide effective means for most in need to get to doctor's appointments. Poor nutrition and obesity were also identified. Lack of insurance is a problem that correlates very strongly with low income. While town-specific information on lack of coverage not available, a number of rural communities such as Danielson and Putnam have lower incomes in general than the state's median income level and are thus likely to have a higher proportion of uninsured. The high cost of private health care combined with state cuts in HUSKY, Medicaid and SAGA have had drastic effects on rural Connecticut; fewer of the limited number of providers can afford to accept this insurance.

Table 4.3 Danielson and Putnam Barriers to Care

Danielson Health Needs and Barriers to Care:	Putnam Health Needs and Barriers to Care:
Uninsured	Parental Stress
Transportation	Uninsured
Dental Care	Availability of Health Care
Child Abuse	Transportation
Mental Health	Mental Health and Substance Abuse
Substance Abuse and Hepatitis C Infection	Teen Pregnancy
Exercise, Obesity and Nutrition	Lyme Disease
Asthma and smoking	Asthma
Teen Pregnancies	Smoking
Workers' Compensation	Nutrition, Exercise, and Obesity
Coordination of Efforts/Information	Dental Care
	Health Status Indicators

Source: Health Resource Capacity Assessment for Danielson, CT., Health Resource Capacity Assessment for Putnam, CT

There are several common themes between the health resource capacity assessments and this provider survey:

The priority rural health issues identified through the literature review, recent health resource capacity assessments, the provider survey, interviews, and Advisory Board meetings were the following:

- Access to health services, both financial access and transportation
- Mental Health Services
- Oral Health Services

These are consistent with the issues identified in a prior survey of Northwest Connecticut providers⁴⁴ and in a national survey of rural health providers which ranked access to health care, mental health and oral health as the three top issues.⁴⁵

⁴⁴ Sapp, Amy. 2005. *Foundation for Community Health Needs Assessment Studies, 2004- 05, Final Report*. Sharon, CT: Foundation for Community Health

Uninsured Population. This barrier was brought up frequently in the literature and in the provider survey. Rising health insurance premiums have become a serious barrier to coverage for many rural residents. The lack of insurance leads to the reduction of preventive care, which can lead to catastrophic health costs ultimately borne by the taxpayers and private payers. Additionally, reduced government and private insurance reimbursement rates for providers make it difficult for providers to offer uncompensated care. If a provider offers a reduced rate to someone, the insurance companies can say that the provider is overcharging the insurance company for services. Therefore, providers are careful about the consistency of fees. In the case of hospitals, the uninsured bears the brunt of this since they are billed published charges. Many residents end up seeking services anonymously in the Emergency Departments which cannot deny care.

- Health insurance costs continue to rise across CT. In 2003, average annual cost for a single person was \$3,676 and the average cost for a family is \$10,119.
- In 2005, Connecticut spent approximately \$572 million on healthcare for the uninsured in direct costs. Fully 39 % of this spending comes from the uninsured themselves. The state's hospitals, doctors, clinics, and other health care providers donate another 11 % of the cost, amounting to \$65 million a year.⁴⁶
- In fiscal year 2002, 1.9 % of Connecticut's economy was spent on state-funded healthcare. This was the 49th lowest such percentage in the country and well below other affluent states and other New England states, suggesting that CT may be able to afford increasing the resources devoted to state-funded healthcare.⁴⁷
- From 2000-2004, while U.S. wages rose by 2.9% per year, health insurance costs grew by 12.2% per year. Researchers have reported that each 10% increase in health insurance premiums reduces employment by 1.6%, lowers hours worked by 1%, increases the proportion of part-time employment by 1.9% and lowers wages by 2.3%.⁴⁸
- In 2005 an additional 50,000 CT residents became uninsured making the statewide total 407,000 people.⁴⁹ The uninsured are less likely to receive preventative care, more likely to be hospitalized for avoidable health problems, and are more likely to be diagnosed in the late stages of disease.

HUSKY has been an invaluable resource, but reimbursement rates which discourage provider participation, especially in the area of dental services, have created hardship for working families. Access to preventive care by HUSKY enrollees is uneven due to provider issues, transportation, and family and cultural barriers to access. Connecticut Voices for Children monitors the use of ambulatory care (office, clinic, or emergency room visits), including preventive care, which can help to identify health problems early

⁴⁵ Gamm, L., and Bell, S. 2001. Identifying Rural Health Priorities within Healthy People 2010: A Report on the results of the Rural Healthy People 2010 survey. Dallas, TX: National Rural Health Association conference, May 2001

⁴⁶ Mapping Health Spending and Insurance Coverage in CT.

⁴⁷ Mapping Health Spending and Insurance Coverage in CT.

⁴⁸ Mapping Health Spending and Insurance Coverage in CT.

⁴⁹ CT Health Scorecard 2006

and reduce more costly healthcare services later on. Pediatric “EPSDT” guidelines established for Medicaid under federal law call for regular preventive well-child exams. In 2004, over half of children (56%) received well-childcare, a significant increase over 2003 (51%) and a continuation of a fairly steady increase since 1999.⁵⁰

The top service categories identified by all healthcare providers interviewed as severely lacking in availability to rural area were:

Transportation. Transportation and physical access to care are some of the biggest issues for rural residents and a major factor distinguishing rural from urban health concerns. The provider survey indicated transportation as the biggest barrier to care for their residents. As with the healthcare provider survey, transportation was identified among all interviewed providers as the leading barrier to accessing medical care in rural areas. In Danielson, there is no taxi service, and homebound residents must call an ambulance for the slightest health problem. Additionally, while there are public buses, they do not run at night, and cannot provide access to some of the larger regional health centers. The Putnam report noted similar issues but indicated progress working with the local bus service. Initiatives to improve this barrier such as the Locally-Coordinated Public Transit Human Services Transportation Plan and United We Ride are described below. Some healthcare providers identified within the survey that adaptations had been made to their facility or practice to make accessing healthcare easier for rural residents.

The State of Connecticut Department of Transportation has identified methods to increase transportation services within the state over time through two initiatives:

- Locally-Coordinated Public Transit Human Services Transportation Plan. This community based plan takes a 'job access' style approach to gather information on who is providing what types of transportation and to where, what sources of funding are used, and what are the gaps in transportation (see Appendix F).
- United We Ride: A federal initiative concerning coordination of transportation services. Negotiations are in process to use the Framework for Action to assist in facilitating discussions among the state agencies to develop a State Action Plan.⁵¹

Mental Health Services. The lack of adequate and effective mental health services was a common theme throughout the literature review and provider survey. Each interviewed healthcare provider identified mental health services for both adults and children as a service severely lacking within the rural areas of Connecticut.

The Thompson school district social worker acknowledged the availability of emergency mental health services; however there are no services available to less severe, non-emergent cases. The local mental health safety net provider in Danielson noted increasing caseloads and declining resources, leading to long waiting lists. The Putnam study noted that the management of Day-Kimball Hospital (the major local provider), rated behavioral health issues as Putnam’s biggest health concern. There are very few places for referral, especially for pediatric psychiatric care. Long waiting times were also

⁵⁰ Connecticut Voices for Children, HUSKY reports, www.ctkidslink.org

⁵¹ Lisa Rivers, Transportation Supervising Planner, Connecticut Department of Transportation

reported in Putnam, where one provider recounted a suicidal teenager waiting for 72 hours in the emergency department for placement. Another provider cited an increasing reliance on hospital emergency departments for treatment. Medicaid cuts in these areas have also led to reductions in care.

Alcohol/Substance Abuse. The rates of alcohol abuse and DUI arrests were much higher in the rural towns of the East than in the rest of the state. A similar situation is described in Danielson. While the substance abuse rate is low, the alcohol abuse and DUI rate are very high (see Maps 6 & 7 in Appendix E).

Dental Care. Oral health emerged as a top concern in the survey and interviews as well as the prior assessments. The Danielson study noted that only one of the 58 dentists listed in Danielson's Yellow Pages accepts children on HUSKY, and only one other dentist sees adults on Medicaid. The Putnam study reveals that only one dentist in Windham County accepted HUSKY at the time of the study. However, there has been progress made in dental care thanks to the dental van (an innovation which also partially solves transportation issues) established in northeastern Connecticut—but this is a limited and expensive model cannot keep up with the overwhelming need.

Translation Services. This particular concern expressed in the survey was not raised in the Danielson and Putnam capacity assessments, perhaps because immigrant groups are difficult to identify. This may reflect the changing demographics of rural areas, or is perhaps a data anomaly. Public health has significant challenges in reaching these special populations especially when trying to identify, track and treat communicable disease such as TB.

Other areas of concern. Providers interviewed also mentioned the delivery of specialty services as a significant issue in rural areas that is aggravated by the frequent need to travel to distant centers for services. The Executive Director at Generations expressed a great need for medical specialists within rural area of Connecticut. Without access to specialists with close proximity to where residents live they are required to travel to longer distances to seek care; if patients do not have adequate transportation or access to public transportation they simply will not see a specialist—which oftentimes allows a medical condition to escalate. He also reported that emergency department visits have doubled in the past year.

The Danielson and Putnam studies both listed smoking and teen pregnancies as major issues in their areas. According to the 2006 Connecticut Health Scorecard, 18% of Connecticut adults are considered smokers. The rates in rural areas are generally considered higher than in urban areas. In Danielson, providers worried that young parents were not aware of the damage caused by second-hand smoke. They also reported that the smoking was on the rise among parents of the children in their care. In Putnam, 11% of 5th and 6th graders reported smoking cigarettes, compared to the state average of 7%.

Organization & Planning

A theme in the interviews and in the Putnam and Danielson assessments is the need for better mechanisms and more financial and staff support for community initiatives to

improve health outcomes. Many public health initiatives emerging from the federal and state governments are emphasizing the need for community-based collaboration across traditional boundaries in order to address persistent health issues with complex social, economic, and health-related determinants. Rural areas present both opportunities for this work with their well-developed social networks and challenges based on distances and low density of population. In most areas, regional health districts are in a position to champion health improvement efforts if provided the requisite resources. One respondent applauded the efforts of the state to develop regional health districts, consolidating the part-time local health offices that lack capacity to advance community initiatives. This could be the catalyst for improved planning and collaboration in the future.

In the survey, healthcare providers made the following recommendations to improve healthcare services in rural Connecticut:

- Improve Transportation Services
- Improve Insurance Coverage
- Increase reimbursement to provide more incentives to providers to serve lower HUSKY enrollees
- Expand Provider Capacity
- Explore new technologies in the delivery of health care

V. Recommendations

The mission of CT-ORH is to promote the health of persons living in rural Connecticut through education, communication and partnerships, by focusing on the enhancement, access and promotion of quality healthcare for rural Connecticut. This framework is used to present recommendations for future considerations as CT-ORH refines its strategies, partnerships, and approaches to achieving its mission.⁵²

CT-ORH operates with limited federal and state funding. The strategies used by CT-ORH to achieve its mission include:

- Serving as a clearinghouse for information on rural health.
- Assisting in the recruitment and retention of health care providers.
- Fostering collaborative efforts to improve health services and care in rural Connecticut.

The CT-ORH Advisory Board, staff, and partners should consider the following opportunities relevant to advancing the mission of CT-ORH. The opportunities are

⁵² Rural Healthy People 2010, a project funded by the Health Resources and Services Administration's Office of Rural Health Policy, aims to identify the top rural health priorities. Some of the leading rural health priorities include access to quality care issues, mental and oral health, heart disease, stroke and diabetes. The Rural Healthy People 2010 report offers guidance to states, communities, health organizations and professionals on how these rural health priorities might be addressed, including examples of best practices.

organized around the current strategies employed by CT-ORH and focus primarily on strengthening the information clearinghouse function and promoting collaborative efforts.

The quantitative data reveals and the interview data of opinion leaders confirm the following three major themes about rural healthcare in Connecticut:

- **Disparities.** In general, the economic health of rural residents remains stronger than non-rural residents. However, significant and growing numbers of individuals and families face substantial economic challenges and as a consequence, health challenges. Middle class families appear to enjoy solid access to healthcare systems. However, lower income – including retired elderly and families – experience a higher burden of health-related concerns.
- **Access to Healthcare.** Two access issues limit the impact of the healthcare system: cost and transportation. With respect to cost, availability of insurance coverage accepted by providers represents a limiting factor. Providers and consumers point out concerns especially for low-income populations in the areas of chronic disease management, oral health, and mental health. Transportation limitations prove equally significant. Getting to health appointments and especially to distant specialists has been identified as a significant challenge to maintaining health. Providers acknowledge that individuals who do not have access to transportation to see specialists for medical conditions often wait until their condition worsens forcing them to visit emergency departments.
- **Capacity.** The service system needs to increase its capacity to provide services in specific areas such as mental health, dental services, specialty services, and transportation services (or coordination). For example, a growing sentiment among providers exists that the current mental health prevention and treatment system can not address adequately the mental health service needs of the rural communities, particularly children, irrespective of economic status.

A. Information Clearinghouse

1. **Outreach to Families and Individuals.** The relatively low number of families and individuals at high risk of poor health outcomes in rural areas and a friendly and open community culture of rural areas present an opportunity to develop targeted outreach systems that connect and work across service agencies and community resources. CT-ORH could work with a coalition of the Community Action Agencies implementing the DSS Human Services Infrastructure, the hospitals bearing the brunt of un-reimbursed Emergency Department costs, and Community Health clinics to develop the best strategy to identify and reach out to this population. Methods could be developed that are culturally appropriate and take advantage of the social networks and relationships present in rural areas.
2. **Information and Referral.** With the proliferation of computer access, technology, business systems are being rethought across the economy. The CT-ORH could partner with the new management at the United Way of Connecticut to explore ways to ensure that 211 Infoline and its affiliated services such as Child Development Infoline and Help Me Grow are fully responsive to the needs of rural residents.

3. **Clearinghouse Function:** As part of its clearinghouse function, CT-ORH could tap its national networks of State Offices of Rural Health to identify studies and projects that have proven successful in other locations and then infuse this information into planning to address comparable issues in Connecticut. In Connecticut, CT-ORH could develop a web-based database of local projects and promising interventions that would facilitate connections across areas and dissemination of the most promising practices. [See also suggestions related to “higher profile planning presence”.]

B. Fostering Collaborative Efforts

Direct Service Enhancements

1. **Transportation.** CT ORH could *convene* health service providers, and regional Councils of Governments and state transportation planners and providers to develop a plan for addressing *human services transportation* needs as called for in the new federal transportation act (Appendix F). CT-ORH could facilitate this process and then offer to invest a portion of its federal grant as seed funding for solutions that emerge from a planning process. Initially, a statewide meeting may be appropriate. However, the process should accommodate regional, geographic territories due to the particular institutional arrangements and transportation systems in the Northwest and East regions of the state. A study should include the potential users of the public transportation system and look at all barriers to access. This work should engage the AHECs, possibly the Regional Educational Service Centers (RESCs) that provide extensive transportation services, the regional planning organizations, and the regional transit districts.
2. **Oral Health.** The number of dentists accepting patients covered through the HUSKY plan is extremely low, resulting in a serious lack of services for the 20,720 HUSKY enrollees in rural areas (2004) (a 67% increase over the total for 1998). Options the CT-ORH could pursue include:
 - Support regional dental coalitions involving the Dental Association and local agencies drawing on the most successful strategies piloted recently by urban dental coalitions to expand services to HUSKY and uninsured residents. This should involve the Connecticut Oral Health Initiative and the Connecticut Health Foundation as well as local providers. This could add the rural voice to those seeking increases in the HUSKY reimbursement rates for dental services, a critical barrier to improved access to services.
 - Evaluate the dental van strategy in the Northeast and, if warranted, provide support for the launching of a Northwest Dental Van services, and for efforts to sustain the Northeast van.
 - Partner with the University of Connecticut, School of Dentistry to provide services to the community while engaging students.
3. **Mental Health.** CT- ORH could either use its convening role or offer small grants to support innovative programs that address the issues of capacity and

community reluctance to seek treatment that were identified in the study. Options the CT-ORH could pursue include:

- a. CT-ORH should reach out to DMHAS to ensure that the specific needs of rural residents are addressed in the planning under the Mental Health Transformation grant. CT-ORH could join with the Community Foundation for the Northwest and possibly other funders to increase the amount of funding that could be available to support expanded capacity and new initiatives. The Request for Proposals could also spur local philanthropic organizations to take notice of rural needs, and eventually lead to their financial support of rural health initiatives.
- b. School-based clinics have proved successful in addressing mental health needs of youth. Recently a pilot proved successful within the Northwest region to offer school-based mental health services. CT-ORH could offer or help secure startup funding for a period of one year, allowing innovative organizations to establish programming and secure funding for continued operation.
- c. Healthcare providers have identified that mental health patients are frequently concerned with a stigma attached to receiving mental health services. CT-ORH could assist in building partnerships between mental health providers and other healthcare providers to offer mental health services physically located in alternative settings relieving concern from patients that community members will be able to identify their need for mental health services by the location they frequent within a community.
- d. Telehealth is being used in other parts of the country and is successful in evaluation and early intervention. State DPH is currently looking into this as an option for supporting the current infrastructure.

Higher Profile Planning Presence

- 4. Interface with CTDPH.** CT-ORH could work with CTDPH to ensure that their various planning processes and efforts reflect the needs and particular issues of rural residents. Rural Connecticut with over 300,000 people has a population almost as large as Connecticut's three largest cities which gain the most attention at the state level and in the public consciousness. Rural Connecticut does not experience the scale of issues facing the urban areas. However, rural Connecticut does face unique issues that could and should attract more attention and investment from the state. Rural health stakeholders point out that rural areas offer the opportunity to pilot and prove approaches to health improvement because of the smaller, manageable scale of the issues, many of which are similar in urban areas but less solvable due to scale issues.
- 5. Data Collection.** This study brought together many sources of data and is making it all available through the CT-ORH web site to support local planning. Baker Salisbury, President of the Connecticut Association of Directors of Health (CADH) recently wrote: "...it's time to get serious about data collection at the

local level. The paradox is that we collect and publish data labeled “statewide”, but few mayors or selectmen or even legislators care about “statewide data.” They care about Chlamydia in their middle school; they care about obesity in their Head Start Program. In reality, they fund what they care about; and they care about what is measured. Let us under-gird our strategic planning by sweeping aside all the excuses and laziness regarding local data collection and insisting on the collection and analysis of core data at the town level including asthma, obesity, very-low-birth weight, lead poisoning, diabetes, STD’s, and dental caries in very young children. Note: Constructing an even rudimentary system will take Leadership.”⁵³ CT-ORH could join with CADH, CT DPH, and others interested in good quality local data to continue the work of this study and create a robust, statewide local health data system that provides timely, user-friendly access to local data on health outcomes and related indicators for local health departments, community coalitions and others seeking to address rural health issues.

- 6. Community Processes.** There is a growing recognition of the role of community environment and values as significant determinants of health outcomes. Also, a growing body of data supports investments in prevention to improve quality of life now and avoid costly interventions later. CT-ORH could partner with philanthropic funders to support collaborative community planning to attack specific issues or to develop overall community health promotion plans based on the “Healthy Communities.” Technical assistance and tools are available to support this kind of community planning and action, and the CTDPH has also moved in this direction. Natural partners exist in local departments and health and the Connecticut Association of Directors of Health. The CT-ORH could also look to consumers to provide their perceptions to what they see as healthcare issues/barriers in their areas. The creation of partnerships between consumers and providers could lead to positive initiatives that benefit both the provider and rural residents alike.
- 7. Fund Development.** CT-ORH could provide a valuable service by helping local health services providers identify potential sources of funding for health services and new interventions to address health issues and facilitate collaboration across providers and others to submit proposals. CT-ORH can build on its historic relationships to engage philanthropic leaders.

C. Recruitment and Retention of Healthcare providers

This particular strategy can be embedded within the other two strategies primarily through information sharing (e.g., job postings on the web or information clearing house function) or through collaborative planning that targets an identified and agreed upon gap. For example, CT-ORH could support statewide allied health workforce development efforts, including establishing closer working with Community Colleges that offer allied health degrees as an effort to promote careers in nursing and other allied health professions.

⁵³ Connecticut Association of Directors of Health, Newsletter, Dec 2005. Baker Salsbury remarks

Rural Community Health in Connecticut: Challenges and Opportunities

CT-ORH has and can continue to play a pivotal role in Connecticut's rural healthcare delivery system. Disparities in health outcomes and access confirm that service gaps and needs do exist. CT-ORH must decide how it will apply scarce resources (or attract additional resources) to strengthen the networking, planning, information sharing, and fund raising efforts that will build the capacity of the rural healthcare delivery system, increase and promote access to these services, and support innovative, cost effective efforts by both providers and consumers all working to improve health outcomes in rural Connecticut.

VI. Appendices

- A. Bibliography
- B. Persons Interviewed
- C. Data Sources
- D. Rural Towns and Zones
- E. Maps
- F. FTA Proposed definition of a Locally-Coordinated Public Transit-Human Services Transportation Plan Executive Summary

APPENDIX A.

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APPENDIX B.

List of Persons Interviewed

Melissa Bonsal
Operating Officer
Generations Healthcare Center

Steven Bistrain
Northwestern Mental Health Authority

Donna Campbell
Executive Director
Northwest Center for Families and Mental Health

Carol Deane
Executive Director
Northwestern Connecticut Transit District

Susan Grant-Nash
Social Worker
Thompson Public Schools

Nancy Heaton
Executive Director
Foundation for Community Health

James Hutchinson
Director of Community Health
Sharon Hospital

Dan McGuiness
Executive Director
Northwestern Connecticut Council of Governments

Jan Lyon
Northwest KidCare Collaborative

Richard Lynn
Executive Director
Litchfield Hills Council of Elected Officials

Leslie Polito
Assistant Director
Torrington Health District

Arvind Shaw
Executive Director
Generations Healthcare Center

Catherine Russell
Executive Director
Eastern AHEC

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APPENDIX C. Data Sources

Category	Indicator	Level	Years	Source	Worksheet on Website	Web Address
Demographics						
Poverty	% of Students Free and Reduced Lunch	School District	2006	State Department of Education and US Census	Children_F_R_Lunch.xls	http://www.census.gov
Population	Total Population	Town	2000	Census	Town_Population_Estimates.xls	http://www.census.gov
Population	Population Under 18 yrs	Town	2000	Census	Substance_Abuse_and_Safety.xls	http://www.census.gov
Population	Population 18 and Older	Town	2000	Census	Substance_Abuse_and_Safety.xls	http://www.census.gov
Population	Population 10-20 yrs	Town	2000	Census	Substance_Abuse_and_Safety.xls	http://www.census.gov
Social Programs	Food Stamp, TANF, SAGA and Medicaid recipients	Town	1998-2005	Connecticut Department of Social Services, Administrative Reports	DSS_Programs.xls	http://www.dss.state.ct.us
Employment	Employment and Unemployment	Town	1995, 2000-2005	Connecticut Department of Labor, Labor Market Information	Employment.xls	http://www.ctdol.state.ct.us/lmi/index.htm
Education						
Attainment Level	Drop out rate	District	1997-2004	Strategic School Profiles	Education.xls	http://www.csde.state.ct.us/public/cedar/profiles/index.htm
Attainment Level	High school graduation rate	District	2002-2004	Strategic School Profiles	Education.xls	
Attainment Level	Number and percent of population 25 and over that are not high school graduates	District	2000	DP-2 report, SF3 Data set	Education.xls	http://www.census.gov
Attainment Level	Number and percent of population 25 and over that have a BA or higher degree	District	2000	DP-2 report, SF3 Data set	Education.xls	http://www.census.gov
Attainment Level	2004 Cumulative Drop Out Rate	District	1998-2004	Strategic School Profiles	Education.xls	http://www.csde.state.ct.us/public/cedar/profiles/index.htm
Birth Information						
Birth Outcomes	Infant Death Rate	Town	1999-2003	Connecticut Department of Public Health Registration Reports	No worksheet- see Report	http://www.dph.state.ct.us/OPPE/ANNUALREGREPORTS.HTM
Birth Outcomes	Low and Very Low Birth Weight	Town	1997, 2000, 2003		Birth_Risks.xls	
Birth Outcomes	Rate of Non-adequate Prenatal Care	Town	1997, 2000, 2003			

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Category	Indicator	Level	Years	Source	Worksheet on Website	Web Address
Birth Rate	Birth Rate by mother's race/ethnicity	Town	1997, 2000, 2003	Connecticut Department of Public Health Registration Reports	Birth_Risks.xls	http://www.dph.state.ct.us/OPE/ANNUALREGREPORTS.HTM
Teen Pregnancy	Births to teen mothers ages <15	Town	1997, 2000, 2003			
Teen Pregnancy	Births to teen mothers ages <18	Town	1997, 2000, 2003			
Teen Pregnancy	Births to teen mothers ages <20	Town	1997, 2000, 2003			
Chronic Disease						
Asthma	Emergency Department Visits	Town	2005	Asthma in Connecticut 2005: A Surveillance Report	Asthma.xls	http://www.dph.state.ct.us/BCH/new_asthma/pdf/asthma_2005_surveillance_report.pdf
Asthma	Emergency Department Visits, Rate (per 10,000)	Town	2005			
Asthma	Hospital Admissions for Asthma (1996-2002)	Town	2005			
Asthma	Hospital Admissions for Asthma (1996-2002), Rate (per 10,000)	Town	2005			
Cancer	Mortality and Incidence rates (all types of cancer) by gender, race and other factors	State, County	Various	National Cancer Institute	No worksheet- see Report	http://statecancerprofiles.cancer.gov/index.html
Diabetes	Age-adjusted Hospitalization Rates (by race/ethnicity)	State	2002	Burden of Diabetes in Connecticut, Unpublished 8-1-2006	No worksheet- see Report	
Diabetes	Age-adjusted premature death rates	State				
Diabetes	Diabetes Mellitus Mortality	State	1997, 2000, 2003	Deaths in Connecticut	No worksheet- see Report	http://www.dph.state.ct.us/PB/HISR/Deaths.htm
Diabetes	Diabetes related mortality	State				http://www.dph.state.ct.us/PB/HISR/Deaths.htm
Diabetes	Prevalence over 18 (by race, ethnicity, gender, age group, income)	State, County	2002-2004	BRFSS 2002-2004	No worksheet- see Report	http://apps.nccd.cdc.gov/brfss/index.asp
Heart Disease/Stroke	Death Rate, Diseases of the Heart, by Area	Town	2000	Looking Toward 2000 - State Health Assessment	No worksheet- see Report	http://www.dph.state.ct.us/OPE/sha99/cardiovascular_disease.htm

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Category	Indicator	Level	Years	Source	Worksheet on Website	Web Address
Heart Disease/Stroke	Death Rate, Cerebrovascular Disease, by Area	Town	2000	Looking Toward 2000 - State Health Assessment	No worksheet- see Report	http://www.dph.state.ct.us/OPE/sha99/cardiovascular_disease.htm
Heart Disease/Stroke	Total Mortality Rate	State	2005	Profiling the Leading Causes of Death in the United States	No worksheet- see Report	http://www.cdc.gov/nccdphp/publications/factsheets/ChronicDisease/pdfs/Connecticut.pdf
HIV/AIDS	New AIDS Cases, Rate Per 100,000	Town	2000-2005	CT Department of Public Health	AIDS.xls	http://www.dph.state.ct.us/BCH/infectiousdise/2003/data/table5.htm
HIV/AIDS	Number of New Cases	Town	2000-2005			
HIV/AIDS	Number of Cases: 2000-2005	Town	2000-2005			
Lyme Disease	Lyme Disease Cases and Rates per 100,000 Popu by Town and County	Town	2001-2005	Connecticut Department of Public Health Lyme Disease Program	Lyme_Disease.xls	http://www.dph.state.ct.us/BCH/infectiousdise/pdf/LD01_05web.pdf
Obesity/Nutrition	Prevalence by gender and race/ethnicity			BRFSS	See Report	http://apps.nccd.cdc.gov/brfss/index.asp
Obesity/Nutrition	Percent of children passing all four physical fitness tests in school	District	2002-2004	Strategic School Profiles	Education.xls	http://www.csde.state.ct.us/public/cedar/districts/index.htm
Other Diseases						
Dental Care	No indicators available yet			Connecticut Oral Health Initiative	See Report	http://www.ctoralhealth.org
Mental Health	Prevalence rates by severity	State, Region	2002-2004	Connecticut Department of Mental Health and Addiction Services	No worksheet- see Report	http://www.dmhas.state.ct.us/Default.htm
STDs	Chlamydia, Gonorrhea, and Syphilis Cases by Municipality	Town	2005	Connecticut STD Control Program	STDs.xls	http://www.dph.state.ct.us/BCH/infectiousdise/std_stats.htm
Suicide	Suicide mortality by gender, and race/ethnicity	State	1997, 2000, 2003	Deaths in Connecticut	No worksheet- see Report	http://www.dph.state.ct.us/PB/HISR/Deaths.htm
Family and Safety						
Crime	Property Crime Number	Town	2003	Connecticut Department of Public Safety	Substance_Abuse_and_Safety.xls	http://www.commed.uchc.edu/healthservices/sew/
Crime	Property Crime Rate	Town	2003			
Crime	Violent Crime Number	Town	2003			
Category	Indicator	Level	Years	Source	Worksheet	Web Address
Crime	Violent Crime Rate	Town	2003			
Child Abuse	Children substantiated as abuse/neglect/uncared for	Town	2000, 2005	CT DCF Town pages	Child_Abuse.xls	http://www.state.ct.us/dcf/townpages.htm

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Category	Indicator	Level	Years	Source	Worksheet on Website	Web Address
Substance Abuse						
Substance Abuse	7-8th Grade Past Month Alcohol Use	Town	2000	Governor's Prevention Initiative for Youth	Substance_Abuse_and_Safety.xls	http://www.commed.uchc.edu/healthservices/sew
Substance Abuse	9-10th Grade Past Month Alcohol Use	Town	2000	Governor's Prevention Initiative for Youth		
Substance Abuse	Adult Drug Arrest Number	Town	2003	Connecticut Department of Public Safety		
Substance Abuse	Adult Drug Arrest Rate	Town	2003	Connecticut Department of Public Safety		
Substance Abuse	Alcohol Related Motor Vehicle Accident Number	Town	2000	Connecticut Department of Transportation		
Substance Abuse	Alcohol Related Motor Vehicle Accident Rate	Town	2000			
Substance Abuse	Alcohol Related Motor Vehicle Fatality Number	Town	2000			
Substance Abuse	Alcohol Related Motor Vehicle Fatality Rate	Town	2000			
Substance Abuse	DUI Rate	Town	2003	Connecticut Department of Public Safety		
Substance Abuse	Juvenile Drug Arrest - Number	Town	2003			
Substance Abuse	Juvenile Drug Arrest Rate	Town	2003			
Substance Abuse	Number of Inpatient Admissions for Alcohol Morbidity	Town	FY 1999	Connecticut Office of Health Care Access		
Substance Abuse	Rate of Inpatient Admissions for Alcohol Morbidity per 10,000	Town	FY 2000	Connecticut Office of Health Care Access		
Substance Abuse	Substance Abuse Treatment Admission Rate	Town	2005	Connecticut Department of Mental Health and Addiction Services		
Substance Abuse	Unduplicated Substance Abuse Treatment Clients Served in SFY2005	Town	2005			
Access to Coverage						
Insurance Coverage	Individuals with HUSKY or SAGA Coverage (also see above under demographics)	Town	2004	Department of Social Services Administrative Reports (available by request to DSS)	Husky_SAGA.xls	

APPENDIX D.
Rural Towns and Zones

Town	Rural Zone	State Town Number	Town	Rural Zone	State Town Number
Andover	E	1	Middlebury	NW	81
Ashford	E	3	Middlefield	CT River	82
Barkhamsted	NW	5	Morris	NW	87
Beacon Falls	NW	6	New Hartford	NW	92
Bethany	NW	8	Norfolk	NW	98
Bethlehem	NW	10	No. Canaan	NW	100
Bolton	E	12	No. Stonington	E	102
Bozrah	E	13	Plainfield	E	109
Bridgewater	NW	16	Plymouth	NW	111
Brooklyn	E	19	Pomfret	E	112
Canaan	NW	21	Preston	E	114
Canterbury	E	22	Putnam	E	116
Chaplin	E	24	Roxbury	NW	120
Chester	CT River	26	Salem	E	121
Colebrook	NW	29	Salisbury	NW	122
Columbia	E	30	Scotland	E	123
Cornwall	NW	31	Sharon	NW	125
Deep River	CT River	36	Sherman	NW	127
Durham	CT River	38	Sprague	E	133
Eastford	NW	39	Sterling	E	136
Easton	E	46	Thomaston	NW	140
Essex	CT River	50	Thompson	E	141
Franklin	E	53	Union	E	145
Goshen	NW	55	Voluntown	E	147
Hampton	E	63	Warren	NW	149
Hartland	NW	65	Washington	NW	150
Harwinton	NW	66	Westbrook	CT River	154
Kent	NW	68	Willington	E	160
Killingworth	CT River	70	Winchester	NW	162
Lebanon	E	71	Woodbury	NW	168
Lisbon	E	73	Woodstock	E	169
Litchfield	NW	74			
Lyme	CT River	75			
Marlborough	E	79			

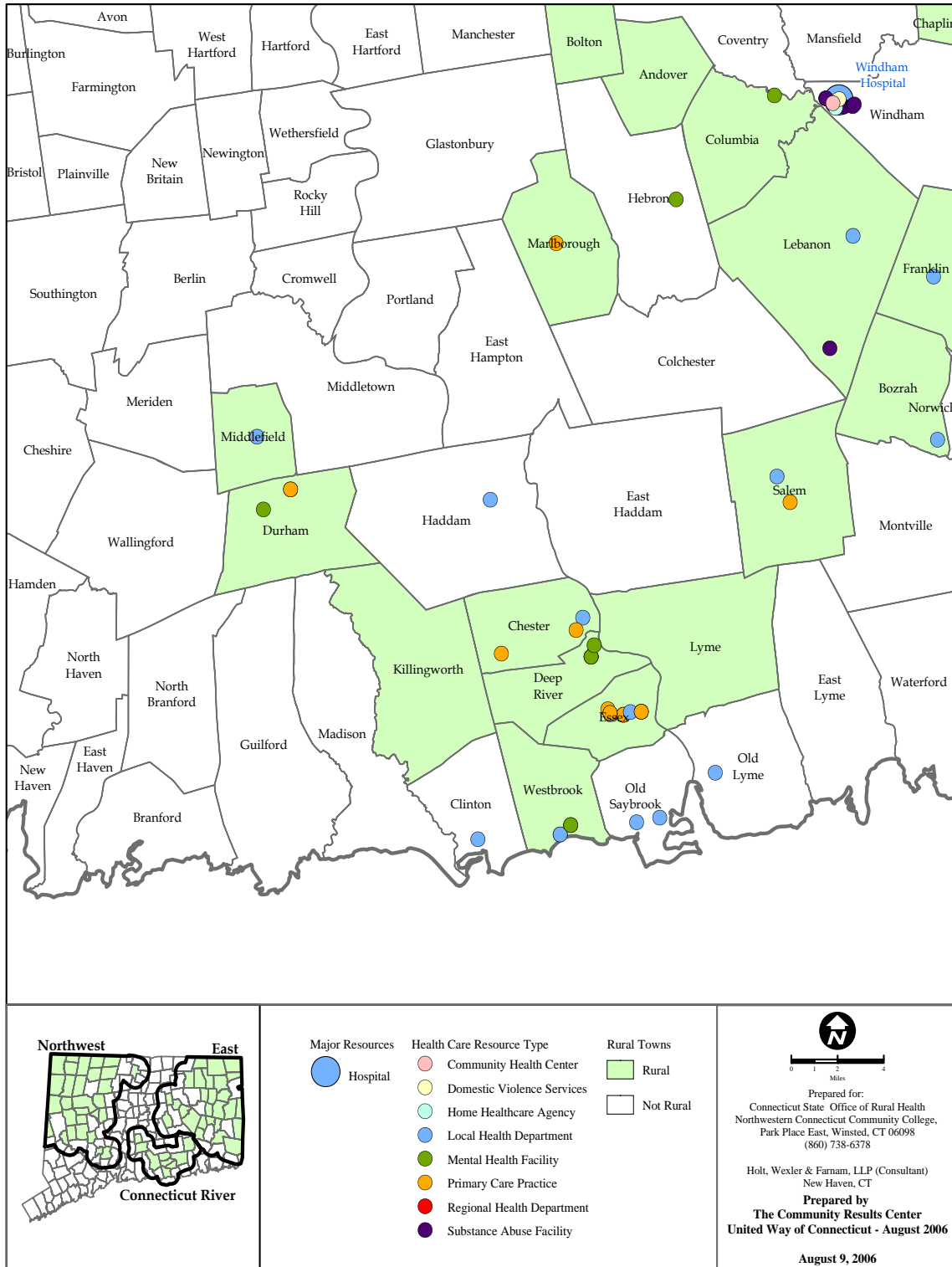
APPENDIX E

Maps

1. Healthcare Resources serving Rural Communities in the Connecticut River Area.
2. Healthcare Resources serving Rural Communities in the Northeast Area.
3. Healthcare Resources serving Rural Communities in the Northwest Area.
4. Cumulative High School Dropout Rate-2004
5. Percentage of Individuals in Poverty-1999
6. Alcohol Related Motor Vehicle Accidents by Town- 2000
7. Alcohol Related Motor Vehicle Accident Fatalities by Town- 2000
8. Births in which the mother received Non-Adequate Prenatal Care per 1,000 Live Births-2003.
9. Births in which the baby had a Low Birth Weight per 1,000 Live Births-2003.

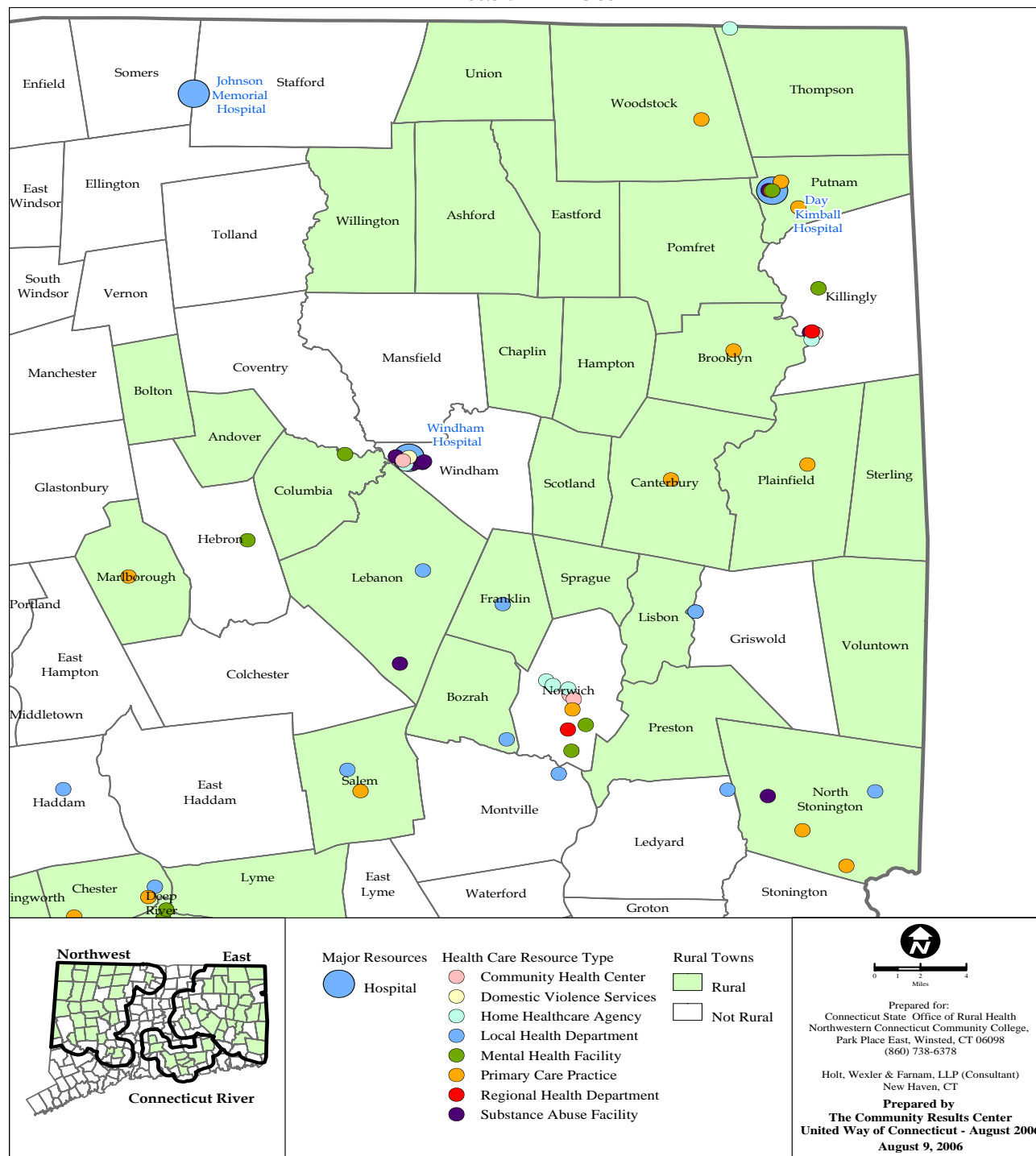
Map 1

Health Care Resources Serving Rural Communities Connecticut River Area



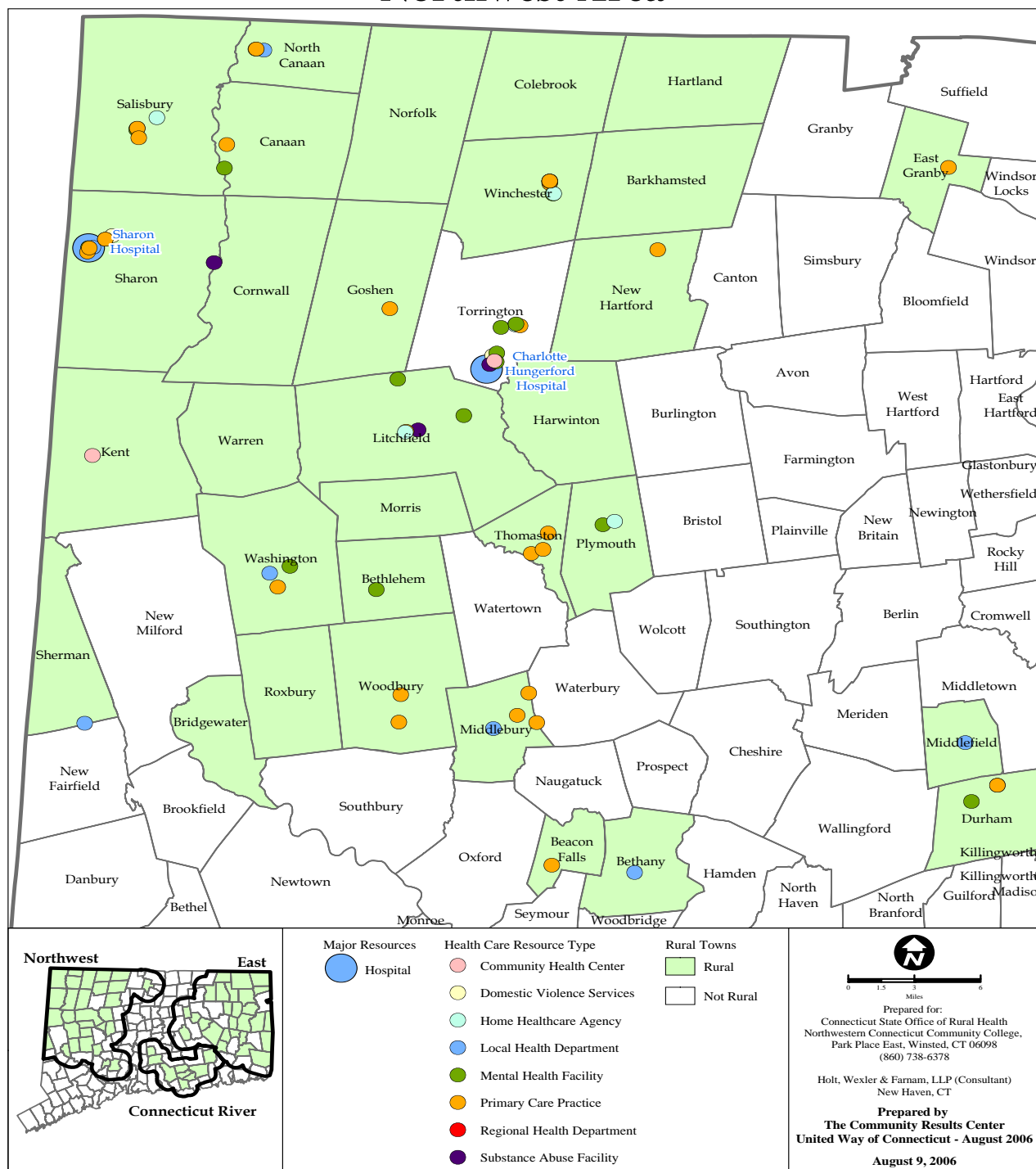
Map 2

Health Care Resources Serving Rural Communities East Area



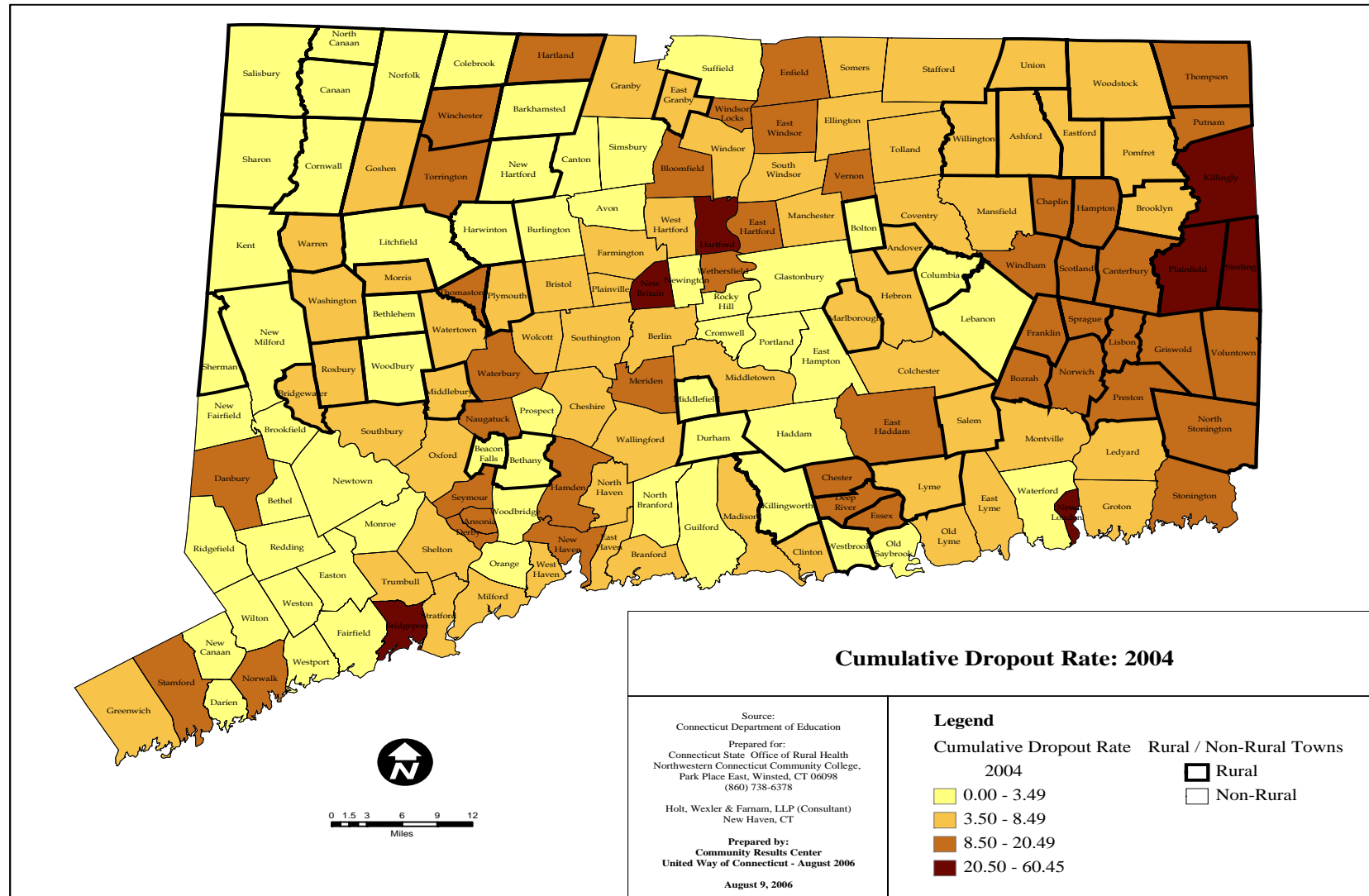
Map 3

Health Care Resources Serving Rural Communities Northwest Area



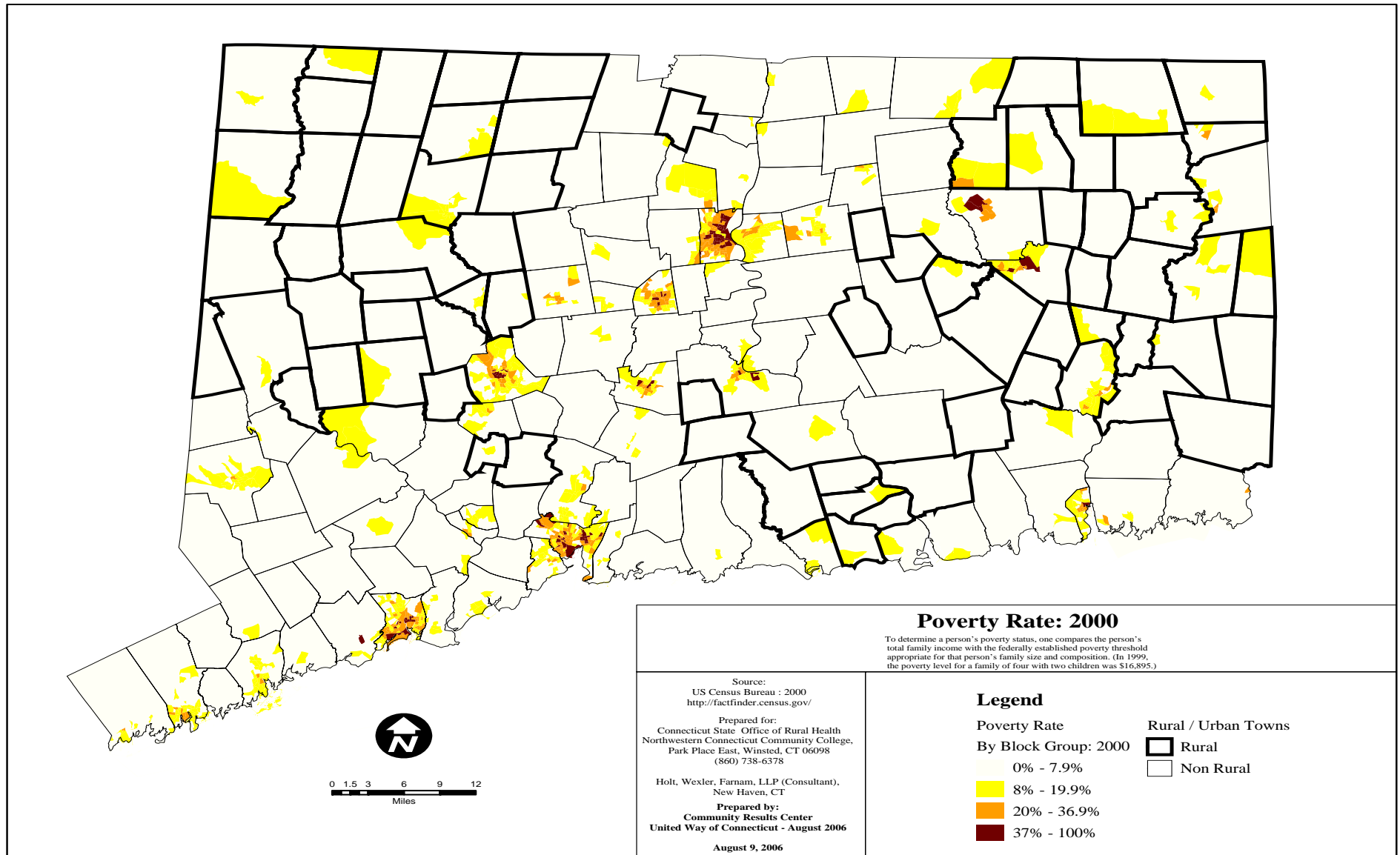
Rural Community Health in Connecticut: Challenges and Opportunities

Map 4



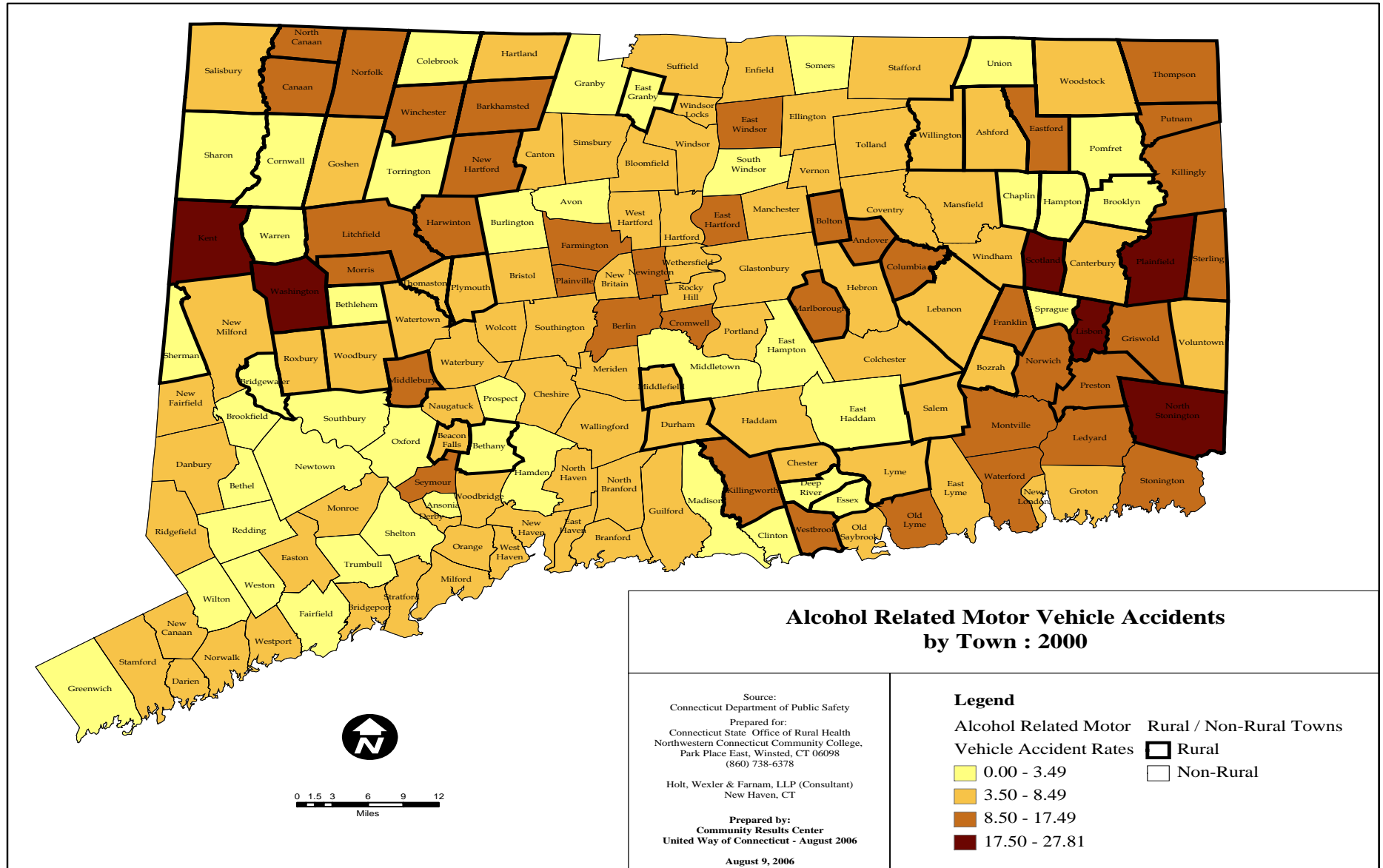
Rural Community Health in Connecticut: Challenges and Opportunities

Map 5



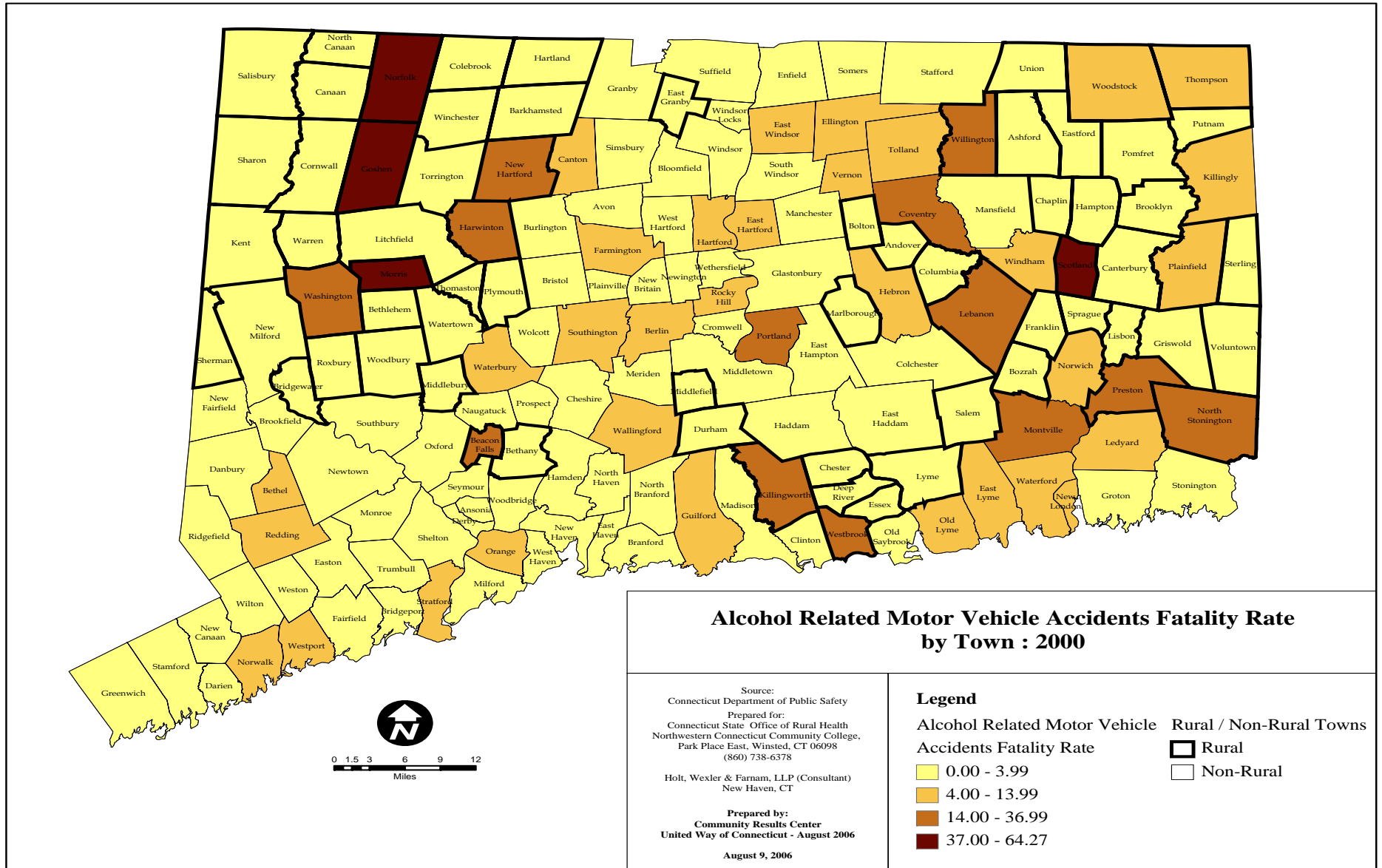
Rural Community Health in Connecticut: Challenges and Opportunities

Map 6



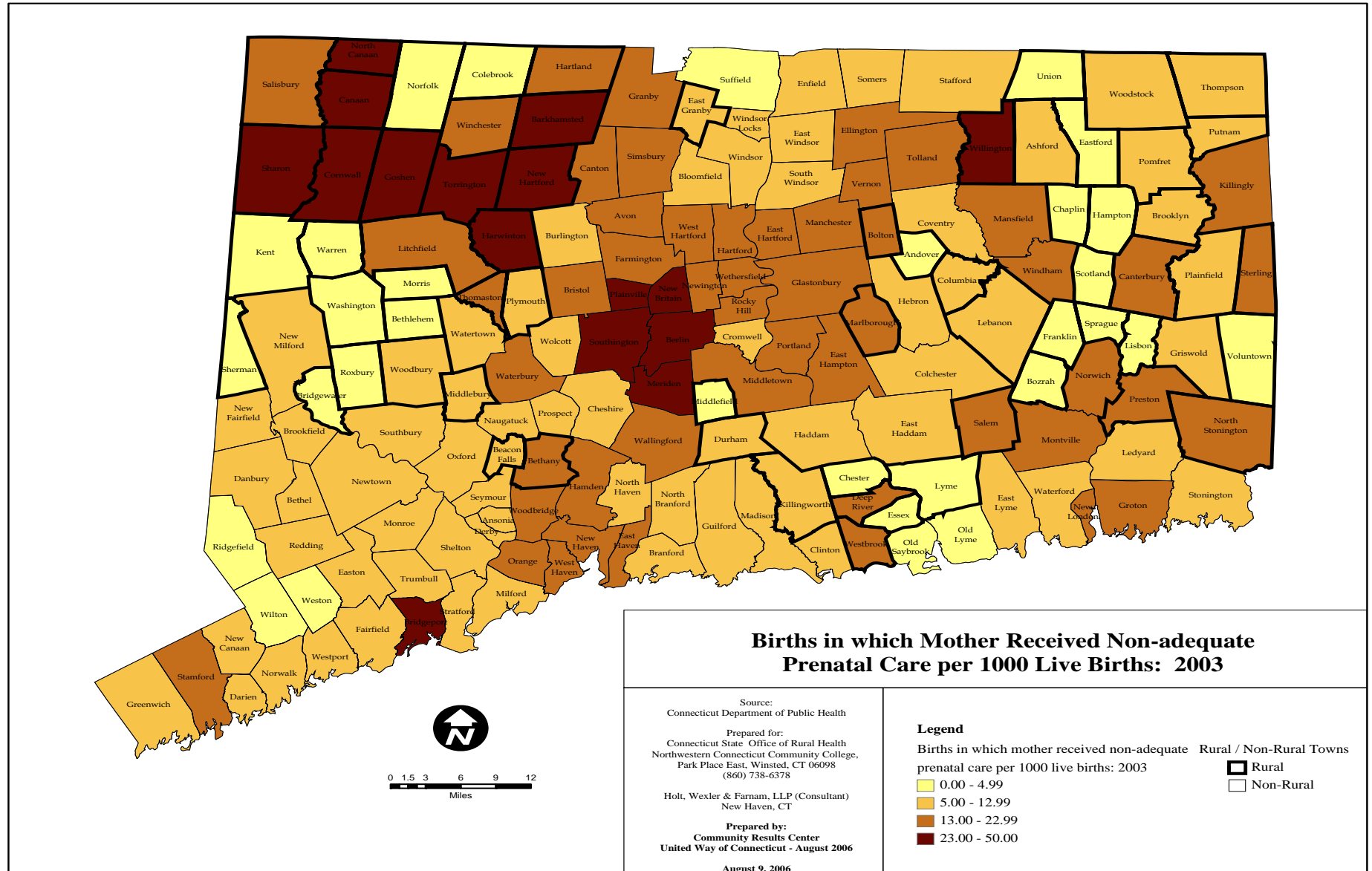
Rural Community Health in Connecticut: Challenges and Opportunities

Map 7



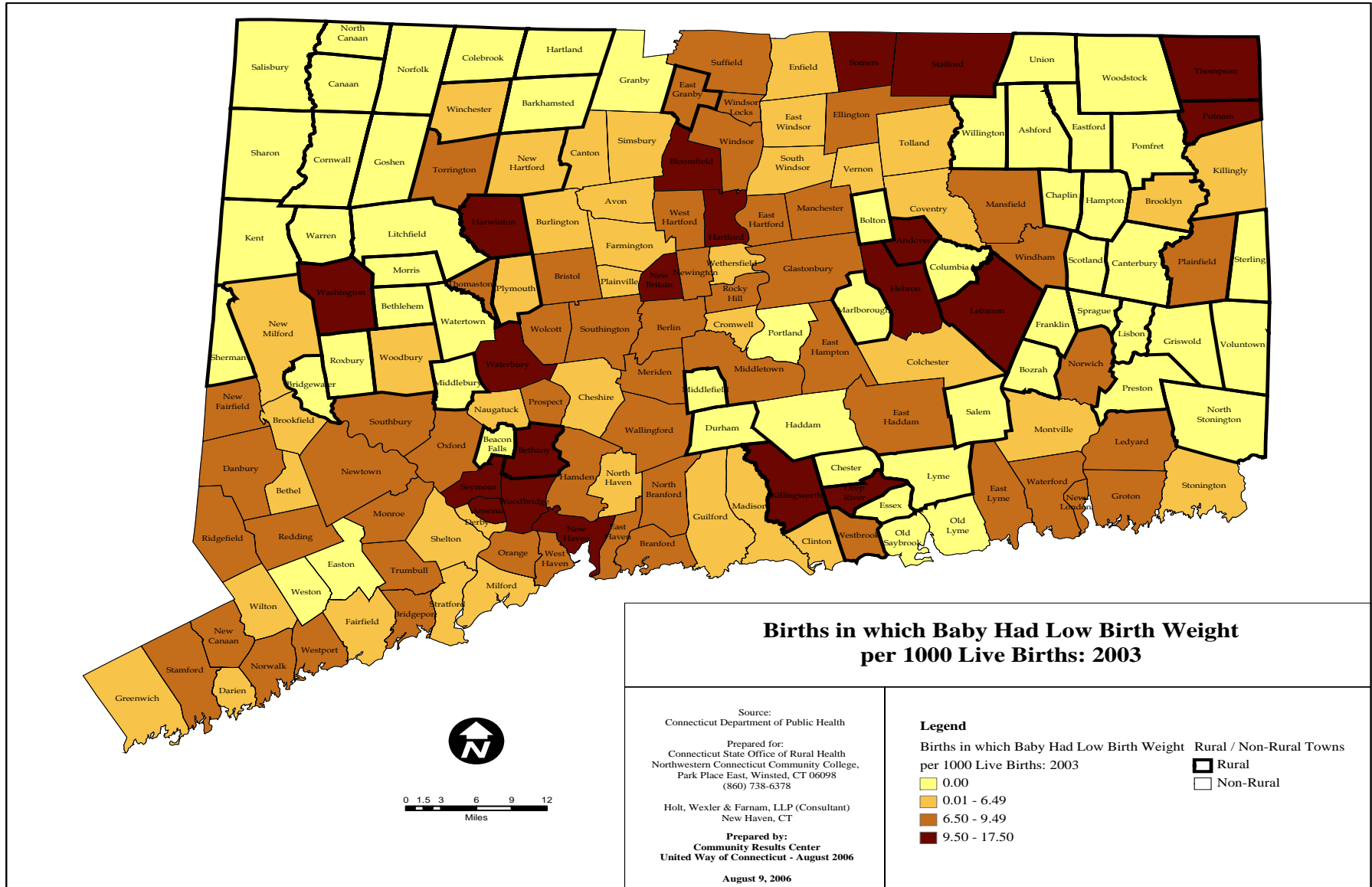
Rural Community Health in Connecticut: Challenges and Opportunities

Map 8



Rural Community Health in Connecticut: Challenges and Opportunities

Map 9



APPENDIX F.

FTA Proposed definition of a Locally-Coordinated Public Transit-Human Services Transportation Plan (coordinated plan) (Interim Guidance)

- Unified comprehensive strategy for public transportation service delivery that identifies the transportation needs of individuals with disabilities, older adults, and individuals with limited income, lays out strategies for meeting these needs and prioritize services.
- Maximizes collective coverage by minimizing duplication of services.
- Developed through a process that includes representatives of public, private and nonprofit transportation human services providers and participation by the public.
- Incorporates activities offered under other programs sponsored by Federal State and local agencies to greatly strengthen its impact.

Key Elements of the Coordinated Plan

Using the Framework for Action,

- Prepare an assessment of transportation needs for individuals with disabilities, older adults, and individuals with limited income,
- Inventory available services and identify areas of redundant service and gaps in service,
- Create strategies to address the identified gaps in service,
- Identify coordination actions to eliminate or reduce duplication of services and strategies for more efficient utilization of resources, and
- Prioritize implementation strategies.

Coordinated plan development should follow the update cycles for metropolitan transportation plans, (i.e. four years in air quality nonattainment and maintenance areas, five years in air quality attainment areas). Planners should seek broad input (see text box).

Projects must be selected from a coordinated plan. A transparent and inclusive competitive selection and planning process should serve as the basis for the certifications Funding Allocations.⁵⁴

Who Should Participate in the Coordinated Planning

- Transportation planning agencies
- Transit riders and potential riders (including general and target populations)
- Public transportation providers
- Private transportation providers
- Non-profit transportation providers
- Human services agencies funding or supporting access for transportation services
- Government agencies that administer health, employment of other support programs for target populations (TANF, WIA, Vocational Rehabilitation, Medicaid, Community Action, Independent Living Centers, Agency on Aging
- Non-profit organizations that serve the target population
- Advocacy organizations working on behalf of the target population
- Security and emergency management agencies
- Other appropriate local or State officials
- Tribes
- Employers or other members of the business community
- Community-based organizations
- Economic development agencies
- Job training and placement agencies
- Elected officials

FFY 2006 Funding	NFI	JARC
<200,000	\$ 267,756.00	\$ 279,431.00
Rural	\$ 87,409.00	\$ 66,653.00
Total	\$1,034,018.00	\$1,121,532.00

⁵⁴ From the February 3, 2006 Federal Register.

New Freedom Initiative

Projects must assist individuals with disabilities with transportation. Grants are for new public transportation services and public transportation alternatives beyond those required by the ADA. Eligible activities must be derived from the coordinated plan and determined based on a competitive selection process.

Eligible projects:

- Supporting mobility management among public transportation providers and human service agencies providing coordinated transportation services
- In rural areas, new service that may serve a greater population, but primarily meets the needs of individuals with disabilities (as well as other target populations) may be fully or partially supported
- Door-through-door (however door-to-door service is not eligible)
- Paratransit service beyond $\frac{3}{4}$ mile boundary
- Same day service
- Additional hours of service beyond the fixed route
- Enhancing fixed routes by adding routes or providing additional hours of service in order to target groups of individuals with disabilities
- Purchasing vehicles and supporting accessible taxi, ridesharing and vanpooling programs (FTA proposes that an accessible taxi be defined as a vehicle having the capacity to accommodate a passenger who uses a “common wheelchair” as defined under 49 CFR 37.3, at a minimum, while remaining in his/her personal mobility device inside the vehicle and meeting same requirements for lifts ramps and securement systems specified in 49 CFR part 38, subpart B)
- Administering voucher and transit pass programs (but not for the purchase of passes)
- Corridor services providing transportation access for populations beyond those served by one agency or organization within a community. For example, a non-profit agency receiving NFI funding could not limit the transportation service to its own clients. It would coordinate usage of vehicles with other non-profits.

Project Summary

During March-June, 2006 CT-ORH commissioned research and data collection to (1) identify barriers to accessing healthcare services in rural Connecticut, (2) determine healthcare services available to Connecticut's rural residents and (3) support community efforts across rural Connecticut to improve the health status of residents. This report tells the "story" of rural health in Connecticut and provides data and tools that local healthcare providers, administrative bodies, and coalitions can use to address health issues facing Connecticut's rural areas. CT-ORH retained the firm of Holt, Wexler & Farnam, LLP (HWF) to assist in collecting and analyzing data in support of this project.

HWF assembled extensive health and related demographic data for this study for the 65 towns designated as rural by CT-ORH. The data is from numerous sources, with the intent to make it available to all rural health stakeholders. Data was compiled at the town level to the extent possible; some indicators however were only available at the county or state level. To examine the demographics, healthcare services, and health status of rural residents, rural Connecticut was divided into three zones based on location to facilitate examination of variances across rural areas. All indicators for which data is available at the town level are summarized by rural vs. non-rural areas and by three zones identified as the Northwest Region, the East Region, and the Connecticut River Valley. The conclusions regarding rural Connecticut have been drawn based upon data collected and summarized for the three regions.

Key Findings

The quantitative data revealed, and the interview data of opinion leaders confirmed the following three major themes about health status and health care services in rural Connecticut:

Disparities: In general, the economic health of rural residents remains stronger than non-rural residents. However, significant and growing numbers of individuals and families face substantial economic challenges and as a consequence, health challenges. Middle class families appear to enjoy solid access to healthcare systems. However, lower income - including retired elderly and families - experience a higher burden of health-related concerns.

Access to Healthcare: Two access issues present significant barriers to health care for a substantial subset of the rural population - cost and transportation. With respect to cost, availability of insurance coverage accepted by providers represents a limiting factor. Providers and consumers point out concerns especially for low-income populations in the areas of chronic disease management, oral health, and mental health. Transportation limitations prove equally significant. Getting to health appointments and especially to distant specialists has been identified as a significant challenge to maintaining health. Providers report a pattern of individuals who do not have access to transportation to see specialists for medical conditions often wait until their condition worsens and then rely on hospital emergency departments for services when their conditions become acute.

Capacity: The service system needs to increase its capacity to provide services in specific areas such as mental health, dental services, specialty services, and transportation services (or coordination). For example, a growing sentiment among providers exists that the current mental health prevention and treatment system can not address adequately the mental health service needs of the rural communities, particularly children, irrespective of economic status.