

SUSTAINABLE

Franklin County June 2013

APPENDICES

Franklin County's Regional Plan for Sustainable Development



SUSTAINABLE FRANKLIN COUNTY

Appendix A: Workshop Summaries



Acknowledgements

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The Sustainability workshops took place at Greenfield High School, Mahar Regional High School, and the Shelburne-Buckland Community Center and many individuals donated time and resources to ensure the workshops were a success. There were many volunteers and agency staff who served as Facilitators and Scribes during the workshops and the Sustainable Franklin County Partnership would like to thank the following individuals for their time and energy:

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Participants at the Mahar Workshop

Introduction

The Franklin Regional Council of Governments (FRCOG) and its Project Partners were selected as one of 45 regional areas, nationwide, to receive a Sustainable Communities Regional Planning Grant. This three year grant is funded through the U.S. Department of Housing and Urban Development (HUD) Sustainable Communities Initiative to improve regional planning efforts that integrate housing, economic development, energy, and transportation decisions. The grant also seeks to increase state, regional, and local capacity to incorporate livability, sustainability, and social equity values into land use planning.

This grant has three primary phases. The first phase focuses on establishing a regional vision for sustainable development through a series of Sustainability Workshops and Capacity Building. The second phase focuses on creating a Regional Plan for Sustainable Development (RPSD). The last, and final phase, takes the goals and strategies identified in the RPSD and applies them to local planning activities for sustainability.

There were two primary tasks associated with this first phase of the project. One task, lead by Community Action, was to develop and distribute a Community Needs Assessment Survey. This survey was distributed to minorities and people with lower incomes or disabilities who often do not participate in the planning process to determine housing, employment, and transportation needs. The second task was to hold a series of hands-on Public Workshops. This report, Sustainability Workshop Summary, focuses on the development and results of the Workshops.

Workshop Goals

There were many goals of the Workshops including the following:

- Educate residents on the principles of sustainability;
- Garner feedback from residents regarding the prioritization of regional sustainability goals;
- Establish a regional vision for sustainable development;
- Involve more people in the planning process who may not typically participate;
- Challenge residents to think critically about development trades offs in the short and long terms;
- Build the capacity of Project Partners and increase collaboration across agencies;
- Identify barriers and impediments to sustainability in the region;
- Brainstorm potential local and regional projects that advance the regional vision; and
- Identify the most suitable locations for development to increase sustainability.

Workshop Format

Three workshops were held in Franklin County in each part of the county (east, west, central) and at different times of the day to accommodate various schedules. Food and beverages were provided at each workshop. The first workshop was held in Greenfield on September 22, 2011 from 5:00 – 8:30 pm. There were 49 participants at this workshop. Another workshop was held at the Mahar Regional High School on September 27, 2011 from 10:00 am to 1:30 pm. A total of 38 participants attended this workshop, many of them youth. The final workshop was held in Shelburne on October 5, 2011 from 5:00 to 8:30 pm and a total of 15 participants attended this workshop. In total, there were 102 people who participated in the Sustainability Workshops and an additional 22 people who helped lead the workshops as “Facilitators” or “Scribes”. Of the 102 participants, 20 of them were youth. Out of the 26 towns in Franklin County, 20 towns were represented by workshop participants who live and/or work in those towns.

The workshops generally utilized the following format:

- Introduction
- Overview
- Regional Sustainability Goals
- *Break*
- Mapping Exercise
- Discussion of Projects/Strategies
- Summary of Exercise Results
- Workshop Wrap Up

Upon completing the registration shortly after arrival, each participant was assigned a table, at random. At each table was a trained Facilitator (charged with leading the exercise) and a Scribe (responsible for recording the results of the exercised and discussion).

Regional Sustainability Goals

As a precursor to each of the workshops, a Sustainable Franklin County Goals Survey was developed by FRCOG and its Project Partners, by extracting goals and strategies from previous regional plans. This survey was distributed to Town Halls, Libraries, and Senior Centers and was also made available online on September 1, 2011. A link to the survey was published on the FRCOG website as well as on the Workshop Registration page. Those completing the survey were asked to select their top three goals relating to each of the Regional Plan for Sustainable Development (RPSD) topic areas.

The results of the goals survey were compiled prior to the Workshops and the top rated goals were presented to help guide the exercises.



Mapping Exercise

The mapping exercise was the centerpiece of the workshops and was intended to garner feedback from those who live or work in Franklin County on various topics including housing, infrastructure and transit needs. The workshops were also designed to educate participants about sustainable development practices and how to implement them. The exercise began with each table developing a set of overarching Guiding Principles for their table. The Guiding Principles were recorded and revisited throughout the exercise. A summary of the Guiding Principles for each table is contained in the next section.

After establishing the Guiding Principles, participants were presented with a set of housing flags which totaled the projected amount of new housing that will be needed to accommodate 3,500 households over the next 25 years. The number of households is based on population projections for Franklin County. The breakdown of that housing was based on the current housing stock in the county: 70 percent single family homes; 20 percent multi-family; and 10 percent duplexes. Participants were then challenged to proceed with this current distribution of the housing stock or to make trades to obtain a different housing mixture. Once participants finished exchanging housing types, they were asked to place the housing on the map.

Table 1 presents a summary of the housing types that were placed at each workshop, per table. Across all of the workshops, the most popular housing type was the New Mixed Housing type, which accounted for approximately 17 percent of all housing that was placed. The second most popular housing types were the Accessory Apartment and Rehabilitated Mill Buildings, each coming in at 15 percent. Rehabilitated Substandard Housing, New Single Family, and Converted Single to Multi Family Housing followed closely thereafter at 14 percent, 13 percent, and 12 percent, respectively. New Multi Family was among the least popular at 8 percent and New Two Family housing only accounted for 3 percent of the placed housing.

Overall, the majority of new housing (56 percent) was traded in for infill/rehabilitated housing thus demonstrating a demand for the reuse of existing properties. Throughout the workshops only 41 percent of the housing stock that was selected fell into the “new housing” category. This is particularly noteworthy as the quantity and type of infill/rehabilitated housing stock was limited in the workshops based on the current availability of existing properties. While participants were given the option of proceeding with current housing trends, the results of the workshops show a desire to change the distribution of the housing stock. Overall, only 13 percent of new single family housing was placed on the maps. An additional 14 percent of general rehabilitated substandard housing could include a small percentage of single family housing stock. Therefore, single family homes accounted for less than 27 percent of the housing stock that was selected in the exercises which is significantly less than the current trend of 70 percent.

An additional housing category (Other Housing) accounted for approximately 3 percent and consisted of participant identified housing types which included:

- Innovative green or affordable co-housing;
- Affordable housing;
- Mixed use village with housing;
- Multi-generation housing; and
- Net-zero energy housing.



Sustainable Franklin County
Sustainability Workshop Findings & Results

In addition to the housing type, the exercise also challenged participants to think critically about where new or rehabilitated housing should go. Table 2 presents an overall summary of where housing was placed on the maps. A summary of housing placement within each community is shown in Table 2, along with housing type. Nearly half (48.5 percent) of all housing that was placed on the maps throughout the workshops was placed in one of the four employment centers (Orange, Greenfield, Deerfield and Montague). Aside from the four major employment centers, a significant amount of housing was also placed in Erving and Northfield. It is not surprising that some of Franklin County’s most rural communities (Monroe and Rowe) received very little housing (less than 1 percent, each).

The communities with the highest percentages of new housing were Sunderland (68 percent), Whately (63 percent), and Shutesbury (62 percent). The communities with highest percentages of rehabilitated or infill housing were Orange (80 percent), Montague (70 percent), and Charlemont (70 percent). The distribution of each type of housing across all the workshops is shown by Town in Figure 1.

Table 1. Housing Type Summary

Workshop	Table	New Single Family	New Two Family	New Multi Family	New Mixed Housing	Convert Single to Multi	Accessory Apartment	Rehab Substd Housing	Rehab Mill Building	Other Housing
1	1	11%	6%	12%	29%	3%	14%	11%	12%	0%
1	2	13%	2%	13%	23%	15%	11%	11%	13%	0%
1	3	0%	4%	8%	29%	14%	19%	11%	12%	2%
1	4	19%	4%	2%	29%	9%	13%	11%	12%	0%
1	5	9%	0%	0%	20%	21%	18%	11%	13%	8%
1	6	0%	0%	0%	12%	20%	31%	17%	18%	2%
1	7	37%	2%	4%	13%	5%	13%	12%	13%	0%
1	8	3%	0%	13%	18%	21%	20%	12%	13%	0%
2	1	13%	0%	0%	18%	15%	20%	16%	18%	1%
2	2	20%	9%	11%	9%	7%	6%	16%	17%	6%
2	3	8%	0%	0%	13%	19%	13%	18%	19%	10%
2	5	36%	6%	11%	6%	1%	4%	16%	17%	3%
2	6	1%	0%	6%	23%	19%	19%	16%	17%	0%
2	7	9%	3%	23%	17%	1%	11%	16%	17%	3%
3	1	7%	3%	12%	6%	20%	19%	16%	18%	0%
3	2	23%	3%	11%	3%	13%	6%	15%	17%	10%
3	3	13%	3%	17%	8%	10%	14%	15%	17%	3%
% of Housing		13%	3%	8%	17%	12%	15%	14%	15%	3%
% by Category		41%				56%				3%



Table 2. Housing Location Summary

Town	% New Housing	% Rehab/ Infill Housing	% Other Housing	% of Total
Ashfield	58%	41%	1%	3.6%
Bernardston	59%	39%	3%	3.0%
Buckland	60%	32%	8%	3.4%
Charlemont	30%	70%	0%	2.7%
Colrain	41%	47%	12%	1.8%
Conway	54%	39%	7%	2.5%
Deerfield	46%	50%	4%	7.9%
Erving	31%	67%	2%	5.3%
Gill	55%	32%	13%	1.1%
Greenfield	36%	63%	1%	16.2%
Hawley	52%	48%	0%	0.8%
Heath	54%	46%	0%	1.0%
Leverett	61%	32%	7%	3.0%
Leyden	34%	63%	3%	1.4%
Monroe	45%	55%	0%	0.4%
Montague	29%	70%	1%	7.9%
New Salem	52%	48%	0%	1.1%
Northfield	49%	48%	3%	4.5%
Orange	19%	80%	1%	16.5%
Rowe	52%	40%	8%	0.9%
Shelburne	34%	61%	5%	3.0%
Shutesbury	62%	30%	7%	3.0%
Sunderland	68%	32%	0%	3.0%
Warwick	49%	51%	0%	1.4%
Wendell	61%	39%	0%	1.8%
Whately	63%	37%	0%	2.6%

Notes: (1) Communities in **bold** represent the four employment centers; and (2) The rehab/infill housing category includes accessory apartments.



Housing Type by Town

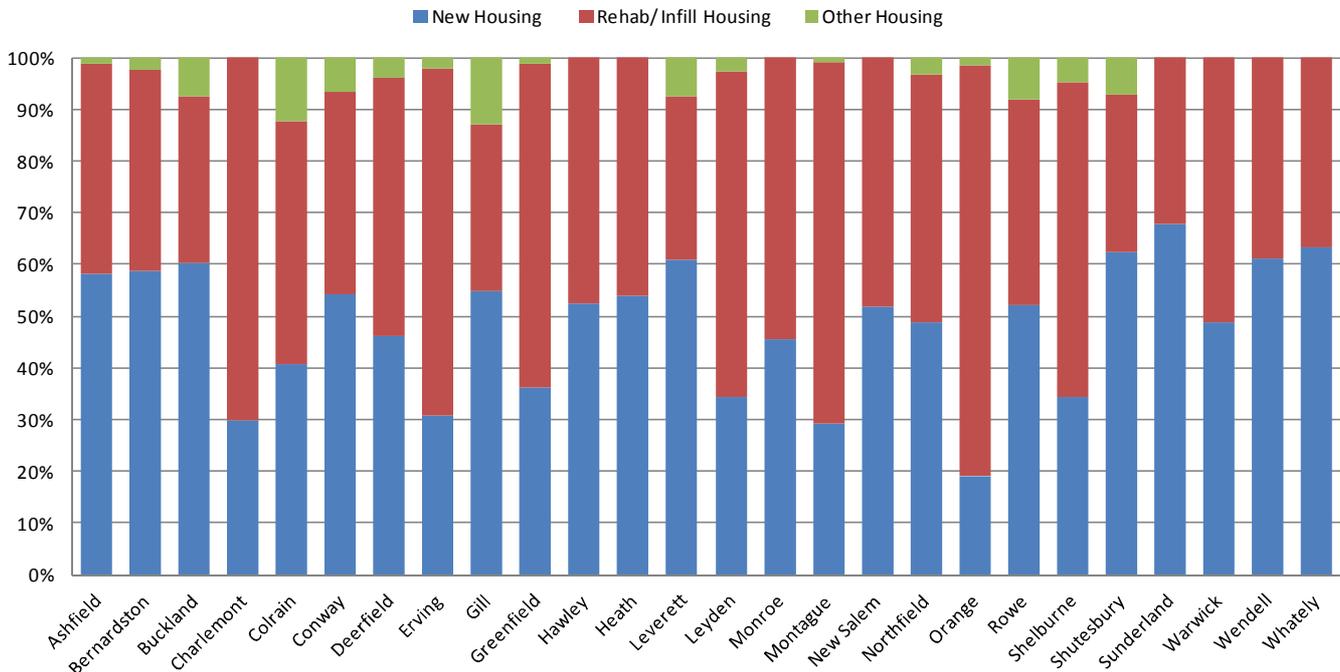


Figure 1. Housing Type by Town

As previously mentioned, each table was charged with the task of establishing a set of Guiding Principles prior to the exchange of housing types. Once the mapping portion of the exercise was complete, each table was given a series of discussion questions to pursue. The discussion questions consisted of the following:

- Do you think there are major barriers for obstacles to sustainability here in Franklin County?
- What ideas do you have for projects that could potentially be included in the Regional Plan for Sustainable Development that will increase sustainability and help make your vision a reality?
- What type of jobs would you like to come to the county?
- Where would you like to see jobs located in the county?

The following section presents the most popular results of the Guiding Principles and Discussion portions of the mapping exercise.

The most common Guiding Principles taken from the workshops consisted of the following (in no specific order):

- Locate housing near infrastructure;
- Locate housing near town centers and employment;
- Locate housing near transit;
- Protect farmland;
- Protect forests;
- Protect Natural Heritage and Endangered Species Program (NHESP) areas;
- Protect water resources/supplies;
- Rehabilitate existing buildings as much as possible; and
- Utilize Conservation Development for new residential subdivision to protect natural resources including farmland and forestland.

The most common infrastructure needs and wants identified during the exercises were:



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- Water and sewer infrastructure improvements in Orange;
- County-wide broadband;
- East-west rail; and
- County-wide bike paths.

The most common transit needs and wants identified during the exercises were new or improved transit service to the following communities:

- Ashfield/Conway (Route 116);
- Bernardston;
- Colrain (Route 112); and
- Northfield.

In addition to identifying needs in the county, participants were also asked to brainstorm potential projects that would help the county progress towards a more sustainable future. These projects varied greatly; however, many of them build upon the top infrastructure needs that were identified. The most common projects that were identified in the workshops consisted of the following:

- County-wide broadband;
- Bike paths;
- East-west rail;
- Senior housing; and
- Co-housing.

The above list contains the most popular projects that were consistently identified throughout the workshops. However, some participants and tables came up with innovative ideas that are worth noting. These ideas are contained in the following list of innovative projects:

- Consider the use of the Connecticut River for transportation needs;
- Create new mixed villages for new housing growth rather than scattering growth across rural areas;
- Provide tax credits or grant funding to residents to improve energy efficiency;
- Require a certain percentage of affordable housing for new residential development;
- Operate large scale greenhouses for year round food production;
- Create a bed and breakfast network for bicyclists; and
- Designate farm land allotment for high density residential areas.

Several barriers to sustainability were also identified in the county which included the following most common barriers:

- Zoning;
- Housing affordability;
- Lack of funding;
- Negative perceptions of different housing types; and
- Individual choice.

The following job types were identified as the most popular for the region:

- Ecotourism and tourism;
- Food production, manufacturing and processing;
- Alternative energy production; and
- Arts, entertainment and music.

Few tables were able to have a discussion about job locations so the results of this question are quite limited. However, the vast majority of participants indicated that jobs should be located in existing town centers and in existing commercial or industrial areas that have infrastructure.



SUSTAINABLE FRANKLIN COUNTY

Appendix B: Report on Survey of Adults with Low Incomes



Report on Survey of
Adults with Low Incomes
Completed in Spring 2011

**Presented by Community Action of the Franklin,
Hampshire, and North Quabbin Regions**

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For Sustainable Franklin County



March 2012



COMMUNITY
Action!

Report on Survey of Adults with Low Incomes Completed in Spring 2011
Presented by Community Action of the Franklin, Hampshire, and North Quabbin Regions
For *Sustainable Franklin County*
March 2012

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Report on Survey of Adults with Low Incomes Completed in Spring 2011
Presented by Community Action of the Franklin, Hampshire, and North Quabbin Regions
For Sustainable Franklin County

March 2012

INTRODUCTION

Sustainable Franklin County sought the input of people who are often marginalized in planning efforts, those with low incomes and disabilities. One of the ways that we did this was through a survey conducted by Community Action of the Franklin, Hampshire, and North Quabbin Regions (*Community Action*), a *Sustainable Franklin County* partner. This survey touched on many topics relevant to regional planning and allowed us to hear from 416 Franklin County residents with income below 200% of the Federal Poverty Guidelines. This report summarizes the results of the survey findings within the context of larger trends and draws heavily from *Community Action's* triennial community needs assessment prepared for the Massachusetts Department of Housing and Community Development.

Community Action is the federally-designated Community Action Agency for Franklin County, as well as Hampshire County and provides services in contiguous areas of Worcester and Hampden Counties. Through 40 programs in these four counties, the agency serves over 30,000 people with low incomes annually. Services include fuel assistance and weatherization, early education and family support (including Head Start/Early Head Start), WIC (Women, Infants, and Children), food pantries, information and referral, financial education and assistance, asset development, free tax assistance, mediation, community crisis support, and youth development programming. The agency also convenes or participates in numerous community mobilizations to address local issues, including the Communities That Care Coalition, the North Quabbin Community Coalition, the Franklin County Resource Network, the Western Massachusetts Network to End Homelessness, and *Sustainable Franklin County*, to name a few.

SURVEY METHODOLOGY AND SAMPLE

Every three years, every Community Action Agency completes a community needs assessment and action plan. In conducting its 2011 community needs assessment, *Community Action* was pleased and fortunate to combine its efforts with those of the *Sustainable Franklin County* regional planning group. The major way in which the two organizations carried out this collaboration was in the design, distribution, and analysis of a survey of Franklin County residents

with income below 200% of the Federal Poverty Guidelines. In working together on the survey, *Sustainable Franklin County* and *Community Action* shared the same goal: to assure that the voices of people with lower incomes played a major role in planning.

According to the U.S. Census Bureau 2009 Estimates, there were 15,422 adult residents in Franklin County with income under 200% of the Federal Poverty Guidelines (FPG). Using a 5% margin of error (confidence interval) and a 90% confidence level, the recommended sample size for this group was 266. A 90% confidence level means that we can be 90% certain that the survey responses reflect the population. A 5% margin of error means that for any statistical finding, one may assume that variations of up to 5% (plus or minus) may be due to chance.

The surveys were translated into Spanish and Russian and were distributed throughout Franklin County with assistance from *Community Action* staff as well as several *Sustainable Franklin County* partners: the North Quabbin Community Coalition, the Franklin County Regional Housing and Redevelopment Authority, the Montague Housing Authority, and the Greenfield Housing Authority. We had learned from past experience that offering an incentive for filling out the survey increased the return rate, and this year we had a drawing for eight \$50 gift cards to the grocery stores of the winners' choice.

Community Action gathered 416 surveys from Franklin County residents over the age of 18, far surpassing the number needed to obtain a representative sample. However, it is important to keep in mind that every respondent did not answer every question. Where the number of respondents (N) is less than the desired sample size of 266, the margin of error increases.

Because the survey was not distributed in a purely random fashion, *Community Action* compared the demographics of the respondents with the most recent Census Bureau data available at the time, the 2009 five-year estimates. Over all, the sample was roughly representative of the population with income below 200% FPG as a whole. The sample varied in the following directions:

- » Slightly lower income overall
- » More females (75% vs. 60%)
- » Slightly more white, racially
- » Twice the percentage of Latinos
- » Older, with very few young adults

In addition, a large percentage (one quarter) of the respondents lived in subsidized housing, we assume because the housing authorities helped distribute the survey to their tenants. This had a major impact on the results in housing-related areas in particular.

ECONOMIC CONTEXT

Low income and high proportions of lower-wage workers characterize Franklin County more than high levels of officially-defined poverty. Wages simply do not allow complete self-sufficiency for a

large portion of the populace. With the recent and ongoing recession, unemployment and poverty rates have risen significantly. In one of the wealthiest states in the country, Franklin County is on the lowest end of the economic scale, more on par with national averages than statewide averages.

The table below compares rates of people with income below 100% and 200% of the Federal Poverty Guideline for 2000 and 2009 (estimates) in Franklin County. Virtually all geographies have seen a rise in people living with extremely low income since 2000. (Please note that, the smaller the population sample, the bigger the margin of error.)

Change in poverty rate: ▶ 2000 (actual count) to ▶ 2009 (estimate)	Individuals with income below 100% FPG, 2000ⁱ	Individuals with income below 100% FPG, 2009ⁱⁱ	Individuals with income below 200% FPG, 2000ⁱ	Individuals with income below 200% FPG, 2009ⁱⁱ
United States	12.4%	13.5% ±.7%	29.6%	31.4% ±.6%
Massachusetts	9.3%	10.1% ±2.3%	21.7%	22.4% ±2.6%
Franklin County	9.4%	12.1% ±15.7%	25.9%	27.0% ±16.3%

Income at 200% of the Federal Poverty Guidelines (FPG), while *twice* the official poverty level, is nonetheless very low income. Please refer to the chart below for actual dollar amounts of income relative to family size for the 2011 Federal Poverty Guidelines. Eligibility for many services is based on income relative to FPG, a standard that is applied nationwide with no allowance for variations in cost of living from region to region.

2011 Federal Poverty Guidelines, U.S. Department of Health and Human Services

Persons in Family	100% FPG (upper eligibility limit free school lunch and for Head Start)	125% FPG (upper eligibility limit for services funded by Community Services Block Grant)	185% FPG (upper eligibility limit for reduced price school lunch and for WIC)	200% FPG
1	\$10,890	\$13,613	\$20,147	\$21,780
2	\$14,710	\$18,387	\$27,214	\$29,420
3	\$18,530	\$23,162	\$34,281	\$37,060
4	\$22,350	\$27,937	\$41,348	\$44,700

Poverty rates for single-parent families are typically dramatically worse than for married couple families, particularly for female-headed households. Single mother-headed families with children are the most likely to be in poverty.

<i>Poverty rate by family type, 2009</i>	<i>Franklin Countyⁱⁱ</i>
Income in the past 12 months below poverty level:	8.8%
▶ Married-couple family:	5.2%
With related children under 18 years	6.5%
▶ Male householder, no wife present	3.4%
With related children under 18 years	3.6%
▶ Female householder, no husband present	23.6%
With related children under 18 years	34.6%

People of color and Latinos are more likely to have low income than their white counterparts. Estimates based on three-year averages (2007 – 2009) indicate a poverty rate for whites of 5% in Franklin County and for Latinos, 24.7%.ⁱⁱⁱ

The reasons for these socioeconomic patterns are persistent and complex, and largely beyond the control of the residents of Franklin County. Still, any regional planning effort must take them into account. A partial list of these reasons includes:

- ◆ The local economy was in the past largely based in manufacturing, much of which has left the region. New jobs are more oriented to the service sector, which often has lower-paying jobs.
- ◆ The rural western parts of the state would benefit from more state support for economic development.
- ◆ Broadband access in Franklin County is far from universal, and this significantly dampens economic development.
- ◆ In Massachusetts, the national trend toward lower personal and corporate taxes has been embraced in earnest, resulting in a 25.2% decrease in taxes as a percent of personal income between 1977 and 2008, compared with a 4% average decrease for all states.^{iv} Tax reductions included tax breaks for businesses, halving the tax rate on dividends and interest income, and decreasing the state personal income tax in several stages. Tax revenues have therefore declined by about \$3 billion per year.^v This means less money for the “infrastructure of opportunity” – things like education, social services, local aid, early education and care, and higher education that make getting ahead possible for people who start out with few resources.
- ◆ When the recession hit, the Massachusetts budget was vulnerable to cuts, given the already-reduced tax revenues and reluctance to raise taxes. Cuts to this “infrastructure of opportunity” have been massive. Those who stand to lose the most are people with lower incomes.
- ◆ Massachusetts is now tied with Arizona as the state with the widest income gap in the nation, with the top 10% earning the same share of income as the bottom 70%.^{vi} This is indicative of structural issues that perpetuate rather than alleviate poverty.
- ◆ The cost of living in relation to wages is very high. This creates a barrier to getting ahead. When all you can do is pay your immediate bills – and often not even that – you have nothing

left to pay for more education or training that would allow you to advance in your job, or to save for replacing an aging, unreliable, polluting vehicle.

In working toward a *Sustainable Franklin County*, we are committed to looking forward with our eyes on the needs of people with lower incomes, and to giving them a voice. There are many scenarios put forth about where this country and the global economy are headed, and how these forces might play out locally. How will people with low incomes fare in Franklin County in the next thirty years? What needs to happen to make sure that economic and community development is inclusive of their needs and hopes? The strategic suggestions that we present in this report are based on the needs of our lower-income constituents as expressed through the survey carried out in 2011, within the context of our understanding of larger trends that we believe are and will be at work here in Franklin County.

SURVEY RESULTS

Income/Savings/Debt/Financial Management

In Franklin County, the gap between incomes typical of lower-income residents and self-sufficiency is very large. As noted earlier, this gap is a very real barrier to getting ahead. There is no money after paying for necessities to pursue further education or to save for a down payment on a house, for instance. This gap is the economic driver behind the need for *Community Action's* services.

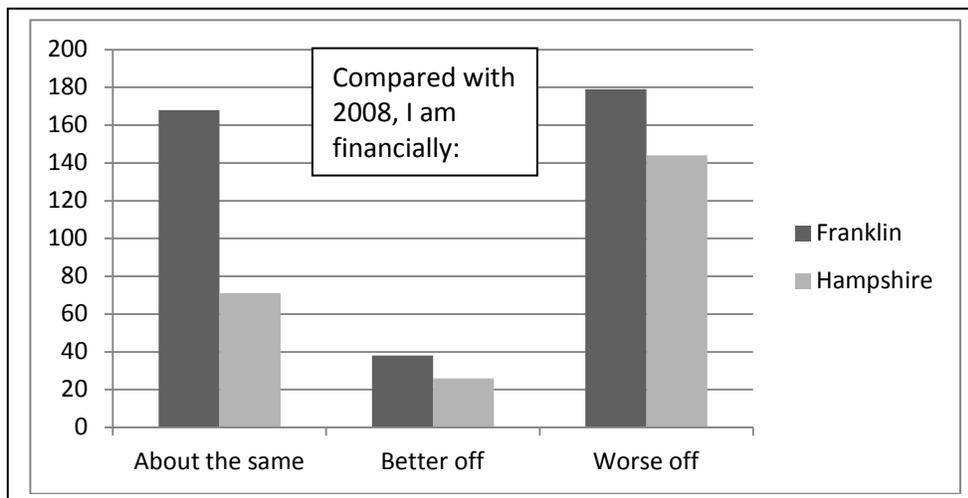
It is important to note in this context that having higher income does not always mean that a person is better off. As household income rises, people lose eligibility for public benefits such as Medicaid, WIC, Fuel Assistance, Head Start, and SNAP (food stamps) that have a significant cash value but are not reported as actual income in census and other data. As people lose eligibility for benefits, they usually are not making enough additional income to balance out the value of the benefit(s) they have lost. This is a well-known phenomenon called the "cliff effect." People trying to get out of poverty and to become self-reliant often come upon a precipice where they are worse off if they make more money. Out of sheer economic self-preservation, when they reach the "cliff," they may actually ask not to be given a raise, or choose not take a higher-paying job. The "system" does not always reward work.

Income-related information from the survey. Respondents to the survey received cash income from a variety of sources. Among all respondents, one third had income from disability payments, one third Social Security, and one third earnings from a job, with small proportions receiving income from other sources such as rental income, pensions, unemployment insurance, and child support. This of course shifts quite a bit when we look at income sources relative to age. For respondents 65 and over, Social Security was by far the largest single source of income. About one third of this number received some money from pensions. For people under 65, the single largest source of income was pay from a job, followed closely by disability payments. Sixteen of the

Franklin County respondents to our survey said they were receiving unemployment benefits at the time they filled out the survey, while 168 said they were unemployed.

Each time we do a survey, we ask respondents two questions that are a shorthand or bellwether of their general financial status. The first gets at whether or not people had borrowed to pay for basic necessities. In the past year, substantially higher proportions of respondents had borrowed from family and friends than had done so three years ago (72.1% vs. 50.5%), and many more had used credit cards to pay for basics (41.6% vs. 25.7%). The second question is if the respondents are financially better off, worse off, or about the same as three years ago. Just over 46% of Franklin County residents said they were financially worse off, and almost 10% said they were better off.

A comparison between responses for Franklin County and Hampshire County on this question is quite interesting and bears some analysis. A far larger proportion of people from Hampshire County said they were worse off in 2011 than those from Franklin County (59.8% vs. 46.5%). The inverse was true for those who answered “about the same.” Approximately the same percentage from both counties said they were better off (all within one percentage point and averaging 10.5%).



Community Action's Strategic Planning Committee had a long conversation about what this data may indicate, and we “drilled down” through various levels of data to see what we could learn. The profile of the Hampshire County respondents is quite different from the Franklin County respondents. One of the major differences was the large proportion of people in Franklin County who lived in subsidized housing. And indeed, in the end, the data told us that the strongest association between the large numbers of people in Hampshire County who said they were worse off and *any other factor* was the relative share of housing costs in their household budget and *not* age, income, race, or disability. We will examine housing in more detail in a later section of this report.

Beyond income: financial management skills and asset development. When examining issues of sustainability, it is critical to look, not only at how much money people have in the moment to purchase basic goods and services, but also at how much access they have to things that offer a hedge against financial disaster such as a medical crisis, a lay-off, or a tornado. It includes owning a home. It includes savings for retirement or college. They are the things on which the American Dream of economic mobility are built, and for people with low incomes in our community, they are non-existent or shrinking fast.

Good financial management skills, access to banking services, and savings and asset ownership are the building blocks of financial security. It is helpful in this context to look at assets and “asset poverty.” Asset poverty is a useful measure that expands the notion of poverty to establish a minimum threshold of wealth needed for household security. A household is considered asset poor if it has insufficient net worth to support itself at the federal poverty level for three months in the absence of income – certainly a very low threshold. Overall, 25% of Massachusetts households were asset poor in 2010.^{vii, viii}

Results related to asset development and financial management education from the survey. Very few respondents to the survey had any savings – one in five. Of those that had savings, the types of savings were as follows: (Respondents could choose more than one category, so the total is greater than 100%.)

Type of savings	
cash reserve (including CDs and money market accounts)	41.2%
retirement	37.4%
savings account	24.4%
investments	6.1%
college	3.8%

Of the 300 people under age 65 who completed the survey, only 14 said they had any retirement savings. Sixty-five percent of respondents said they had some level of debt, including mortgage, college, car, or credit card, ranging from \$25,000 to \$50, with an average of \$16,000. Seventy percent said they paid something toward that debt each month. *Community Action* staff who help program participants with budgeting and debt reduction say that it is not unusual to see people with credit card and car loan debt within a range of \$15,000 – \$25,000.

One quarter of the survey respondents owned a home – which has, until recently, been a very effective way of saving for retirement.

The survey was grouped by topic areas such as “income,” “food,” and “child care.” While we were completing data entry, it became clear to us that many respondents skipped entire sections of the survey, which we assume was because it was long. We also noticed that there were some questions and topic areas that respondents answered more often than others. Virtually all respondents answered questions related to financial education, and we interpret this as an

indicator of a strong interest among local people with low incomes in this topic. In particular, as the table below shows, respondents were universally most interested in saving and in reducing debt. Good budgeting is the foundation of everything else, yet fewer people expressed interest in this. Perhaps the respondents believed they already have good budgeting skills, but based on our experience, this is not necessarily the case.

I would like to learn more about the following: (Please check all that apply.)			
Franklin County		#	%
N = 406	Saving toward my long-term goals.	112	27.6%
	Reducing my debt.	104	25.6%
	Improving my credit rating.	99	24.4%
	Making a budget and sticking to it.	90	22.2%
	Getting more money back in my income tax refund.	73	18.0%
	Dealing with businesses I owe money to.	49	12.1%

Community Action has been offering an Individual Development Account program, CommonCents, since 2007. Through CommonCents, 36 people have completed a financial education class, attended savings clubs, and eventually saved enough to purchase an asset with the help of the 3-to-1 match provided by the CommonCents program. Twenty-four purchased a home, nine went on to post-secondary education, and three started a small business. There are an additional eight participants that have spent a portion of their savings toward education. Including these 8, there are currently 20 people still enrolled in CommonCents. [In an interesting side note, lately some CommonCents participants have shifted their savings goal from homeownership to higher education; they see that homeownership is no longer as valuable an asset as it once was since housing has not steadily appreciated in value the way it did in the past.] *Community Action* will continue to offer an Individual Development Account program as long as we are able to raise money to support it. This has become increasingly difficult over time.

Since 2009, with federal stimulus funding, *Community Action* has been offering financial education classes. These have been well-received, and demand has been steady, as reflected in the number of survey respondents who expressed interest in learning more about managing their finances better. We chose to continue offering financial education as a service after the stimulus funding ran out because we recognize that control over finances and one's financial future are fundamental to moving toward self-reliance. Recently the agency has had to cut back on its financial education services, restricting it chiefly to those individuals who apply for financial assistance to forestall eviction or utility shut-off. The Housing and Redevelopment Authority, a *Sustainable Franklin County* partner, also provides financial education and budget counseling.

Housing and Homelessness

Stable housing is fundamental to our health and safety, to finding and keeping employment, and to sustaining family living. Yet there is a critical shortage of affordable housing in our communities, creating hardship not only for individuals and families with low incomes, but also for most people who earn less than the area's median income. Housing is the single biggest

monthly expense for most households, and Massachusetts ranks amongst the most expensive states in the country for housing. In 2010, only six states or territories had higher average housing costs.^{ix}

Housing is considered affordable if a household pays no more than 30% of their income for it. The tables below compare household incomes to the area's Fair Market Rents (FMRs), set annually by the Department of Housing and Urban Development at 40% of an area's median rents, adjusted according to the number of bedrooms. (In other words, 40% of local rents are below FMR, and 60% are above.) In Franklin County, there has been over a 60% increase in the FMRs for a 2-bedroom unit since 2000, while the average wage has risen 28%.^{xxxi}

2011 median household income and Fair Market Rents^{ix}	Annual household income of 30% of area median (very low income)	Affordable monthly housing costs (for those at 30% of area median household income)	Fair Market Rate: 1 bedroom	Fair Market Rate: 2 bedrooms	Fair Market Rate: 3 bedrooms	% of area median income needed to afford FMR for 2-bedroom	% of area median income needed to afford FMR for 3-bedroom
All data from National Low Income Housing Coalition							
Franklin County	\$20,670	\$517	\$730	\$905	\$1,207	53%	70%

2011 Affordability data^{ix}	% increase in Fair Market Rent (FMR) for 2-bedroom since 2000	FMR for 2-bedroom apartment	Household Income required to afford FMR at 30% of income	% of all renters who cannot afford FMR 2-bedroom apartment	Hourly wage needed for 2-bedroom unit to be affordable	Hourly wage needed for 3-bedroom unit to be affordable
All data from National Low Income Housing Coalition						
Franklin County	61%	\$905	\$36,200	52%	\$17.40	\$23.21

As shown above, households need to earn at least 50% of the area median income (between \$34,000 and \$36,000) in order to afford a 2-bedroom unit at the FMR, and from 60%-70% of median income to afford a 3-bedroom unit at the FMR. This means that households with incomes less than these levels will likely experience an affordability burden. Rental costs in Franklin County are particularly far out of reach for very low income households (those earning 30% of the area median income or below). These households can only afford to pay between \$517 and \$520 per month in rent; however, Fair Market Rents even for a one bedroom are between \$700 and \$780 per month. Very low income households that do not have a housing subsidy are at high risk of homelessness, and/or may have to double up with family or friends, often an unsustainable situation. The number of households in need of a housing subsidy far outstrips the supply, and waiting lists are often years long.

Although the above data is informative, it does not present a complete picture since it does not represent data about actual households. Data collected by the U.S. Census Bureau confirms the high number of households with affordability burdens in our area. In Franklin County, 49.7% of all households paid more than 30% of their income in rent, and 40.3% of owners paid more than 30% of income on housing.^x

Information from the survey. The following table gives a summary of some of the housing-related problems that our respondents had during the past year. (The total is greater than 100% since it was possible to check more than one answer.) A reminder: One quarter of the respondents to the survey from Franklin County lived in subsidized housing, which is a far higher rate than in the actual population. Further, for each question, this proportion may be higher or lower, since not everyone answered every question. For instance, in the questions below, only 248 people answered, and 51% of them said they lived in subsidized housing.

During the past year:	Franklin County N = 248
I had section 8 or other subsidized housing.	51.2%
I was unable to pay my heating and/or utility bills on time.	40.3%
I was unable to pay my rent or mortgage for a month or more.	21.4%
I was on a waiting list for Section 8 or other housing subsidy.	20.6%
I was homeless or had to live with family or friends.	12.5%
There were people staying in my home because they had nowhere else to go.	11.3%
I received an eviction notice but wasn't evicted.	7.7%
I needed services to care for an elder or disabled person in my home.	6.9%
I lost my housing due to foreclosure.	0.8%
I was evicted.	0.8%

Of note in the data above and below is the large portion of respondents who had a hard time paying their heat and/or utility bills on time or said that heating and utilities are too expensive. Energy costs form a major portion of housing expenses and also need to be considered. Heating costs have risen dramatically in recent years. In 2004 the average cost per gallon of oil was \$1.38, and in the 2011-2012 heating season it has been \$3.80 per gallon, with a peak of \$4.70 per gallon in 2008. For the 2011-2012 heating season, 3,300 Franklin County households received help from *Community Action's* Fuel Assistance program to pay their heating bills. The agency raised an additional \$35,000 through a fundraising appeal to help people with heating bills, and it was spent within three months. Many of the recipients of these grants were Fuel Assistance clients for whom benefits and their own income were not sufficient to keep them warm all winter.

About 29% of respondents said they were not satisfied with their current housing (owned or rented), and the remainder said they were.

If you don't like your current housing, why is that?	Franklin County N = 123
Too small	39.8%
Heat and/or utilities too expensive	35.8%
Want to live in a different kind of housing	30.1%
Neighborhood isn't safe	17.1%
Unsafe, unhealthy, not in good condition (e.g. lead paint, mold, pests, broken appliances, etc.)	16.3%
Not in the town or area where I want to live	15.4%
Rent or mortgage + taxes too high	13.0%
Not accessible for a member of my family with a disability	4.9%

(Please note that for Hampshire County residents, one third said the rent or mortgage/taxes were too high. This reflects the difference in the samples in each county mentioned earlier; there were far more residents of subsidized housing in the Franklin County than the Hampshire County sample.)

For those who would like to own a home and don't already, the largest number of people said that the reason is because they cannot yet afford the down payment. Poor credit is an issue for about half of the respondents. Almost 40% in Franklin County just don't know where to begin. The Regional Housing and Redevelopment Authority offers first time homebuyer programs in Franklin County. With the loss of programs that support homeownership for people with low incomes, and with the current tight credit environment, homeownership is not a viable option for most residents with very low income.^{xi}

If you prefer to own and don't already, what is preventing you from buying a home?	Franklin County N = 132
I can't afford the down payment yet.	87.1%
I have bad credit.	56.8%
I can't find anything in my price range.	45.5%
I don't know how to begin the process.	38.6%
I was turned down for mortgage financing.	17.4%

For respondents who wanted to move into a rental unit, the most frequent barrier by far was not having the security deposit and/or first and last month's rent. Poor credit was also a problem for a significant number. Many who wanted to move also had not found any place where they would be better off. Pets and smoking also pose problems for many who want to move and rent. We are happy to see that very few people believe that landlords will not rent to them because they have children. Again, a fair number are not sure where or how to look for a new place; again, there is room for consumer education.

If want to move and find a rental, what is making that hard for you?	Franklin County N = 145
Don't have the money for security deposit/last month's rent.	66.2%
I have pets.	41.4%
Places I can afford are unsafe, unhealthy, or too small. I wouldn't be any better off.	26.9%
Bad credit	22.8%
I don't have a car, and there isn't any housing close to school/DTA/ grocery store/job, etc.	22.8%
I smoke.	19.3%
Not sure where or how to look	15.2%
Can't find anything for a household member with special needs.	4.8%
Don't have good references/background check	4.8%
Voluntarily moved out of subsidized housing in the past.	2.8%
Evicted from subsidized housing in the past	2.1%
Landlords don't want to rent to me because I have children	1.4%

Clearly, the lack of affordable, decent housing is a major issue in Franklin County – arguably the *most* important issue in terms of whether or not people with lower incomes can get by. Subsidized housing is scarce in most of our communities, with only a few communities with more than 10% of their housing stock subsidized. Massachusetts has set 10% as the threshold for purposes of implementing the Chapter 40B statute, which encourages the production of affordable housing by allowing local zoning boards of appeals to approve developments under flexible rules (permitting development where local zoning would otherwise have blocked the development), as long as at least 20-25% of the units have long-term affordability restrictions.^{xii} This statute is credited with producing the bulk of affordable housing developed in Massachusetts since the early 1970s, particularly in communities that are below the 10% threshold. A few cities and towns in our area have already exceeded the threshold, including Greenfield, Orange, and Montague. It is clear that additional affordable housing near employment centers and with transportation access is needed and should be a priority for government and nonprofit stakeholders seeking to improve the quality of life for a large sector of our population.

Homelessness. High housing costs and rising unemployment during the Great Recession have resulted in a dramatic increase in homelessness in Franklin County since 2007, particularly family homelessness, such that families with children now make up 71% of all homeless people in Western Massachusetts. In addressing homelessness, it is also important to understand that the reasons that people become homeless can extend far beyond the relative affordability of the housing available to them given their level of income. Many of the people that *Community Action*, our local housing authorities, and other service providers work with are homeless or at risk of becoming homeless because of issues related to past trauma, domestic violence, substance abuse, and/or mental health. Many have lost access to public benefits, which would have allowed them to maintain tenancies, because they did not understand or follow through with the often

complicated requirements of these systems. Many simply have not understood their rights and responsibilities as tenants or homeowners.

There are two measures of the number of homeless families and individuals, the number who are homeless at any given point in time, and the number who become homeless at any time over the course of a year.

Point-in-time data, 2007 to 2010. According to Point In Time (PIT) survey data for the four-county western Massachusetts HUD Continuum of Care (CoC) area that includes Franklin County, there were almost three times as many homeless families with children in 2010 (421 families) as in 2007 (156 families). Over the same period, homelessness among individuals increased by 30%. The effect has been a huge increase in the numbers of people who are homeless in our area, with PIT data showing almost twice the number in 2010 (1,881 people) as there were in 2007 (964 people).^{xiii}

One-year data, 2010. According to estimates by the Western Massachusetts Network to End Homelessness, there are at least two to three more homeless people over the course of the year than there are at any given point in time, so there were likely up to 1,200 families who were homeless at some time in 2010 in Western Massachusetts. The total number of people struggling with homelessness may have reached 5,500.^{xiv}

The increase in family homelessness in Franklin County is part of a national trend. Massachusetts is the only state in the country that has a right-to-shelter for homeless families. Pregnant women and families with children earning less than 115% of area median income, with assets of less than \$2,500, may be eligible for the state Emergency Assistance program. The Commonwealth can accommodate 2,000 families in shelters statewide. Because Emergency Assistance has been an entitlement for families that meet eligibility requirements, the state is obligated to provide alternative accommodations when family shelters are full. For the past several years during the Great Recession, the state has sheltered thousands of extremely low income families in motel rooms.

According to the Franklin Regional Housing and Redevelopment Authority, between August 2011 and March 2012, 82 Franklin County families were determined eligible for the Emergency Assistance program. In March 2012, there were six families in ServiceNet's family shelter in Greenfield, which is its entire capacity for Franklin County, and 27 families were housed in two motels in Greenfield.^{xi}

Massachusetts is engaged in a multi-year effort to adopt a "housing first" approach to ending homelessness. In 2009, the state transferred responsibility for its shelter program from the Department of Transitional Assistance to the Department of Housing and Community Development (DHCD). In 2009 and 2010, DHCD used a combination of state and federal funds to move families from shelter to housing with time-limited rental assistance. In 2011, DHCD created the HomeBASE program for families that qualify for Emergency Assistance. Initially, HomeBASE

offered a year of rental assistance to eligible families, with the possibility of additional subsidies for two years. However, the demand for this assistance from eligible families was so high that, for budgetary reasons, DHCD stopped offering rental assistance after three months. This was a good indication of the tremendous unmet need for housing assistance among very low income families statewide, including families in Franklin County.

The Governor is proposing to increase funding to prevent family homelessness in 2012, and restructure the HomeBASE program to offer families that qualify for Emergency Assistance up to \$6,000 to secure and/or maintain a stable housing situation. While this is unlikely to be adequate to address the need for long-term housing assistance for extremely low income families in Franklin County, the additional resources will be helpful.

Food security

Access to adequate amounts of nutritious food is the basis for healthy growth, daily functioning, and disease prevention. Due to the high nutritional demands that rapid growth places on them, children are especially vulnerable to malnutrition if they lack access to adequate nutrients, and this can negatively affect health outcomes for their entire lives. Yet today, hunger is still experienced by millions of Americans, and families with children are affected to the greatest extent. Despite the successes of the federal Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps) in reaching greater and greater numbers of people, there continues to be food insecurity in every community in our country, including Franklin County, demanding a renewed effort to address the problem.

Prevalence of Food Insecurity. Food insecurity occurs when individuals or families have “limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways.”^{xv} Very low food security occurs when “one or more household members experience reductions in food intake or disruptions in eating patterns due to a lack of adequate resources for food.”^{xv}

a. National data. The USDA publishes data annually on the extent of food insecurity in the U.S. and found that in 2010, over 17 million households or 14.5% of all households were food insecure. This figure was virtually unchanged from the 2009 figure, although the 2008 data had shown a dramatic increase over 2007 due to the recession, an increase from 11.1% to 14.6%.^{xvi} While the prevalence of food insecurity may have stabilized, it is showing no signs of decreasing to previous levels, which ranged between 10% and 11.9% between 1998 and 2007. Alarming, food insecurity in households with children, always higher than the average for all households, jumped from 15.8% in 2007 to 21% in 2008. That figure was still at 20.2% in 2010. Because parents tend to do everything possible to ensure their children are fed even if they have to sacrifice their own nutrition, the actual percentage of food-insecure children is lower. Even so, almost 10% of households with children in the U.S. had food-insecure children in 2010.

b. State and local data. According to the USDA report, in Massachusetts the prevalence of food insecurity for the period 2008-10 was 10.8%.^{xvi} Results of another survey that measures a very similar concept, ‘food hardship,’ indicated that from 2009-10, 14.4% of Massachusetts households (compared to a U.S. average of 14.9%) and 20% of Massachusetts households with children (compared to a U.S. average of 23.4%) experienced food hardship.^{xvii} A *Feeding America* study recently estimated rates of food insecurity at the county level for all persons and all children (not households), reporting that 11.5% of Franklin County residents and 20.2% of all Franklin County children were food insecure.^{xviii}

c. Results of two local surveys. Two recent sources of data provide insight into the experiences of local individuals and families who are struggling to get the food they need. One of these is *Community Action’s* survey, and the other is a survey conducted by *Feeding America* for the Food Bank of Western Massachusetts focused on people who used food pantries, soup kitchens, and emergency shelters that were supplied with food by The Food Bank. The picture that emerges is one in which families and individuals with lower incomes who are vulnerable to food insecurity must employ a variety of strategies to meet their need for food. Despite the options available to help address these needs, there is evidence that food assistance programs are not reaching everyone and that they are not yet fully effective in eradicating hunger in our communities.

Community Action’s survey, which focused on people with incomes below 200% of the Federal Poverty Guidelines living in our service area, found a disturbing number of families and individuals affected by food insecurity. In Franklin County:

- 44% of respondents said they had skipped meals because they couldn’t afford the food.
- 18% said they hadn’t eaten for a whole day because they couldn’t afford the food.
- 13% said their children often complained of being hungry because there wasn’t enough food.
- 35% said they would have fed their children better food if they had more money.

According to the survey prepared for The Food Bank of Western Massachusetts,^{xv} 71% of households using emergency food programs are food insecure, and 29% have very low food security. Furthermore, people were forced to make painful trade-offs between having enough food and paying for other necessities:

- 42% of respondents reported they had to choose between paying for food and paying for utilities or heating fuel.
- 36% said they had to choose between paying for food and paying their rent or mortgage.
- 26% had to choose between paying for food and paying for medicine or medical care.
- 34% had to choose between paying for food and paying for transportation.

Federal Food Assistance Programs. Federal food programs have made enormous strides in diminishing severe hunger and malnutrition. The primary vehicle for addressing widespread food insecurity nationally is the Supplemental Nutrition Assistance Program (SNAP), which allows

recipients to obtain varying amounts of free food depending on their income. In an average month in federal fiscal year 2010, 40.3 million people (13% of the population) received SNAP benefits.^{xvi} In the recent recession, the cash value of SNAP benefits was enough to put the household income of at least 3.9 million people above the federal poverty level.^{xix} The program has been flexible enough to respond to people's needs quickly during disasters and economic downturns, just as it was designed to do.

Increases in SNAP participation have certainly been evident locally, boosted by both increased need due to worsening economic conditions, as well as by efforts to increase access to SNAP benefits--efforts that *Community Action* has supported through its Community Resource and Advocacy and food pantry programs. From August 2008 to February 2011 (about two and a half years), enrollment in SNAP has increased by 53% in Franklin County, from 3,398 households to 5,613 households, about 18% of the total number of households in the area.^{xx}

The National School Lunch Program is also a significant source of food assistance, serving free or reduced price breakfast and lunch for approximately 31.6 million children a day throughout the U.S.^{xvi} In Franklin County, the percentage of students who qualify during the current year for the school lunch program ranges from 18% in the Frontier Regional District to 44% in the Mahar (Orange) district and 52% in the Gill-Montague district.^{xxi}

The third major federal food program, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), provided supplemental food to an average of 9.2 million pregnant women and families with children under five years of age during the federal fiscal year 2010.^{xvi} This prevention program includes nutrition education and health care referrals, prioritizing participants with nutritional risks. WIC participation in Massachusetts grew by 10% between 2006 and 2009, to 128,000 participants, then tapered off slightly to 125,600 participants in 2010.^{xxii} *Community Action* manages the WIC program in Franklin County, the North Quabbin region, and most of Hampshire County and served 4,445 women and children in FY11.

Despite the successes of these food assistance programs and increasing participation rates, there is evidence of uneven access to these programs, and many of those that do access benefits find that the benefit amount is inadequate to fully address their needs. The Food Bank survey findings showed that many of the households served by emergency food programs were NOT also enrolled in SNAP; only 53% were receiving SNAP benefits, though it is likely that many more qualify for them.^{xv} Over 83% of survey respondents had applied for SNAP at some point. Of those who reported never having applied, the most common reason reported was that they believed they were not eligible because of their income level or assets (47.8%); however, a large majority of these had earnings under 130% of FPG and probably were eligible. Almost 15% did not apply because they felt embarrassed applying for or using SNAP benefits. Among those who had applied at some point but were no longer enrolled in SNAP, 43% believed they were not eligible, and 27% were deterred by the inconvenience of applying. Even among households who are enrolled in SNAP, 60% say they ate less than they should because they lacked enough money to buy food.

SNAP benefits lasted an average of 2.6 weeks, and many receiving them did not have enough money to buy food for the rest of the month.

Among *Community Action's* survey respondents, almost all of whom had incomes below 200% of FPG, 53% said they were enrolled in SNAP. About 22% of respondents who said they had applied for SNAP reported that they had been turned down. Among households with children, 60% reported their children were enrolled in school-based programs for free or reduced price meals. Given that families whose incomes are at or below 185% of the poverty guidelines are eligible for school meal programs, it is likely that many more of these families qualify for the school lunch program than are receiving it. About 63% of survey respondents with children five years of age and under participated in the WIC program.

Local food assistance programs. In Franklin County, a number of food distribution programs run by local churches, social service agencies, and other nonprofit organizations also work to end hunger in our communities. The Food Bank of Western Massachusetts lists on its website 17 programs in Franklin County that provide emergency groceries, and six that serve hot meals.^{xxiii} *Community Action* operates two of the Franklin County food pantries, one in Greenfield and one in Shelburne Falls.

Most of these programs rely heavily on volunteers and receive much of their food from The Food Bank, which acts as a clearinghouse for government food distribution programs, food salvaged from area businesses, and private donations of food. The programs also accept food donations directly and/or participate in local food drives. They are quite diverse and vary widely in terms of their days and hours of operation and capacity.

Food pantries and community meals programs are a critical element in the response to hunger, and there continues to be a high demand for this type of assistance. A large majority of the Franklin County respondents to *Community Action's* survey (81%) had used a local food pantry, and 28% had participated in a community meals program. According to the survey done for The Food Bank,^{xv} 76% of their member food pantries reported an increase in clients from 2006 to 2009. In fact, 24% of these programs reported that they sometimes had to turn people away, most commonly due to not having enough food. Their clients revealed a high dependence on these programs. When asked what they would do without this assistance:

- 55% said they would go to another agency.
- 26.5% said they would get by somehow.
- 22% said they would get help from relatives or friends.
- 16% said they would eat less, skip meals, and/or reduce the size of their meals.
- Only 4% said they would get help from the government.
- 5% said they have no other place to get help.

Community Action's survey asked respondents who did *not* use a food pantry to explain why. (Multiple responses were possible.) Quite a number indicated they had enough food (53%) or that they did not want the help because "someone else needed it more" (41%). Then there were others

who needed the assistance, but something kept them from getting it. Nineteen percent said they were embarrassed to go to a food pantry, 11% said they thought they earned too much, 11% didn't like the choice of food, and 12% had problems getting there. More outreach and support is required to reach people who experience these and other barriers to getting the help they need.

These local programs try hard to fill the gap that public benefit programs have not been able to bridge, but the reality is that the need is so great that people still go hungry in our communities. There are numerous advocacy efforts that seek to generate greater awareness of hunger and coordinate efforts to address the problem. For example, the Food Bank holds public events every September in conjunction with Hunger Action Month, a national effort spearheaded by Feeding America. In Franklin County, the Hunger Task Force of the Franklin County Resource Network helps coordinate various food drives and advocacy efforts throughout the year, including the annual 'Fill the Belly Bus' food drive every August, and WJDF holds a highly successful food drive each year in the North Quabbin region.

Innovative gardening programs and drives to solicit donations of produce from area farmers represent another type of local response to the problem of hunger. The Western Massachusetts Plant-A-Row initiative organizes gardeners and farmers to plant an extra row of vegetables for donation to area food pantries. One retired Franklin County farmer who has served on the Hunger Task Force now plows and sows his fields each year solely for the purpose of donating the produce. Many cooperative farms throughout *Community Action's* service area donate a portion of each year's harvest, and The Food Bank runs a farm that supplies produce to distribute through its partner organizations. Many child care programs and schools have gardening projects that teach children how to grow food and also provide families in need with healthy produce. In addition, many area farmers' markets accept SNAP as a method of payment, and some even offer a certain amount of free produce for their customers who use SNAP, helping to improve these families' access to locally grown fruit and vegetables.

Community Action's survey included questions that explored whether respondents grew their own vegetables or were interested in doing so. The Franklin County responses indicated quite a lot of home gardening activity and interest in gardening, but revealed barriers as well. Around 26% of all respondents said they grew some of their own food. Among those who did not (multiple responses were possible), the lack of space was the most frequently cited reason (58%), followed by physical limitations preventing them from doing the work (27%). Eighteen percent cited the cost of gardening supplies as a barrier, and 12% said they did not know how to garden. Some interest in community gardening was indicated by 30% of respondents, and nearly 35% wanted to learn more about growing their own food. The data shows that there is potential for greater participation in home and community gardening by people with lower incomes, although education, support, and identification of spaces for gardening would be needed. This could be a small but important way to improve food security that is also empowering for those who participate.

Transportation

In Franklin County, getting to work means getting in a car, generally one's own car. Almost 80% of workers drive in their own cars, versus 8.2% who carpool, 4% who walk, and only 1.3% who use public transportation. Mean commuting time to work is 25 minutes. 5.8% work at home, a fairly high percentage compared with Massachusetts (3.9%) and the U.S. (4.0%).^{xxiv} Those with lower earnings made up the majority of those using public transit to get to work, with over 69% in Franklin County earning less than \$25,000 per year. Within that group, people with income below the poverty level are well represented. In Franklin County, commuters with income at or below the poverty level are much more likely to depend on public transportation for getting to work. Of all public transit users, 17.8% have income below 100% of the poverty level, while making up only 5.3% of the population of workers.^{xxv}

The Franklin Regional Transit Authority's service area covers over 1,100 square miles, the largest area covered by a transit authority in the state, yet they receive the second lowest amount of grant funding from the state. Most funding comes from a combination of state and federal grant funding. Farebox collection on fixed routes raised only about 12% of operating expenses over the last two years.^{xxvi} Fares are relatively low, \$1.00 or \$1.50 on all routes except the Greenfield-Amherst line, which is \$3.00, making the cost affordable for people with lower incomes. The question is whether or not the bus gets them where they need to go when they need to get there. Bus stops are often a long distance apart, and the bus may run only once every hour, often less. It is important to remember that getting to work often involves dropping children off at child care, which is not easily accommodated by rural public transportation schedules and stops.

Several additional services are provided to assist populations with special needs. For example, there is limited service for disabled riders (ADA Paratransit Service) to be transported from their homes to one of FRTA's fixed routes, and there is a curbside service offered to elders 60 or older and veterans with a disability rating 70% or higher. On fixed routes, Veterans with valid ID and persons with a Commission for the Blind card ride free. Riders over age 60, ADA Consumers with photo ID, or persons with a StateWide Access Pass pay half fare. FRTA also has a contract to provide MassHealth recipients with transportation to medical appointments.^{xxvi}

Local transportation planners are well aware of the need for expanded bus service, including more service to outlying towns, adding evening and weekend service, coordinating scheduling of routes for workers, and improving on-demand service for the elderly and handicapped. The lack of secure long-term funding is the critical challenge to providing public transit in Franklin County. A number of the most popular bus routes in the region have no secure long-term funding.^{xxvii}

Information from the survey. Not surprisingly, by far the most frequent mode of transportation to work for respondents to the survey is their own vehicle (65.5%), still a smaller percentage than for the Franklin County population at large (79.4%). The overall average time to work one way for survey respondents was 22 minutes, with 27% traveling between 20 and 30 minutes, and 40% traveling between 10 and 20 minutes. While cars are convenient, they are very expensive, a huge

drain on household income. As a result, people with low income often own older cars that get lower gas mileage, and they are often unable to maintain them well. They may run them in a unsafe or unnecessarily polluting condition, or uninsured. A much higher percentage of Franklin County respondents walked to work at least sometimes than the population as a whole (25% vs. 4%). Fewer took part in a carpool (5.4% vs. 8.2%). Many more took public transit (13.7% vs. 1.3%).

Mode of transportation to work	Franklin County N = 168
my own vehicle	65.5%
walk	25.0%
bus	13.7%
bicycle	8.3%
carpool	5.4%

Many of those who did not walk or ride a bike said it was because of health reasons (bad knees, short-winded). Here is a representative sampling of reasons respondents said they do not walk or ride a bike to work, appointments, or school/child care.

- I am disabled. Nothing is nearby even for an able-bodied person.
- Not enough time. Can't take children to where they need to go on bikes.
- You can walk anywhere, but it's the amount of time, that's the issue.
- Not enough sidewalks. Roads not safe.

Reasons that respondents do not take the bus were related to health, mental health, access, and convenience.

- Have to walk a mile to get to bus stop.
- I have a physical disability and panic disorder.
- The way the buses run it takes all day to go to one appointment. I have a car.
- The bus runs on a different time schedule than I do.
- Sometimes I don't have the money.
- Bus route not near child care.

Job readiness/job development

Franklin County residents travel throughout the region to work. Most employers in Franklin and Hampshire Counties and the North Quabbin region have less than 20 employees. The market is dominated by small businesses and organizations, with 6,195 employers in this category, almost 90% of all employers. But these companies employ only 29% of all workers. Almost 28% of all workers are employed in companies with 20-99 workers, and 25% in companies with 100-499 workers. Only 18.3% of workers are employed in companies with 500 or more employees.

According to the US Bureau of Economic Analysis, nearly 60% of all jobs in Franklin County in 2009 were in the following industries: government, which includes UMASS-Amherst employees (13.4%); health care and social assistance (11.8%); retail trade (11.0%); manufacturing (10.9%);

construction (6%) and educational services (private elementary and secondary schools and private colleges,6%). Declines between 2008 and 2009 were most marked in Wholesale Trade (16.6%), Manufacturing (-11.1%), Information (-9%), and Administration and Waste Management Services (-8%). Education and Health, and Government categories were very stable during this period.^{xxviii,xxix} However, according to Michael Truckey, Director of the Franklin Hampshire Career Center, reductions in employment in the Government category have been increasing recently.^{xxx}

In Franklin and Hampshire Counties and the North Quabbin regions during the ten years between 2006 and 2016, one million jobs will need to be filled, 78% because of replacement due to retirement, labor force withdrawal, and occupational changes, i.e. not because they are new jobs. The five occupations with the most *new jobs* are expected to include Registered Nurses, Customer Service Representatives, Computer Software Applications Engineers, Food Preparation and Serving Workers, and Home Health Aides. Among the 30 fastest growing occupations, 13 are in either health care or information technology. Sixty percent of all new jobs will require an Associate's Degree or higher.^{xxxi}

The Franklin Hampshire Regional Employment Board (REB) identifies the following as the challenges and strengths related to workforce development in *Community Action's* service area:^{xxxii}

❖ Challenges

- ✓ We have the largest geographical span and lowest population of any Massachusetts workforce region, leading to some of the lowest allocations of state/federal resources, but with some of the highest potential costs when it comes to such things as transportation (e.g. costs of helping disadvantaged job seekers get to training or even basic services; costs of staff outreach services to clients).
- ✓ Similar to the rest of the state, our birth rate is down, and there is a steep increase in the percentage of our population who are senior citizens or workers nearing retirement age.
- ✓ There is only one community college in Hampshire and Franklin Counties and the North Quabbin region. Hampshire is the only county in the state with no community college.
- ✓ Technical training beyond the CNA, LPN, Nursing, and business programs offered by the local community college and Skills, Inc. in Amherst is a minimum of 40 miles distant, in Holyoke, Springfield, Gardner, or New Hampshire -- out of our region and beyond any feasible daily public transportation routes.
- ✓ Of the 32 communities in Massachusetts with no access to high-speed internet, 56% (18) are located in the Franklin/Hampshire region. This severely impacts job seeker access to on-line services and education/training, as well as entrepreneurship and overall business development.

❖ Strengths

- ✓ The powerful Five College Network economic engine, which helps to sustain and generate countless small businesses in our region (including the backbone businesses at the heart of our vibrant downtown economies).
- ✓ The identification of Northampton as one of the top ten places to spend retirement years, and the geriatric/retiree housing/community living career paths emerging.
- ✓ The growing interest and support for renewable energy/energy efficiency in the community and in businesses, with the recognition that this direction will ensure their ability to compete and survive: on this issue the Franklin region is ahead of the curve.
- ✓ Strong, collaborative youth development network.
- ✓ Strong, collaborative adult education network, including outstanding workplace education (UMASS) and ESOL (Center for New Americans and International Language Institute) components, as well as innovative literacy “transitions” approaches (The Literacy Project) [and, *Community Action’s* Family Learning Center in Greenfield].

The Regional Employment Board (REB) offers the following as policy recommendations:

- ★ Educational Services, Health Care, and Manufacturing should remain our priority industries since they employ significant numbers of people, have the greatest potential for good wages, and serve as a generator of economic activity in our region.
- ★ Rising levels of employment in Retail/Sales and Food Services prompt us to attend to strategy development in those areas as well, since many get their start through entry-level jobs in these industries (including members of key disadvantaged populations).
- ★ While numbers of open jobs are not currently substantial, distinct positive trends in agriculture and green industry development lead us to promote awareness of and attention to these areas.
- ★ Strategies must consistently take into consideration and attend to our wide geographical span, rural nature, poverty rates, scarcity of broadband access, aging workforce, and limited community college and technical training access.

The REB also cites the following additional strategic issues related to local priority industry areas:

- ★ The proliferation of jobs in home care and extended care, but also the high attrition rate of individuals in these fields.
- ★ The demand for retail and food service workers, but -- noting the high turnover rate -- the need to acknowledge a certain given level of “churn” in these areas that skill development will not necessarily address. These jobs tend to have low wages and no or few benefits.
- ★ Genuine skill gaps in such occupational areas as health care practitioner and health care support, and significant replacement worker needs in manufacturing.
- ★ The aging workforce, the eager-to-work disabled workforce, and the declining youth population. Not only must we help employers be proactive in planning for changes in expectations and commitments that increased older worker presence in the job market

will bring; we must also convince them that investing in youth readiness and making space for differently-abled workers will soon be not a luxury but a necessity if they want to remain competitive.

Information from the survey. The following chart summarizes the reasons that Franklin County respondents to our survey said they had been unemployed. The totals equal more than 100% since respondents could choose more than one reason. One thing that immediately stands out is the relative few who say they were unemployed because of a lack of jobs in their line of work. This reason is given about equally as often as child care problems, and even less often than transportation problems. Combined, insufficient education or training plus not enough experience are also major reasons for unemployment. The single largest reason for being unemployed, by far, is disability, followed closely by health issues. In 2011, 23% of *Community Action's* program participants identified themselves as disabled.

Reasons why unemployed	Franklin County N = 228
Disability	63.2%
Health issues	36.0%
Transportation	18.9%
Not enough education/training	13.2%
Not enough jobs in my line of work	11.0%
Not enough experience to get a job	10.5%
Child care problems	7.9%
Denied a job because of criminal record	4.4%
I don't speak English well enough	1.8%

This data tells us that, while job development and job training are very important, there are other issues that must also be tackled if the jobs created and training systems developed are to be of use, at least for people with low incomes.

- As discussed earlier, transportation must become easily accessible and convenient for working people. Parents need access to transportation that allows them to drop off and pick up their children from child care conveniently.
- There must be more high quality and affordable child care. Behind every working parent, there is child care. Affordable child care means parents have something to show for their work after they pay their child care bills. High-quality care means parents can go to work, focus on what they need to do, and not miss work unnecessarily. Currently there is not enough licensed care for the children who need it, especially for infants and toddlers, and state subsidies are painfully inadequate.
- Most youth and many adults need training in basic employability skills such as workplace expectations and roles, time management, conflict resolution, and group decision-making.
- And of course, jobs will need to pay a living wage if people are going to be able to be able to move toward economic self-reliance and to accumulate assets of any kind.

In addition, we need to learn more about the over 60% of our respondents who said that disability was a barrier to their working. Were they totally disabled and unable to work, or were they able to work if accommodations and support were available? Future surveys should be designed to garner this type of information.

SUMMARY AND DIRECTIONS FOR SUSTAINABLE DEVELOPMENT

Income/Savings/Debt/Financial Management

Having enough money to pay one's bills on time; good financial management skills; access to affordable, non-predatory banking services; manageable debt; and savings and asset ownership are the building blocks of financial security – and of a sustainable community in which people are able to purchase what they need and have something left to invest in the future.

Very few of the respondents to our survey said they were financially better off than they had been three years ago, and half were worse off. A substantially higher percentage than three years ago said they had to rely on borrowing from family and friends or on their credit card to purchase basic necessities. Our survey also revealed an alarming degree of debt and lack of savings, as well as a strong degree of interest in learning more about household financial management, restoring credit, reducing debt, and saving toward long-term goals.

For a host of reasons, many of the adults that we work with at *Community Action* do not possess solid financial management and decision-making skills. Many people with higher income do not, either, but their poor or uninformed decisions often will have less dire consequences simply because they have more money.

Individual development account, free tax assistance, and financial literacy education programs have been very well-received and successful – within the limits of chronic underfunding. Other programs in the community such as first-time homebuyer workshops, the small business incubator, community college courses, and employability skills training all bring important resources to people with low income who are trying to build a solid financial foundation and, given more funding, could also be accessible to more people.

Housing and Homelessness

- Housing is the single largest expense and driver of the high cost of living in Franklin County. Given the low wages prevalent in the area, the affordability burden for housing is very high for a large portion of households. 40% of owners and 50% of renters pay more than 30% of their income on mortgage or rent.
- Many people cannot consistently pay their heat/utility and/or rent or mortgage bills on time.
- Current housing subsidy programs do not meet anywhere near all of the need.
- Homelessness has increased dramatically in the past several years. In addition, many people are “doubling up” with family or friends, or living in housing that is too small for their needs.

- In order to move into homeownership responsibly, many people would benefit from education and active support about financial management and buying a home; repairing credit; and saving money. Such programs do exist but are limited in scope because of low funding.
- Barriers to moving into a better rental unit include the requirement for a large sum of money for security deposit and last month's rent; bad credit; transportation issues; and the lack of safe, healthy rentals that are affordable.
- Families and individuals that struggle with physical and mental illness, addiction, developmental disabilities, and a history or trauma often need supportive services if they are to maintain stable housing.

The ripple effects of unaffordable housing destabilize a community at every level, from the obvious (evictions and the cost of sheltering the homeless) to the more hidden (seniors who pay their rent but can't afford needed medications and become ill or disoriented, parents who pay their rent but can't feed their children adequately enough for them to concentrate in school). Because adequate, safe, warm housing is so fundamental to individual and community health, planning for a sustainable future for Franklin County means doing something dramatically different about the housing that is available to people with lower incomes.

It is essential for the sub-set of the population that is not able to manage successfully and independently to co-locate individualized supportive services with their housing. Landlords and tenants need more education about rights and responsibilities. Housing subsidies need to be expanded. New housing construction needs to incorporate designs that will reduce environmental impact and energy costs, and also be affordable to live in, such as the zero-net energy homes at the Wisdom Way Solar Village in Greenfield. Older housing and factory buildings should be rehabilitated and retrofitted with energy-efficient features, as well as small power generating facilities (e.g. solar panels) whenever possible. Limited equity cooperatives, condominiums, cluster housing, and tenant-owned apartment dwellings can all be explored. In terms of both environmental impact as well as affordability, single family housing should be kept to a minimum.

There are two sides to the equation of making housing affordable. Making housing cost less is one way to increase affordability. Having more local jobs that pay a living wage is another. This brings in a host of other options and approaches to housing and homelessness that revolve around economic development, including tax policy and state and national budget priorities. Homelessness and lack of affordable housing are not only local problems. They are regional and national problems that need to be addressed at all levels and from a variety of directions if they are to be solved.

Food security

Food insecurity is widespread in Franklin County. While a network of services and public benefits exists to address this, and demand for the services provided is high, the support offered is in no

way sufficient to eliminate the problem. Growing and distributing more food locally is one major way to make our community more sustainable and to reduce our environmental impact. Franklin County contains a lot of agricultural and open land, as well as commercial kitchens (including those at *Community Action*) that could be put to fuller use for training people about putting food by, and/or for creating value added products for local consumption. The survey indicated quite a lot of home gardening activity as well as interest in gardening among our lower income respondents, but revealed barriers as well. Making it possible for people with low incomes to contribute fresh, nutritious, inexpensive produce to their diets through their own work would require developing shared garden spaces, purchase and/or loan of gardening tools, purchase of and/or loans for gardening supplies, and education about successful gardening and food storage methods in this climate, as well as some level of community organizing effort and education about nutrition and eating well within a limited budget. *Community Action* and our partners have the expertise and community connections to implement such efforts.

Transportation

Transportation in our rural area is oriented around private vehicles. Bus service is limited, and the funding structure is not adequate to make public transportation accessible and convenient to the majority of people; government grants are too small, and the fees that ridership pay can contribute only a small portion of the total cost, particularly on routes outside population centers.

A smaller percentage of respondents to our survey of people with low incomes drove their private vehicle to work (65.5%) than in the Franklin County population at large (79.4%), and many more walked at least sometimes (25% vs. 4%). Fewer took part in a carpool (5.4% vs. 8.2%). Many more took public transit (13.7% vs. 1.3%).

It is difficult to draw conclusions from this data. Beyond the fact that the sample size is relatively small (N = 168), there are many influences that drive choices about how to get to work. It may be, for instance, that many people with lower incomes live in the more urbanized parts of communities where rents are lower and that are closer to where jobs are located. Then, too, buses are usually routed past public housing developments where many of our Franklin County respondents live, and so bus transit is relatively accessible to them.

In terms of developing transportation options that minimize environmental impact, private vehicles are the last place to turn. Walking and bicycling are optimal for the environment and affordable for people with lower incomes. Increasing the number of people who can walk or bicycle to work will require different housing and commercial patterns, along the lines of mixed-use development with services, jobs, and homes in close proximity. Public transit is a good middle ground and will be necessary in a *Sustainable Franklin County*. And yet it seems unlikely that affordable and adequately convenient public transportation will develop on any large scale anytime soon because there is limited government funding for the necessary transit infrastructure and operations. While supporting any growth in public transit, planners can also attempt to

increase the number of people who ride in any one car and/or support improvements in the fuel efficiency of these vehicles.

Organizing carpools on a larger, more formal scale could be a way to reduce some of the transportation-related environmental impact in our area, as well as the cost of transportation for low income households. However, in other areas this has proven to work best where there are higher concentrations of population than in Franklin County. It is worth promoting and organizing, but it may not make a sizable difference. There are successful models for helping people with low incomes to purchase new, fuel-efficient cars that could be tried locally, given enough funding to support developing the financial literacy education, credit repair, and car dealer negotiation services that would be needed as part of the model. *Community Action* has the expertise and the community connections to do this effectively.

Job readiness/job development

Job development and job training are fundamental to a sustainable local economy that has room for workers with lower education levels to earn a living wage. Indeed, it is easy to argue that this is *the* fundamental issue for the future of Franklin County. What we wish to emphasize in this report is that there are other issues that must also be tackled if the jobs created and the training systems developed are to be accessible and effective for people with low incomes. These issues have to do with the “infrastructure of opportunity” – the personal, social, and economic structures that make it possible to succeed in the work world: stable sources of food, shelter, warmth, and health care; high quality secondary and post-secondary education; English language instruction for newcomers; employability skills such as time management, understanding of workplace expectations, and household financial management; affordable, high quality child care; transportation; and successful transition to work for youth.

Conclusion

Sustainable development is equitable, inclusive development. Development that ignores the people at the bottom of the ladder simply makes the ladder unstable and unmanageable in the long run. The issues raised in this report are all closely linked with each other. In formulating a regional plan for sustainable development, how can we ensure that the infrastructure of opportunity is addressed and developed?

The funder of the *Sustainable Franklin County* regional planning effort, the U.S. Department of Housing and Urban Development, has the laudable goal of including the voices of people with low and moderate incomes in the planning process. *Community Action* is pleased to present this report as a means of making their voices heard. There is no substitute, however, for hearing the real voices of the real people, and we urge that the Regional Plan for Sustainable Development contain goals and action steps that will encourage the participation of people from all walks of life in implementing aspects of the plan.

We acknowledge that it is often challenging to do this. People who have lower education and/or income levels often are not interested, or they feel uncomfortable in groups. They may be intimidated by people with more education or better verbal skills, or they may not be used to group decision-making. They are just struggling to get by every day, and in the crush of that, being part of a community planning or organizing group is not a high priority, to say the least. They may not be able to afford the gas to get to a meeting or the babysitter to take care of their children, or they may have to work nights when meetings are held.

Community Action has substantial experience working with people with low incomes in leadership positions within our organization, and would be happy to do so in any future *Sustainable Franklin County* efforts. It is absolutely essential that child care, transportation, or money to pay for these be available if people with low incomes are to participate. It often helps to serve a meal, and to offer a stipend, gas card, or grocery card as incentive for participation. Group members need to be sensitive to diversity issues, including race, class, gender, education, and age. Often it works well to have someone the new group member knows – a staff member or group organizer -- accompany them to a meeting or two.

Community Action's motto is “Building on the Strength of our Community.” We believe that the full participation of our lower income constituents in the decisions that affect them brings great wealth to the table and will strengthen our entire community.

ENDNOTES

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SUSTAINABLE FRANKLIN COUNTY

Appendix C: Fair Housing and Equity Assessment



EXECUTIVE SUMMARY

Fair housing is defined as the right of all individuals and families to have equal access to housing. Safe, accessible, and healthy housing not only allows residents to live in decent conditions, but to also have the opportunity to access jobs, schools, and services to engage as fully equal members of their community.

In 1968, Congress passed the Fair Housing and Equal Opportunity Act. This Act prohibits housing discrimination on the basis of race, color, national origin, religion, sex, familial status, and disability. The U.S. Department of Housing and Urban Development (HUD) is charged with enforcing this legislation and ensuring that everyone has the opportunity for fair housing. This Fair Housing and Equity Assessment (FHEA) will examine Franklin County’s communities within the context of the Fair Housing Act to ensure that all residents have the ability to find suitable housing. The Secretary of HUD, Shaun Donovan, summarized the vital importance of suitable housing and its relationship to sustainability in 2010, when he said:

“Sustainability also means creating ‘geographies of opportunity,’ places that effectively connect people to jobs, to quality schools, and other amenities. Today, too many HUD-assisted families are stuck in neighborhoods of concentrated poverty and segregation, where one’s zip code predicts poor education, employment, and even health outcomes. These neighborhoods are not sustainable in their present state.”

Overall, the FHEA found that there are a few communities in Franklin County that have higher levels of racial and ethnic concentration than in the surrounding region. These areas are also highly correlated with poverty. However, the FHEA also revealed that many of the areas of concentrated poverty are also located in areas of high opportunity.

BACKGROUND

Demographics

Franklin County is the most rural county in Massachusetts and is located in the western portion of

the state on the border of Vermont and New Hampshire. The total County population in 2010 was 71,372 people. It contains 26 towns whose average population is approximately 1,400 residents each. The County’s population experienced a large growth between 1970 and 2000 when it grew at approximately 20 percent. Since then, the size of the population has remained level. Just over half of the County’s population is centered in four towns: Greenfield, Montague, Orange, and Deerfield. These towns are both the population and employment centers in the region.

Franklin County’s population has historically been a homogeneous one in terms of race and ethnicity. In 2010, 94 percent of the population was White. The remaining percentage is split predominately between Black (1.1%) and Asian (1.3%), with a very small percentage (0.3%) that is Native American. Hispanics make up the largest ethnic minority in Franklin County at 3.2 percent. While the total Hispanic population is small, it has been increasing rapidly – between 2000 and 2010 it grew by 55 percent. Table 1 below provides an overview of the Franklin County

Table 1: Franklin County Population Characteristics

	2010	2000	1990
Total Population	71,372	71,535	70,092
White	67,268	68,244	68,617
Black	688	637	476
Asian	866	741	484
Hispanic/Latino	2,211	1,425	842
Persons with Disabilities ¹	10,243	12,255	NA*
Households with children under 18 years	8,909	9,257	NA*
Households with persons 65 years and older	7,467	7,110	NA*

Source: U.S. Census Bureau. ¹The decline in persons with disabilities may not be accurate due to the margin of error associated with the U.S. Census’s American Community Survey, which started sampling the population in 2010 versus the 100% count previously used. *NA = not available.

population between 1990 and 2010.

Franklin County's economy has long been centered on manufacturing. However, beginning in the 1980's numerous manufacturing jobs have left Franklin County and they have often not been replaced by comparable employment opportunities with good living wages. This shift in employment has resulted in lower incomes for the region. According to the U.S. Census Bureau's Small Area Income Estimates Program, Franklin County had an estimated 11.7 percent poverty rate in 2010, compared to the Commonwealth's average poverty rate of 11.4 percent. The areas within Franklin County that are experiencing especially high poverty rates include several of the downtowns and village centers that had once been traditional hubs of manufacturing employment.

The largest single employer for Franklin County residents is the University of Massachusetts at Amherst. The University is located just south of the County's border in Hampshire County. Because of its very close proximity and lower housing prices, many students and UMass staff live in Franklin County.

History of Fair Housing in the Region

There have been very few substantiated fair housing violations in Franklin County. HUD-provided data shows that there have been a total of 19 cases of housing discrimination complaints filed in the past five years in six Franklin County towns. Of these 19 cases, only four were found to have cause. The majority of these complaints (73%) were filed on the basis of discrimination of a disability. There have been no cases filed on the basis on race or ethnicity during the past five years.

Local and regional housing advocates and authorities have heard anecdotal reports of discrimination, but have been unable to prove the claims. From their experience, they feel that the population group that may be most likely to be discriminated against is low income households with children, particularly families headed by single mothers.

Public opposition to the creation of additional affordable housing has been an issue in the past, especially in the major population and employment

centers. These communities also have the vast majority of the region's subsidized housing.

Major Anticipated Changes to the Region

Projections estimate that Franklin County's population is going to experience moderate growth of approximately seven percent over the next 30 years. There are two primary changes in the region that are expected to contribute to the County's population growth. One is the recent and pending expansion of telecommunications infrastructure and high-speed internet services. The other is the arrival of passenger rail to Franklin County. It is expected that, together, these amenities will attract new residents who will be able to work mainly from home, but can also use the train to travel to locations such as Springfield, Hartford, or New York when needed. In the much longer term, the effects of climate change could also increase the size of Franklin County's population. As more coastal areas of New England and the East Coast are adversely impacted by sea level rise, population migration away from the coast could add to Franklin County's population.

While the total County population is projected to increase at seven percent over the next 30 years, not all segments of the population will grow at this rate. The elder population (those 65 years old and over) is expected to grow at a much faster pace -increasing by 77 percent - making this age group almost a quarter of the total County population. This large increase in elders could significantly impact the housing needs of the region.

IDENTIFICATION & ASSESSMENT OF AREAS OF RACIAL/ETHNIC SEGREGATION

To accurately examine the issue of fair housing in Franklin County, the presence and extent of racial/ethnic segregation within the region must first be determined. To help with this task, HUD has provided several measures with which to evaluate the level of potential segregation in Franklin County. The first measure provided is the Dissimilarity Index (DI), which calculates the geographic distribution of racial or ethnic groups. According to the DI, Franklin County has an issue with a high level of segregation between its White and Asian populations. HUD

classifies the DI score between these two groups of 0.53 as severe. This score is very similar to that of the Commonwealth's, which is 0.50 for White-Asians.¹

The issue of Asian segregation in Franklin County is concentrated in the Town of Sunderland, according to the other HUD-provided measure – the Predicted Racial/Ethnic Composition Ratio. U.S. Census data also corroborates this fact. The high level of Asian population within the Town of Sunderland is a consequence of its proximity to the University of Massachusetts at Amherst. Sunderland is located on the border of Amherst and has a large number of affordable rental housing complexes just a few miles from the University and located directly on a public bus line that travels to the campus. Because this location is so convenient and affordable, a large number of students choose to live there and many happen to be Asian. Anecdotal evidence suggests that this pattern may be a result of self-selection among this group. Asians are the largest minority group among graduate students at UMass.² Other similar communities in which there is a high amount of rental graduate housing, such as in the Town of Amherst, also demonstrate a concentration of Asian residents. In the census tracts in Amherst in which large graduate student rental housing similar to Sunderland's is located, the percentage of Asians (18%) is much higher than in surrounding areas. This percentage is far higher than that of Sunderland, where the Asian population makes up 4.8 percent of the town's population.

The HUD Predicted Racial/Ethnic Composition Ratio showed that the Village of Turners Falls in the Town of Montague also has a higher than expected concentration of minorities. In this circumstance, Turners Falls has a higher than expected concentration of Blacks and, to a slightly lesser extent, Hispanics. While there may be higher than expected levels of minorities in Turners Falls, the DI did not indicate that there is a pattern of segregation in this community. Turners Falls can be characterized as a major employment center in which some of the

manufacturing jobs once located there have left, although manufacturing remains the largest employer. It is also well-served by public transit and has a large share of the region's rental housing, including many affordable and subsidized units. A large number of mobile rental vouchers are also in use in Turners Falls.

IDENTIFICATION & ASSESSMENT OF RACIALLY CONCENTRATED AREAS OF POVERTY

In addition to investigating the level of segregation within Franklin County, it is also important to determine if there are racial or ethnic concentrations of poverty, also called RCAPs. Isolating racial or ethnic groups in locations of low income and few resources causes them to become further isolated from opportunities. These opportunities can include good education, higher paying employment, wider range of shopping and service amenities, and more. HUD has provided data measuring the extent to which Franklin County has RCAPs. HUD's analysis defines racially concentrated areas of poverty as census tracts that have: 1) a racial/ethnic population of at least 20 percent; and 2) either a poverty rate over 40 percent or the poverty rate is three times the average tract poverty rate for Franklin County. According to these definitions, the region does not have any RCAPs.

While Franklin County may not have any HUD-defined RCAPs, there are local concentrations of poverty throughout the region. The FRCOG recently completed an Environmental Justice Analysis³ that looked at the same issue, but used definitions more appropriate to the rural, non-white character of its population. For this analysis, RCAPs were called Environmental Justice Target Areas and they were defined as U.S. Census block groups in which racial minorities comprised seven percent or more and at least 12 percent of the block group's population lives below the poverty level. Based on this analysis, there are seven Environmental Justice Target Areas within the County. A list of the Franklin County Target Areas can be seen in Table 2 and Map at the end of this FHEA shows the locations of these communities.

¹ Because DI data is not available for Franklin County for previous years, the historical trends of segregation in Franklin County can not be assessed.

² "Factbook 2011-2012," OIR Admissions Census File. Admissions Office, University of Massachusetts, Amherst. September 2012.

³ "Environmental Justice Analysis Summary Report," FRCOG, 2012.

Table 2: RCAP (Environmental Justice Target Areas) in Franklin County

Environmental Justice Target Area (Town, Community Area)	% of Pop. In Poverty	% of Pop. that is Minority
Deerfield, South Deerfield	15.2%	7.4%
Greenfield, Leyden and Plain Road area	21.3%	13.9%
Greenfield, town center and surrounding area	22.7%	12.1%
Montague, Turners Falls	22.0%	15.8%
Montague, Millers Falls	34.4%	13.3%
Orange, town center and surrounding areas	18.1%	7.5%
Sunderland, entire town	15.7%	13.1%

Source: 2010 American Community Survey, 5-year estimates.

Twenty-three percent of Franklin County’s population lives in these Target Areas. All of the Target Areas are located in Franklin County’s major population and employment centers. The matrix in Table 3 below provides a quick snapshot of each of these communities.

The vast majority of the region’s subsidized housing is located in these communities. In fact, 93 percent of the subsidized housing units in Franklin County are located within the five towns in which the

Environmental Justice Target Areas are located.

The Town of Sunderland is a relative outlier as a Target Area for Franklin County. As discussed previously, many of the minorities in the town are Asian students from the University of Massachusetts, Amherst. The presence of so many students causes the median income of the Town to drop. It is worthwhile to note that while the incomes may be low in the Town, it does not necessarily accurately reflect the economic condition of students who may be receiving additional support from their families or other sources.

In addition to these areas being the population and employment centers for Franklin County, these Target Areas are also the areas with the most services available to their residents. The Target Areas have the best public transit service that is available in the County, which is important, since a significant number of households in most of these communities do not own a vehicle. Each of the Target Areas also has shopping and medical facilities nearby. There are no major gaps in infrastructure in these areas.

The quality of the schools in these areas is difficult to assess since the size of the school districts do not match the Target Areas. The schools that serve these areas perform both better and worse on different

Table 3: Overview of RCAPs (EJ Target Areas)

Environmental Justice Target Area (Town, Community Area)	Total Population	Predominant Minority/ Ethnic Group (# of persons)	Population Trends 2000-2010 (% change at town level)	% of Households with No Vehicle	Grade 9-12 Dropout Rate*	MCAS Scores Results for Grade 10
Deerfield, South Deerfield	1,482	Hispanic (130)	-1.1%	5.7%	2.3	Eng. 87 Sci. 80
Greenfield, Leyden and Plain Road area	7,188	Hispanic (70) Black (53)	-3.1%	19.4%	3.2	Eng. 76 Sci. 62
Greenfield, town center and surrounding area	1,329	Hispanic (542)	-3.1%	11.4%	3.2	Eng. 76 Sci. 62
Montague, Turners Falls	5,062	Hispanic (394) Black (224)	-3.5%	18.1%	7.8	Eng. 82 Sci. 70
Montague, Millers Falls	693	Hispanic (59)	-3.5%	0.0%	7.8	Eng. 82 Sci. 70
Orange, town center and surrounding areas	3,597	Hispanic (169)	2.6%	15.0%	5.9	Eng. 83 Sci. 82
Sunderland, entire town	3,712	Asian (177)	3.7%	5.4%	2.3	Eng. 87 Sci. 80

Source: American Community Survey, 2010, 5-year estimates. *School statistics are for the high school that serves the entire town, including Target Areas. MCAS (Massachusetts Comprehensive Assessment System) is the yearly student assessment exam given to all 10th graders in Massachusetts (Eng.= English, Sci.= Science).

measures compared to State averages. Both Greenfield and Deerfield high schools have Grade 9-12 dropout rates that are comparable to the State's, which is 2.7. However, the Turners Falls and Orange high schools have much higher dropout rates (see Table 3). All of the high schools, except for Greenfield, have equivalent or better MCAS scores than the State's. Greenfield's scores are slightly lower than the State's, which is 84 for English and 67 for Science.

The most significant deficiency in the Target Areas is the quality of the housing and the lack of living wage jobs. Generally, the housing in these areas (but also across the County) is older and deteriorating. Funding for housing rehabilitation is very much needed to bring houses up to code, including removal of lead paint, and to increase energy efficiency. The lack of living wage jobs is an acute issue for all of the Target Areas, but it is also a major issue for all of Franklin County, which has chronic underemployment.

The strategies to improve each of the Target Areas are the same because they are all very similar in nature and character. Since all of the Target Areas are areas with a high amount of services, the primary strategy to reduce the concentrations of poverty is to provide more living wage jobs and to attract additional people to these areas with the goal of economically revitalizing these communities. Continuing to rehabilitate older homes and replace ones when necessary, will improve current residents' lives and also attract additional residents. Ongoing efforts to bring living wage jobs to the region would have a huge impact on the levels of poverty in the Target Areas and across the region. Specifically, the goals for all of the areas are to:

- Rehabilitate affordable and market rate housing;
- Replace deteriorated housing when needed;
- Construct new infill housing with a mix of subsidized and market rate units;
- Ensure the historic nature of the downtowns are maintained;
- Work to attract living wage jobs to the region, particularly to locations accessible to Environmental Justice Areas and by transit;
- Seek funding to add more frequent public transit service; and

- Work to prevent adverse effects on lower income households from potential gentrification by maintaining and increasing the number of affordable housing units.

IDENTIFICATION & ASSESSMENT OF ACCESS TO AREAS OF HIGH OPPORTUNITY

Housing is more than just a structure in which to live. The location of housing determines a person's ability to access opportunities to education, employment, and more. As a result, it is important to ensure that all segments of the population have equal access to opportunity. To help determine if this is true for Franklin County, HUD has calculated an Opportunity Index and compared the score of the Index for various racial groups to see if there was a disparity in access to opportunity based on race or income. According to the HUD-provided data, there is no statistically significant disparity in access to opportunity between racial groups or between all families and poor families in Franklin County.

Local data and studies support this fact. The major employment and population centers in Franklin County are the areas of highest opportunity. These areas also have the vast majority of the minorities that live in the region and much of the lower income households. The Map at the end of this Appendix shows the location of these high opportunity areas. They are:

- Greenfield;
- Deerfield;
- Montague; and
- Orange;

Greenfield, Montague and Orange have many similarities. All are former mill towns with a long history of manufacturing. While the traditional manufacturing businesses in the tap and die industry have been in decline for the last several decades, manufacturers in other industries, including plastics and food production, remain strong in these towns. Greenfield, Montague and Orange all have densely developed downtown areas with a significant number of multifamily rental properties. The Town of Deerfield is more rural. Until the last several decades, most of its businesses were agricultural, and farming

continues to be important in the community. The manufacturing sector in Deerfield developed more recently than in the other three communities. The County’s largest private employer, retailer Yankee Candle, is located in Deerfield.

Fifty-four percent of Franklin County’s population lives in these towns. The previous section showed that almost all of the racially concentrated areas of poverty (or Environmental Justice Target Areas) are also located in these areas of high opportunities. In fact, the 2012 Environmental Justice Analysis showed that minorities are actually better served by services, such as public transit and access to jobs, than the general County population due to their predominant location in high opportunity areas.

Each of these areas of high opportunity either contain

within their borders or are in very close proximity to the following indicators of opportunity: jobs, transportation options, health care services, libraries, recreational areas, and grocery and retail stores. All of these areas also have public water and sewer infrastructure, although Orange’s sewer capacity is currently constrained. Table 3 in the previous section shows that the high schools in these areas are, for the most part, comparable to that of the state’s, although the dropout rate for Montague is high and Greenfield’s MCAS scores are slightly lower than the state’s. Three of the four areas have low crime rates that are comparable to that of the Commonwealth. Greenfield’s crime rate is slightly higher at 38 per 1,000 people compared to the other towns and Commonwealth at 28 per 1,000 people.⁴ However, Greenfield is by far the most populated and urban of

Table 4: Summary of Areas of High Opportunity in Franklin County

Areas of High Opportunity	Greenfield	Montague	Orange	Deerfield
Missing Elements of Opportunity	<ul style="list-style-type: none"> Living wage jobs 	<ul style="list-style-type: none"> Living wage jobs 	<ul style="list-style-type: none"> Living wage jobs Public sewer capacity 	<ul style="list-style-type: none"> Living wage jobs Public sewer and water capacity
Examples of Types of Affordable Housing Suitable to the Area	<ul style="list-style-type: none"> Renovated mill buildings with market rate & affordable units Rental housing Senior housing 	<ul style="list-style-type: none"> Renovated mill buildings with market rate & affordable units Rental housing Senior housing 	<ul style="list-style-type: none"> Renovated mill buildings with market rate & affordable units Rental housing Senior housing 	<ul style="list-style-type: none"> Senior housing Rental housing A range of housing types
Barriers to Accessing the Areas of Opportunity	<ul style="list-style-type: none"> Insufficient supply of subsidized housing Potential public opposition 	<ul style="list-style-type: none"> Insufficient supply of subsidized housing Potential public opposition 	<ul style="list-style-type: none"> Insufficient supply of subsidized housing Potential public opposition 	<ul style="list-style-type: none"> Insufficient supply of subsidized housing Potential public opposition
Examples of Priority Goals for Each Area	<ul style="list-style-type: none"> Create additional rental housing Redevelop commercial/ industrial buildings Public education on the benefits of affordable housing & new development Increase supply of affordable housing in new subdivisions 	<ul style="list-style-type: none"> Create additional rental housing Redevelop vacant mill buildings Public education on the benefits of affordable housing & new development 	<ul style="list-style-type: none"> Create additional rental housing Redevelop vacant mill buildings Public education on the benefits of affordable housing & new development 	<ul style="list-style-type: none"> Create additional rental housing Increase supply of affordable housing in new subdivisions Public education on the benefits of affordable housing & new development

⁴Uniform Crime Reporting Program, Federal Bureau of Investigation, 2008.

the communities in the entire County.

While these areas of high opportunity do have many services and amenities, they also have weaknesses. The Town of Orange has public sewer constraints that may limit the amount of new development that currently occur. All of the areas are currently served by public transit, but the service is not available on the weekends or in the evenings. This is especially an issue for second and third shift workers. To facilitate access to opportunities, the frequency of transit service should be expanded. Finally, while all four of the high opportunity areas are also the major employment centers for Franklin County, more living wage jobs are needed in these areas and across the region. The County has been experiencing a decline in traditional manufacturing jobs and they have not been replaced by similar paying employment opportunities.

To ensure that all population groups have equal access to these high opportunity areas, it is important to make sure that affordable housing is available in these locations. However, as noted in the previous section discussing RCAPs, these four high opportunity areas already contain the vast majority of the affordable housing in the region. To avoid an over-concentration of low-income households, new affordable housing in these areas should be mixed with market rate housing when possible. As documented in “Chapter 4: Housing” of the Regional Plan for Sustainable Development, there is a particular need for specific types of affordable housing to be located close to services and opportunities. These types of housing include: senior housing complexes, accessory apartments, lead-free paint apartments with multiple bedrooms to accommodate families with children, and subsidized supportive housing for extremely low income families. While these types of affordable units are most in demand; the entire region needs a diverse array of affordable housing types. The Towns of Greenfield, Montague, and particularly Orange are currently experiencing high levels of foreclosure for Franklin County. This situation could be an opportunity to provide affordable single or multifamily housing for lower income households.

The most significant barrier to accessing these areas with high opportunities is an insufficient supply of subsidized housing affordable to households with extremely low incomes. It has been previously noted that these communities already have the majority of

the region’s subsidized housing, so any addition of subsidized housing would ideally be mixed carefully with market rate housing. Related to this, public opposition to additional affordable housing in these communities is another barrier that must be addressed. A potential solution to both of these issues would be to redevelop vacant mill buildings in Greenfield, Montague, and Orange. They could be redeveloped as a mix of affordable and market rate units. Many residents would most likely support this use as the buildings are important community resources that they do not wish to see lost. Their re-use would also help revitalize the downtowns. To do this, though, requires a significant amount of funding resources that is difficult for towns and non-profits to secure. Table 4 summarizes the following information for each area of opportunity: missing elements of opportunity, types of affordable housing suitable to each area, barrier to accessing the areas of opportunity, and priority goals for each area.

IDENTIFICATION & ASSESSMENT OF FAIR HOUSING ENFORCEMENT INFRASTRUCTURE

There has been little history of confirmed housing discrimination in the region. HUD has provided data for fair housing complaints filed in the last five years for Franklin County. The data shows that there have been complaints filed in six of the 26 towns in the County and there were only four cases that were found to have cause and these were concentrated in the Town of Orange. Table 5 provides a summary of the number of complaints, type, and their findings.

Overall, the most common type of fair housing case filed was for discrimination on the basis of disability (73%). Table 5 shows that there has been very little history of confirmed fair housing discrimination in Franklin County during the past five years; and there have been no cases on the grounds of racial or ethnic discrimination.

Table 5: Summary of Fair Housing Cases Filed between FY2007 and FY2012*

Town	Type of Filed Cases	Number of Filed Cases	Completion of Filed Cases	Number of Completed Cases
Ashfield	Disability	1	No Cause	1
	Total	1	Total	1
Buckland	Familial Status	1	No Cause	1
	Total	1	Total	1
Greenfield	Disability	4	Conciliated/Settled	3
			No Cause	2
	Total	4	Total	5
Orange	Sex	1	Cause (FHAP)	4
	Disability	8	Conciliated/Settled	1
	Familial Status	1	No Cause	4
	Retaliation	1		
	Total	11	Total	9
Sunderland	Disability	1	Conciliated/Settled	1
	Total	1	Total	1
Warwick	Familial Status	1	Conciliated/Settled	1
	Total	1	Total	1
TOTALS	Sex	1	Cause (FHAP)	4
	Disability	14	Conciliated/Settled	6
	Familial Status	3	No Cause	8
	Retaliation	1		
	Total	19	Total	18

*The total number of cases filed may not match the total number of cases completed, since a case may not be completed in the same year. Source: HUD, New England Office of Fair Housing and Equal Opportunity, 2012. FHAP = Fair Housing Assistance Program

All of the housing authorities in Franklin County work to comply with federal and state fair housing policies. The Franklin County Regional Redevelopment and Housing Authority (HRA), the largest housing authority in the region, has never received a letter of noncompliance or charges concerning a systemic violation of the Fair Housing Act. In addition, the HRA has a Housing Consumer Education Center, which provides fair housing information to renters and homebuyers. The HRA also holds quarterly Landlord Advisory Committee meetings where they go over fair housing issues and training with local landlords.

Data, discussions with local housing experts and non-profit organizations, and results from a recently completed *Survey of Adults with Low Incomes*⁵, indicates no evidence of systemic fair housing discrimination in Franklin County. It is important to note that this does not mean that housing discrimination is not a problem, just that it has not been widely reported.

⁵ Community Action, Spring 2011.

Local and regional housing advocates and authorities have heard anecdotal reports of discrimination, but have been unable to prove the claims. From their experience, they feel that the population group that may be discriminated against is low income households with children, particularly families headed by single mothers.

IDENTIFICATION & ASSESSMENT OF PHYSICAL INFRASTRUCTURE

As communities plan for the future and work to improve their infrastructure, it is important that public infrastructure investments be equitably distributed across all population groups. A regular review of major infrastructure projects can show whether one group is being singled out to receive an unfair share of the benefits or burdens of projects.

There are several major public infrastructure investments that have recently been completed, are ongoing, or are slated for Franklin County. These projects have been planned for many years through regional transportation and economic development planning efforts. Those projects include:

- The construction of the intermodal John W. Olver Transit Center;
- The return of passenger rail to the County with a stop in downtown Greenfield at the John W. Olver Transit Center;
- The recent and pending expansion of telecommunications infrastructure and high-speed internet services throughout the County;
- The redevelopment of vacant or underutilized buildings in downtowns, such as the Bank Row Urban Renewal District in Greenfield and Strathmore Mill in Turners Falls; and

- The expansion of Industrial Park space in Montague to support manufacturing jobs.

Overall, these projects are regional in nature and should have beneficial impacts for all Franklin County residents, but especially for lower income households. They not only augment areas of high opportunity, but these major projects also provide opportunities to areas that may not be as resource-rich.

The first project is the regional John W. Olver Transit Center, which was completed in May of 2012. This intermodal transit center is located in downtown Greenfield, which is an area of high opportunity and also an area with many low income households and minorities. The Transit Center centralizes the region's transit operations into one location and offers public restrooms, sheltered waiting areas, and a ticket facility. The Transit Center is also adjacent to rail lines with funds set aside to build a rail passenger platform for the train service that is scheduled to return to Greenfield in the next few years. Detailed planning for the Transit Center began in 2000 with a multi-organizational effort. During the construction, there was no negative impact on local communities of minorities and poverty from this project. Public transit service continued with no change during the construction phase just one block away. With the completion of the Transit Center, low income and minority groups are better served than they were prior to the project due to consolidation of transit operations and the presence of a sheltered waiting area, and combining bus service with passenger rail.

The second major infrastructure project is the return of north-south passenger rail to Franklin County. The Franklin County Regional Transportation Plan has long prioritized restoring passenger rail to the County, with specific references to the ongoing project beginning in 2003. The 2005 *New Haven-Hartford-Springfield Commuter Rail Implementation Study* recommended that commuter rail service be established between New Haven, CT and Springfield, MA and that passenger service be extended from Springfield north along the so-called Knowledge Corridor, to Vermont. This would restore passenger rail service to Franklin County with a stop located in Greenfield at the new John W. Olver Transit Center. In 2010, \$70 million in federal stimulus funding was awarded to the Commonwealth to begin rail improvements along the Knowledge Corridor with the

goal of completing construction in 2013 and starting passenger service with one round trip per day shortly afterwards. This project should not negatively impact any Franklin County residents as the railroad already exists and actively functions as a freight rail line. The only change is the addition of one train per day to provide passenger service, which will provide residents with increased transportation options. Eventually, the hope is that the frequency of the service will increase to three round trips per day by 2016. Regular daily passenger service could open up new employment opportunities for residents of Franklin County in Springfield and even Hartford.

The third major infrastructure project is the ongoing deployment of telecommunications infrastructure throughout the region. In many parts of Franklin County, the telecommunications infrastructure is grossly inadequate for present day needs, with the more rural areas still dependent on dial-up service. To bring the area's infrastructure up to date, state and regional organizations have successfully advocated for a significant investment in telecommunications infrastructure and facilities. These improvements, which have been included in long term economic development plans since 1997, will deploy broadband access into previously unserved areas and create a network that could be used to support information system operations and businesses. Federal stimulus funding was awarded in 2010 to construct a fiber-optic, middle mile network along the I-91 corridor, located in the center of the region. In addition, it will also be installed along Route 2 and other state highways to the eastern and western portions of the region. Construction on the middle mile network is continuing and planning for the last mile connections are ongoing. This major infrastructure project should have no negative impact on Franklin County residents as the remaining broadband infrastructure will either be installed on existing utility poles or be wireless with devices installed on structures towers. This project should benefit all residents by increasing opportunities to access high speed internet, which is becoming more and more vital for education, employment, and day-to-day tasks.

Another infrastructure project is the current and planned redevelopment of vacant or underutilized buildings in the County's downtowns, such as the Bank Row Urban Renewal District in Greenfield and Strathmore Mill in Turners Falls. The Bank Row

block in downtown Greenfield has long been in poor condition with several vacant and underutilized buildings in the center of downtown. The 2002 Greenfield Downtown Master Plan identified the redevelopment of this area as a priority. Since then, through public and private partnerships: the Bank Row Urban Renewal District has been established; the First National Bank building has been saved; the Upper Floor Redevelopment Project has been implemented; and the John W. Olver Transit Center has been constructed. As a result of these combined efforts, millions of dollars in public and private investments have been made with more to follow pending the expansion of the Franklin County Courthouse and the redevelopment of adjacent properties. Similarly, efforts are ongoing to redevelop vacant and underutilized buildings in downtown Turners Falls. The abandoned Strathmore Mill complex consists of several connected buildings with 250,000 square feet that could be redeveloped. The Town of Montague has received Brownfields funding to clean up the site. The Town is seeking additional funding to target infrastructure investments for the site. Both the Bank Row and Strathmore Mill redevelopment projects would benefit all Franklin County residents, but especially those that live in the these areas, which have been classified as Environmental Justice Target Areas and areas of high opportunity. The redeveloped buildings would provide additional housing and jobs and the actual redevelopment construction work should not burden nearby residents since the buildings already exist. Downtown Orange also has numerous vacant mill buildings, which could be redeveloped for a mix of residential and commercial uses.

Another similar major public infrastructure project is the creation of a planned industrial park in the Town of Montague. The proposed Energy or Eco-Industrial Park was recently detailed in the April 2012 *Energy Industrial Park: Turnpike Road Master Plan*. The industrial park would be located on a site that includes a capped landfill, an uncapped 'burn dump', and a municipal gravel pit. The project is proposed to create at least 200 new jobs. The Town currently owns the land and plans on extending water and sewer infrastructure and an access road to the site. The proposed industrial park is within walking and bicycling distance from Turners Falls, an area with a high amount of low income households and minorities, and would most likely be served by public

transit. The conversion of the site from its current uses would be a benefit to the local residents as it would take an underutilized site due to the landfills and make it accessible and provide much-needed jobs. The proposed use would also include nature conservation spaces.

Overall, most of the major recent and planned infrastructure investments are located in town centers and major employment centers and have minimal negative impact during their construction. In Franklin County, these locations are both high opportunity areas and areas with higher amounts of minorities and low income households. As a result, these population groups are actually better served than the rest of the population. All transportation projects, both federal and state funded, are reviewed on a regular basis to ensure that investments do not disproportionately impact low income or minority populations in a negative manner. These populations have been identified in the FRCOG's 2012 *Environmental Justice Analysis Summary Report* based on criteria that matches the region's rural nature. Economic development projects are also reviewed annually through the Comprehensive Economic Development Strategy (CEDS) Program, which creates a five-year plan with annual updates for the Greater Franklin County CEDS Region. Further, there is a member on the CEDS Committee who is specifically appointed to represent minorities and low and moderate income households.

SUMMARY AND RECOMMENDATIONS

While there has not been a documented history of systemic fair housing violations in Franklin County and public infrastructure investments have been equitably distributed throughout the region with respect to race and income, the County does have concentrated areas of poverty, in which there are also higher levels of minorities. However, due to the region's rural nature, these areas are also located in or near areas of high opportunity. To mitigate the over-concentration of poverty, the priority for regional policy makers and planners is to encourage infill development in these town centers with areas of poverty in order to promote economic revitalization, while improving and expanding the number of affordable housing units and living wage jobs. Having additional people living closer to services and jobs also promotes the principles of sustainability by reducing

transportation costs and greenhouse gases, improving health, and providing opportunities to walk and bicycle.

Specifically, to promote infill in the town centers and employment centers where there are higher racial concentrations of poverty, the following strategies are recommended.

- Revise zoning to facilitate infill residential and commercial development.
 - Promote the redevelopment of vacant mill buildings and the creation of accessory apartments.
 - Promote higher residential density in town centers by right.
- Upgrade sewer and water public infrastructure to support higher residential density.
 - Work to secure funding for upgrades.
- Continue to work to revitalize downtown areas through economic development activities to encourage people to live there.
 - Obtain funding for brownfield assessment and clean-up.
 - Clean and restore sites, including vacant mill buildings.
- Address public opposition to new residential development, especially affordable housing units.
 - Create public education programs regarding the benefits of development projects, particularly the need for affordable housing in the region.
 - Ensure an open and participative public development process.
- Encourage a mix of affordable and market rate housing in new development.
 - Revise zoning to require new housing subdivision developments to include a certain percentage of dedicated affordable housing units. Density bonuses can be awarded as an encouragement for the creation of additional affordable units.
 - Work to ensure that new rental units be mixed income, including market rate and affordable elder and family housing.
- Reduce energy costs.

- Encourage building owners to do energy upgrades, which will improve energy efficiency and reduce utility costs
- Offer housing options that have services and schools nearby to reduce transportation costs.

Franklin County's rural nature has moderated the degree to which fair housing discrimination is a major systemic issue. While the region has been very fortunate in this, towns, regional organizations, and policy makers need to be proactive to prevent a problem arising in the future and to assist residents that are in need of help today. By attracting additional residents to the County's town centers, not only will more residents have direct access to the many opportunities provided in these communities, the concentrations of poverty decrease in the overall population of the region and residents can participate more fully in the community.

MAJOR TAKEAWAYS FROM STAKEHOLDER ENGAGEMENT

To ensure the analysis and recommendations that resulted from this FHEA is meaningful; the findings from the FHEA were discussed with local and regional stakeholders and housing experts. These include the HUD Sustainable Communities Steering Committee, the Sustainable Communities Housing Subcommittee, and the Franklin Regional Planning Board. The Housing Subcommittee has been assembled with the explicit goal of having all local and regional housing experts from various perspectives in the County at the same table to discuss the FHEA, and how to incorporate its findings and subsequent recommendations into everyday practice in Franklin County. In addition, the results of the recent *Community Action Report of Survey of Adults with Low Incomes* were used to inform the FHEA and shape the suggested strategies.

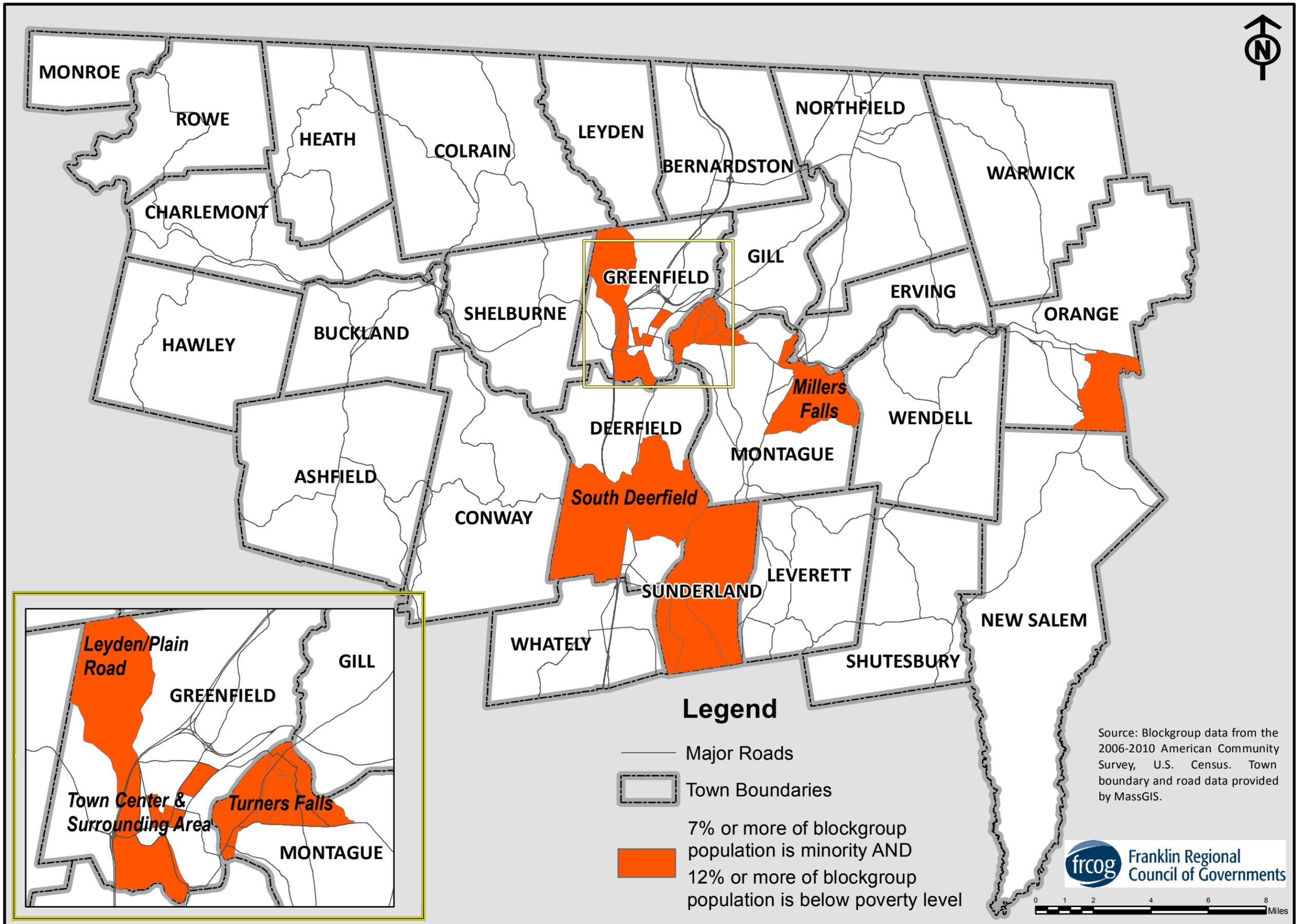
The Housing Subcommittee ("Subcommittee") met on June 20, 2012 to discuss the findings. Overall, they felt that the FHEA covered the major issues and agreed with their experience. However, the Subcommittee did feel that the FHEA focused too much on race and ethnicity as part of housing

discrimination. From their direct experience in the field of housing in Franklin County, they feel that racial discrimination is not an issue here, but instead families with children and individuals with disabilities are much more likely to have difficulty finding suitable housing in Franklin County. The Subcommittee also emphasized that while there may not be many documented cases of discrimination or no patterns of systemic discrimination, there is an issue of discrimination in the County because of its very small amount of rental housing stock and the poor economy – creating a situation in which landlords have unfair power over low income households. The Subcommittee also agreed with the recommendation that when possible, new affordable housing should be mixed with market rate housing in order to prevent concentrations of poverty. However, the Subcommittee also made it clear that the region has such a large need for additional affordable subsidized housing, that it should be created as both mixed and stand-alone.

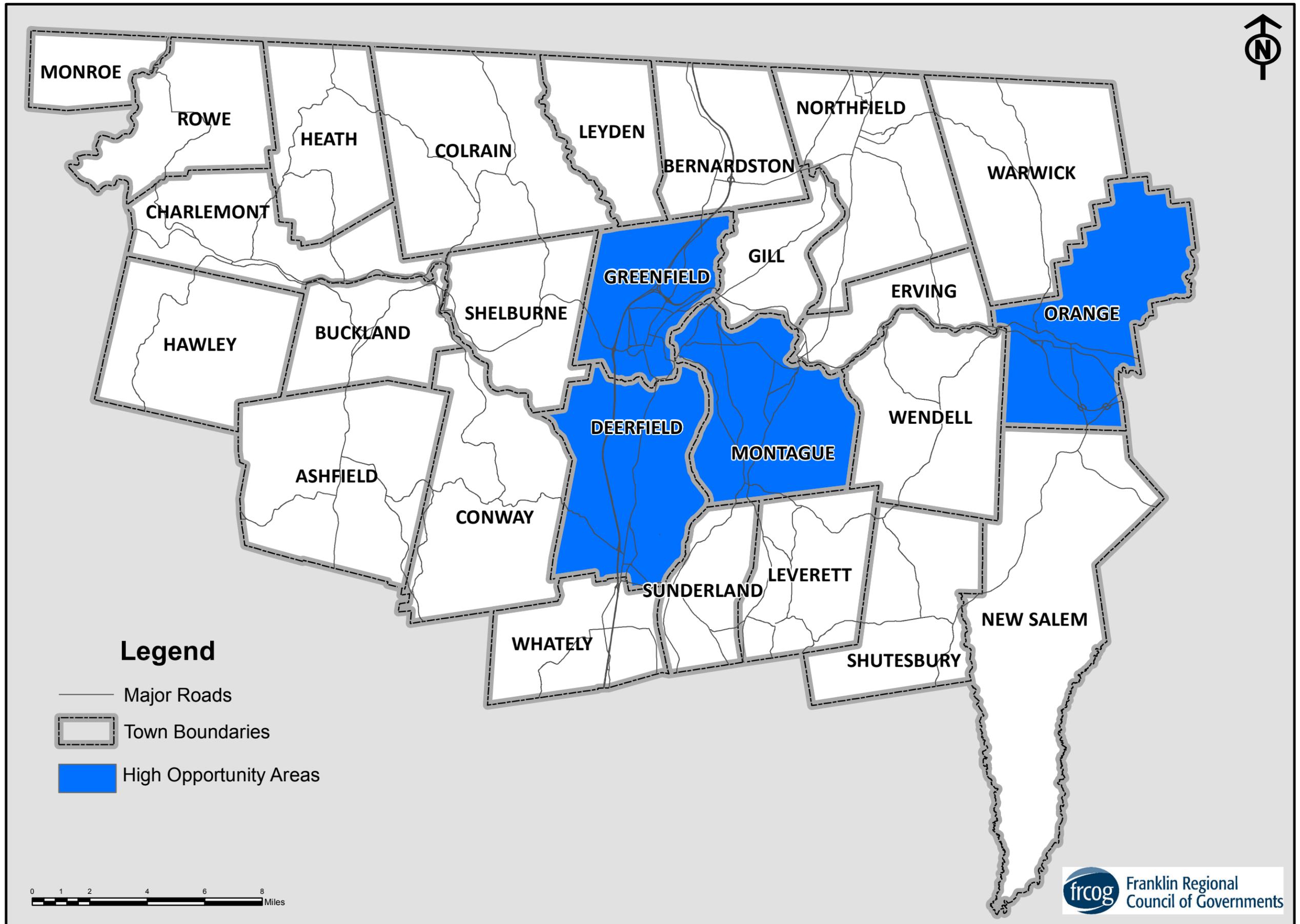
The Steering Committee met on June 27, 2012 to review the findings of this FHEA and echoed the

thoughts of the Housing Subcommittee. The most commonly expressed view was that Franklin County does not have an issue with segregation or discrimination on the basis of race or ethnicity. Instead, the most likely discriminated population groups may be those with disabilities and low income families headed by a single woman. The HUD data on recently filed fair housing cases support this as does Steering Committee members' own experience in the housing fields. The Steering Committee also agreed with the FHEA recommendations to prioritize economic revitalization and creation of living wage jobs in the region's downtowns to improve the economic conditions of those living in areas of concentrated poverty. Because poverty and race/ethnicity are closely correlated in Franklin County, these efforts would also improve the conditions of minorities in the region.

Map 1: Environmental Justice Target Areas for Franklin County



Map 2: High Opportunity Areas for Franklin County



SUSTAINABLE FRANKLIN COUNTY

Appendix D: Franklin County Farmland and Foodshed Study





FRANKLIN COUNTY FARMLAND & FOODSHED STUDY

*Prepared for the
Franklin Regional Council of Governments*

FRANKLIN COUNTY FARMLAND & FOODSHED STUDY

*Prepared for the
Franklin Regional Council of Governments*

Franklin County, Massachusetts



ACKNOWLEDGEMENTS

We would like to thank the Franklin Regional Council of Governments, especially Director of Planning and Development Peggy Sloan and land use planner Mary Praus, who guided this report throughout its course.

We would like to express special thanks to Professor Brian Donahue of Brandeis University, who graciously permitted the use of the New England Good Food Vision model prior to its publication. We are grateful for all we learned in the application of this model to Franklin County.

We are grateful to all of the farmers, agricultural commissioners, and representatives of the Massachusetts Department of Agricultural Resources, the Franklin County field office of the National Resource and Conservation Service, Community Involved in Supporting Agriculture, and county land trusts for contributing their knowledge and expertise to this report.

We also thank the faculty, staff, and fellow students of the Conway School of Landscape Design for the guidance, patience, and collaborative support we have received over the course of this project.

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There are approximately 12,320 acres of pasture throughout Franklin County. The majority of the county's pasture farms, such as this pasture in Gill, lay to the west of the Connecticut River Valley.

EXECUTIVE SUMMARY

Does Franklin County have sufficient farmland to achieve complete food self-sufficiency—to sustainably produce all of the food needed to feed its population? If not, how might a model of *increased food self-reliance*—expanded local food production for both the local and the regional food market—offer suggestions for increased community resilience and stronger regional relationships?

The Franklin Regional Council of Governments (FRCOG), working with a consortium of governmental and non-profit organizations, is developing a Regional Plan for Sustainable Development for Franklin County. This work is supported by a Sustainable Communities Regional Planning Grant from the U. S. Department of Housing and Urban Development. FRCOG has asked a student team at the Conway School to help develop the Natural Resources Chapter of the Regional Plan. We will do this by addressing five specific questions relating to food security:

1. How much farmland does Franklin County require to meet its residents' nutritional needs?
2. How much farmland is there currently in Franklin County, and where is it?
3. Does Franklin County have enough farmland to achieve self-sufficiency?
4. Where is there potential for additional farmland in Franklin County?
5. Should Franklin County strive for complete food self-sufficiency?

In addition, this report offers an inventory of how much of the county's farmland is permanently protected.

To achieve self-sufficiency, Franklin County needs additional infrastructure—the businesses, services, buildings, and skilled workforce to process, store, and distribute local foods, as well as the financial support to help farmers buy or lease farmland and equipment. However, this report addresses specifically questions relating to farmland acreage.

FOODSHED ANALYSIS

HOW MUCH FARMLAND DOES FRANKLIN COUNTY REQUIRE TO MEET ITS RESIDENTS' NUTRITIONAL NEEDS?

To determine the farmland acreage needed for a geographic area to be nutritionally self-sufficient, three factors are considered: 1) the size and growth rate of the area's population, 2) the population's assumed average diet, and 3) the approximate caloric yield of the area's farmland: the average amount of food that is produced by an average acre of farmland. Although information is available regarding the size and growth of Franklin County's population, information regarding the population's average diet and information regarding the approximate caloric yield of Franklin County's farmland is not readily available. Therefore, this study looked to existing foodshed analyses that could be applied to Franklin County.

The New England Food Vision is a foodshed analysis currently under development by Brandeis University professor Brian Donahue Ph.D. This analysis explores the potential for New England to meet all of its own nutritional needs. Its calculations are based on two main assumptions: an assumption of an average diet based on USDA and Harvard School of Public Health nutritional guidelines, and an assumption of an approximate caloric yield based on the use of sustainable agricultural practices.

This report uses the New England Food Vision to overcome the lack of county-specific data: 1) to stipulate an assumed average diet of specific foods and 2) to provide calculations of approximate average yields of Franklin County's farmland. This can be done mainly because the average growing conditions (e.g., climate, soil productivity, and growing season) of New England are similar to the average growing conditions of Franklin County.

This report applies the results to Franklin County's projected future population (77,000 by the year 2035).

Franklin County requires approximately 45,077 acres of farmland (26,492 acres of cropland, 16,200 acres of pasture, and 2,385 acres of orchard) to meet the nutritional needs of its future population. Additionally, it would require a substantial amount of fish or other seafood (30 pounds per person annually), which is not included in the calculation of required farmland acres.

HOW MUCH FARMLAND IS THERE IN FRANKLIN COUNTY, AND WHERE IS IT LOCATED?

There are currently 37,257 acres of farmland in Franklin County (23,750 acres of cropland, 12,320 acres of pasture, and 1,180 acres of orchard). The greatest amount of Franklin County's farmland (48 percent) and the greatest amounts of pasture and orchard are in the western part of the county. Forty percent of Franklin County's farmland is in the Connecticut River Valley, even though the valley covers only 15 percent of Franklin County's area. The eastern part of the county has the fewest acres of farmland (12 percent of the total).

DOES FRANKLIN COUNTY HAVE

ENOUGH FARMLAND TO ACHIEVE SELF-SUFFICIENCY?

Franklin County requires 7,828 acres of additional farmland to achieve food self-sufficiency (2,742 acres of cropland, 3,880 acres of pasture, and 1,206 acres of orchard).

These conclusions assume that all Franklin County farms produce food crops, and that all of it is sold locally (here defined as within Franklin County). Currently, however, the majority of the county's farmland produces crops, including non-food crops like tobacco, for sale in non-local markets. If farmers do not have an incentive to switch to local sale, more additional farmland would be required for the county to actually achieve self-sufficiency.

The seafood assumed in the diet of the New England Food Vision may be replaced to some extent by locally hunted deer and other animals, especially given Franklin County's extensive forests and hunting areas.

EXECUTIVE SUMMARY

WHERE IS THERE POTENTIAL FOR ADDITIONAL FARMLAND IN FRANKLIN COUNTY?

Although about 50 percent of the county's soils are suitable for agriculture, only about 13 percent of those soils are currently being used for agricultural production. This report identifies about 44,000 acres of agriculturally suitable soils (excluding those currently farmed, developed, protected, or prioritized for conservation) that could be potential areas of additional farmland. Some of these soils were previously used for agriculture. Although forest has grown back in these areas, there may be fewer negative ecological impacts of returning these areas to farmland.

SHOULD FRANKLIN COUNTY STRIVE FOR COMPLETE FOOD SELF-SUFFICIENCY?

While attractive for many reasons, complete self-sufficiency may not be feasible in Franklin County. An alternative model could be one of "self-reliance," where a region focuses on self-sufficient production of the food products that can grow most easily. This model does not require the population to adopt a diet that excluded familiar foods from outside of the region, nor does it impose impossible standards. Instead, it focuses on what can be done most efficiently and effectively in the given region.

This model of "self-reliance" is based on the New England Good Food Vision. In the Good Food Vision, New England meets *most*, rather than all, of its nutritional needs. Rice, tropical fruits, and sugar would still be imported into New England. In addition, 60 percent of wheat, 60 percent of grains for oils and beer, and 60 percent of supplemental feed grains for livestock would be imported.

If this model of self-reliance is applied to Franklin County, 33,940 acres of farmland would be required (16,547 acres of cropland, 16,200 acres of pasture, and 1,193 acres of orchard). This is about 3/4ths of the farmland acreage required for complete self-sufficiency, and Franklin County has more than this amount of farmland. Under this model, Franklin County has enough farmland to meet a very large portion of its nutritional needs while still retaining acreage to produce food for regional export.

However, looking into these numbers more deeply, it becomes apparent that although there is more than enough overall farmland to achieve this model of self-reliance, there is still not enough pasture. Approximately 3,880 more acres of pasture is needed throughout the county.

FARMLAND PROTECTION

About one-quarter of Franklin County's farmland is permanently protected. Most permanently protected farmland is protected through Agricultural Preservation Restrictions (80 percent); the remainder is protected through Conservation Restrictions. Both of these preservation methods have requirements that limit their application. Additional strategies and planning tools may be needed to help protect current and potential farmland for future generations. Other strategies may also be needed to provide the additional financial and cultural support to help Franklin County's farms to remain economically viable.







Over one-quarter of Franklin County's farms sell directly to local consumers through markets or farmstands, such as this one (U.S. Department of Agriculture 2012).

INTRODUCTION

The local food movement in Franklin County is active and growing. Residents are participating in Community Supported Agriculture farms (CSAs), farmers markets, and in organizations focused on sustainable and local food cultivation (CISA 2011). Many non-profit organizations, businesses, public agencies, farming communities, and individuals are working to support and expand a viable local food system by working for farmland protection, infrastructure development, farmer education, and the promotion of local food.

As the local food system becomes more robust, and as the global food system threatens to become more unstable, the question arises as to whether Franklin County could achieve food security.

Using a Sustainable Communities Regional Planning Grant from the U. S. Department of Housing and Urban Development, the Franklin Regional Council of Governments (FRCOG), along with a consortium of governmental and non-profit organizations, are developing a Regional Plan for Sustainable Development for Franklin County. FRCOG has asked the Conway School to help it develop the Natural Resources Chapter of the Regional Plan by addressing five questions relating to complete food self-sufficiency, as well as by gathering useful information to help prioritize farmland protection.

This report acknowledges that food security can only be understood by looking at the local food system as a whole. Franklin County needs additional agriculture infrastructure—the businesses, services, buildings, and skilled workforce to process, store and distribute local foods. Franklin County may also need to supply additional financial support for farmers looking to buy or lease farmland and farming equipment. Demand for locally produced foods is another key component of the local food

system (CISA, 2011), as is the ability to preserve local products (through freezing, canning, or drying) for consumption throughout the year.

However, this report looks specifically at the land resources—the farmland acreage—that would be needed for food self-sufficiency.

To address the question of farmland acreage needed for food self-sufficiency, this report addresses the following questions:

1. How much farmland does Franklin County require to meet its residents' nutritional needs?
2. How much farmland is there currently in Franklin County, and where is it?
3. Does Franklin County have enough farmland to achieve self-sufficiency?
4. Where is there potential for additional farmland in Franklin County?
5. Should Franklin County strive for complete food self-sufficiency?

In addition, this report offers an inventory of how much of the county's farmland is permanently protected.



Upingill Farm's farmstand in Gill invites the local community to participate in local food and support local farms.

THE BENEFITS OF LOCAL FOOD

Local food supports the economic vitality of farms.

On average, farmers are able to earn more by selling their products locally, whether directly to customers or wholesale to restaurants, groceries, or institutions (USDA 2010a). In addition, local food sales through CSAs or dependable market demand can provide a stable market for farmers (Anderson 2012).

Local food can mean increased access to healthy foods and improved community health.

Community access to local food can increase the likelihood that fresher, and more nutrient-dense foods are reaching the local population. Freshly produced local foods are likely to retain more nutrients than processed and packaged foods that travel greater distances to reach consumers (Lea 2005). Research suggests that local food programs such as CSAs, Farm-to-School programs, and garden or food-based educational curricula may increase healthy eating habits (French and Stables 2003, Conner and Levine 2007, Thompson et al. 2008, Perez et al. 2003, Olberholtzer 2004).

Local food creates social support for agriculture.

When food is grown and consumed locally there is often increased awareness within the local community about the benefits and needs of farmland and agriculture. This awareness may increase local community support for land use policies or programs which support and protect farmland and agriculture. When a community is involved with a local food system there also may be scenic, recreational, educational, and environmental benefits (Macias 2008).

Local food may help mitigate global climate change.

Currently, much of the food that feeds most populations travels great distances across the nation or across the globe. Local food production and consumption reduces the number of miles food must travel, thereby reducing fossil fuel use, pollution, and global greenhouse gas emissions (Peters et. al. 2009).



Community interest in local food can result in increased awareness and support of local agriculture through the passage of “Right to Farm” acts, such as in Heath.



“Providing a wholesome and adequate food supply is the most basic tenet of agricultural sustainability.”

— *Christian Peters et al. (2008)*



SECTION ONE

FOODSHED ANALYSIS

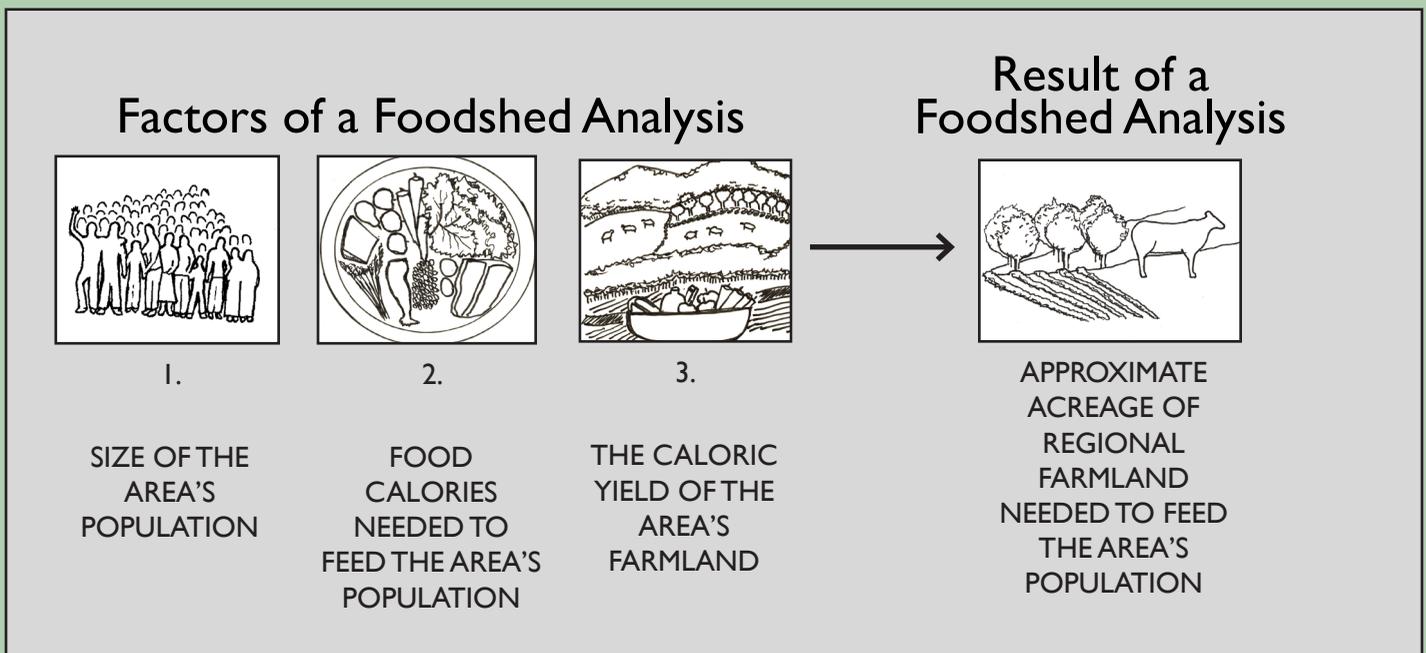
Q.

QUESTION ONE

How much farmland does Franklin County require to meet the nutritional needs of its residents?

A.

Franklin County requires approximately 45,077 acres of farmland, consisting of 26,492 acres of cropland, 16,200 acres of pasture, and 2,385 acres of orchard.



FOODSHED ANALYSIS: QUESTION 1

To calculate the amount of farmland that Franklin County requires to meet its residents' nutritional needs, this study used a *foodshed analysis* (Peters et al. 2005).

A *foodshed* is an approximate area that feeds a given population. Most foodsheds are currently global in scope, due to a global food market that allows populations to source their food from around the world. However, foodsheds could also be quite local, if a population were to make the choice to meet all of its own nutritional needs locally. By studying how much farmland a population would need to meet all of its own nutritional needs locally, a foodshed analysis is able to determine the potential for a specific geographic area to be a foodshed for its own population.

FACTORS AND RESULT OF A FOODSHED ANALYSIS

Typically, foodshed analyses consider three factors (Peters et al. 2008):

Factor 1: The size and assumed rate of growth of the area's *population*.

Factor 2: The food calories/nutritional content needed to feed the area's population, expressed as an *assumed average diet*, based on:

- USDA nutritional and dietary recommendations.

Factor 3: *Approximate caloric yields* of the area's farmland, based on:

- The quantities of each food product (e.g., corn, beef, apples) that can be grown, on average, per acre of regional farmland.
- The conversion of these amounts from pounds to calories.

Result: With an understanding of the area's approximate caloric yield, the amount of food calories needed by the area's population can be approximated into cropland, pasture, and orchard acreage.

FACTOR 1: SIZE AND GROWTH RATE OF FRANKLIN COUNTY'S POPULATION

According to the 2010 Census, Franklin County is home to approximately 71,000 residents (US Census of Population and Housing 2010). The county's population is expected to increase by about 8.45 percent over the next 25 years, to approximately 77,000 (MDOT, 2010; Massachusetts Institute of Social and Economic Research 2003).

FACTOR 2: ASSUMED AVERAGE DIET OF FRANKLIN COUNTY'S POPULATION

Based on the US Department of Agriculture's most recent recommendations, Franklin County's residents individually require at least 2,000 calories a day (USDA 2010 and U.S. Department of Health and Human Services 2010). However, a foodshed analysis requires an assumed average diet of *specific foods*, based on USDA nutritional recommendations, in order to estimate the amount of calories needed of each food type (e.g., corn, beef, apples). Information regarding the population's average diet is not readily available.

FACTOR 3: THE FOOD-CALORIE YIELD OF FRANKLIN COUNTY'S FARMLAND

The 2007 Agricultural Census provides information about the approximate acreage of farmland in commercial production and about the categories of food produced (USDA 2009). However, it does not provide specific information about the quantities (in pounds) of each food product grown.

RESULT

Although the population size of Franklin County is known, the remaining two factors of a foodshed analysis (assumed average diet and approximate caloric yields) are not readily available for Franklin County. Without this

information, the result cannot be calculated.

Therefore, several existing foodshed analyses were explored as possible models for calculating missing information for Franklin County.

CHOOSING A FOODSHED ANALYSIS MODEL

Many examples of foodshed analyses have been applied across the county. One example of a foodshed analysis is the American Farmland Trust 2008 study of a 100-mile radius around San Francisco (Thompson, Harper, and Kraus 2012). Another model, developed by Christian Peters of Tufts University, assesses the foodshed potential of New York State (Peters et. al. 2009). A third model, recently funded by the USDA, assesses the foodshed potential of New York State's existing agricultural land (Cornell University 2012).

Additionally, a foodshed analysis is currently under development by Brandeis University Professor Brian Donahue PhD assessing New England's foodshed potential. The average growing conditions (i.e., climate, soil productivity, growing season) of New England could be presumed to be similar to the average growing conditions of Franklin County. Therefore, the approximate caloric yields calculated by this foodshed analysis could reasonably be applied to this report. This New England foodshed analysis is entitled the New England Food Vision.

With the kind support of Professor Donahue, this report relies upon the New England Food Vision to: 1) stipulate an assumed average diet of specific foods (Factor 2 above) and 2) provide calculations of approximate average yields of Franklin County's farmland (Factor 3 above).



Pasture edges forest in rural Conway, where cows are raised for local dairy.

FOODSHED ANALYSIS: QUESTION I

ASSUMPTIONS OF THE NEW ENGLAND GOOD FOOD VISION

The New England Good Food Vision is based on two main assumptions.

ASSUMPTION ONE



An assumed average diet based on USDA and Harvard School of Public Health nutritional standards.

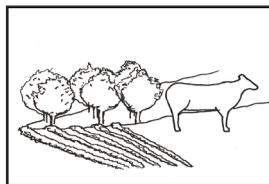
The first assumption is of an *assumed average diet*. An assumed average diet allows for the calculation of the amount and type of food calories needed to meet the nutritional needs of New England's population.

The New England Good Food diet is based on USDA and Harvard School of Public Health nutritional recommendations (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2010; Willett, Skerrett, Giovannucci and Callahan, 2001). It departs from the average American diet (Donahue 2012a) by:

- Increasing or doubling fruits and vegetables
- Including only whole grains
- Maintaining level of dairy
- Increasing fish and beans
- Reducing red meat

Based on the recommendations of the Harvard School of Public Health, this diet assumes a daily caloric requirement of 2,300, a requirement higher than the USDA daily average of 2,000 calories.

ASSUMPTION TWO



The use of sustainable agricultural practices.

The second assumption of the New England Good Food Vision is of the use of sustainable agricultural practices, which can produce a higher *approximate caloric yield* of New England's farmland.

This foodshed analysis assumes the use of sustainable agricultural practices, such as rotational grazing and multi-species grazing, will greatly increase the amount of livestock that can be raised per acre of farmland, thereby increasing the farmland's approximate caloric yield.

In rotational grazing, larger livestock (e.g., cows, sheep, and goats) are raised almost entirely upon grass and hay. However, larger livestock, especially dairy cows, will still need some supplementary grain.

In multi-species grazing, small-scale livestock (e.g., pigs, chickens, and turkeys) are integrated into the grazing systems of larger livestock without requiring much additional pasture acreage. This is especially true because these smaller animals do not forage on grass, relying instead primarily on feed grains.

“Sustainable agriculture provides high yields without undermining the natural systems and resources that productivity depends on.”

**— Union of Concerned Scientists,
Towards Healthy Food & Farms**

CASE STUDY: ROTATIONAL GRAZING AT WHEEL-VIEW FARM

John and Carolyn Wheeler of Wheel-View Farm rotationally graze their livestock. “You can grow more feed per acre that way,” says John Wheeler.

Cows are rotated to a different section of pasture every two to three days, giving the grass a rest period of two to three weeks to grow back before it is eaten down again. “Without rotational grazing,” says Carolyn Wheeler, “the cows would participate in ‘mob grazing’—they’d pick around and eat the most tasty parts. It’s not efficient.”

Simple wire and T-posts can create semi-permanent fences. These fences can divide the pasture into smaller paddocks. Livestock are kept in one paddock until the grasses are evenly grazed, and they are then moved to fresh grass in another paddock.

Limiting the time spent in each paddock prevents livestock from overgrazing and compromising the health of the pasture. The root systems of the pasture grasses are given the opportunity to renew their energy reserves, and the pasture has a chance to grow back before the cows are grazed on it again (Beetz and Reinhardt, 2004).

The Wheelers rotationally graze their beef cows for about six months out of the year. For

the other six months, they feed them hay grown on land leased from neighboring farms. These practices maximize food production while keeping the pastures and livestock healthy (Wheeler and Wheeler 2012).

“With the increased productivity of [rotational grazing] systems, the grazers obtain the majority of their nutritional needs without the supplemental feed sources that are required in continuous grazing systems.”

– Northeast Sustainable Agriculture Working Group



In multi-species grazing, smaller livestock share pasture with larger livestock, such as here at Wheel-view Farm.



Livestock are rotationally grazed at Wheel-View Farm in Shelburne, Mass. In rotational grazing, livestock such as cows, sheep, and goats are rotated between smaller areas of pasture.

FOODSHED ANALYSIS: QUESTION 1

FARMLAND REQUIRED FOR FOOD SELF-SUFFICIENCY

Using the two assumptions described above, the New England Food Vision calculates the approximate acreage of farmland required to meet most of New England’s nutritional needs (in the New England Food Vision, some foods, such as tropical fruits, are imported). However, by adjusting the assumed average diet to only include food that can be grown in Franklin County and applying it to Franklin County’s smaller population size, this report is able to calculate the approximate acreage of farmland Franklin County requires to meet all of its population’s nutritional needs.

Franklin County requires approximately 45,077 acres of total farmland to achieve food self-sufficiency. Farmland is divided into the categories of cropland, pasture, and orchard.

Franklin County requires approximately 26,492 acres of cropland to produce vegetables, fruits, and grains for human consumption, as well as all of the grains and hay for livestock feed. Hay is categorized here as a cropland product, due to

the relatively flat slopes required for hay machinery.

Franklin County needs approximately 16,200 acres of pasture to produce all the meat, dairy, and eggs required by Franklin County residents. This assumes that there may be additional hay production on about one-fourth of each pasture, but that at least three-fourths of each pasture would be devoted to raising livestock.

Franklin County needs approximately 2,385 acres of orchards to produce the tree fruits required by Franklin County residents.

Additionally, Franklin County would need a local fishery or fish production facilities to account for approximately 30 pounds of fish or other seafood per person per year. Seafood production is not included in the calculations of farmland acres.

The production of local sugars, such as maple syrup and honey, is also not included in the calculations of farmland acres.

FRANKLIN COUNTY FARMLAND REQUIRED FOR SELF-SUFFICIENCY			
Cropland	Pasture	Orchard	Total Farmland
26,492 acres	16,200 acres	2,385 acres	45,077 acres



CROPLAND

Vegetables.....	3,614
Field fruits.....	819
Grains for human consumption.....	8,753
Grains for livestock feed.....	7,367
Hay for livestock feed.....	5,940



PASTURE

Dairy Cattle.....	7,920
Meat Cattle.....	7,200
Sheep and Goats.....	1,080



ORCHARD

Tree fruits	2,385
-------------------	-------

Q.

QUESTION TWO

How much farmland is there in Franklin County, and where is it?

A.

There are 37,250 total acres of farmland in Franklin County: 23,750 acres of cropland, 12,320 acres of pasture, and 1,180 acres of orchard.

FOODSHED ANALYSIS: QUESTION 2

MAPPING FRANKLIN COUNTY'S FARMLAND

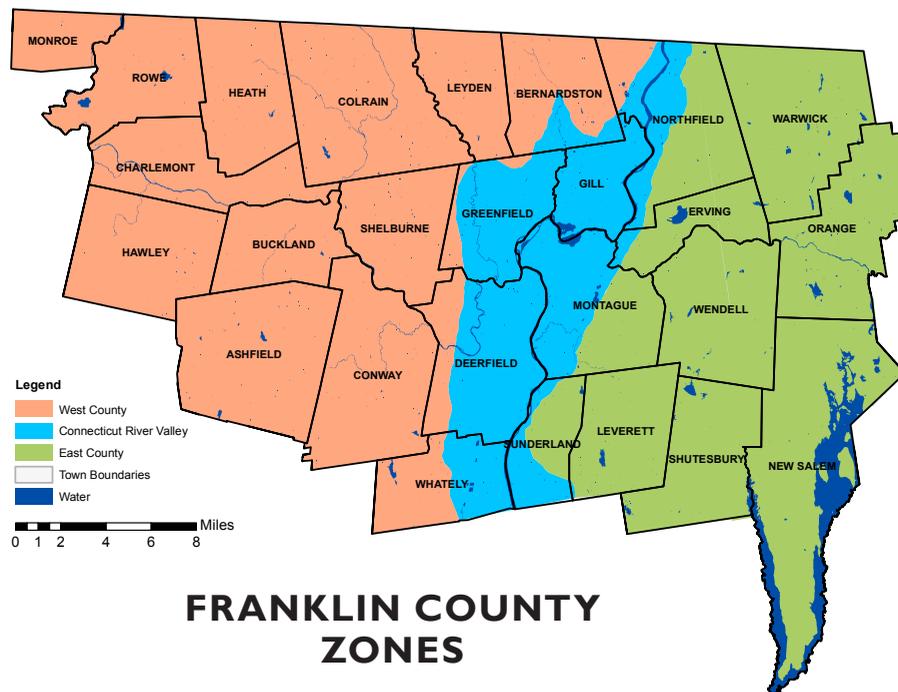
This report determines Franklin County's farmland acreage using data from the Massachusetts Geospatial Information System (MassGIS 2005a). MassGIS divides farmland into three categories: cropland, pasture, and orchard. As determined by MassGIS, cropland includes land used to grow some non-food products such as tobacco, but does not include land used for nurseries. Individual farms are not identified as entire units; rather, areas of cropland, pasture, and orchard production are outlined and quantified.

The 2007 Agricultural Census identifies the number of farms in Franklin County, as well as their acreage (USDA 2009). However, it reports the acreage of the entire farm property rather than the acreage of the property in agricultural production.

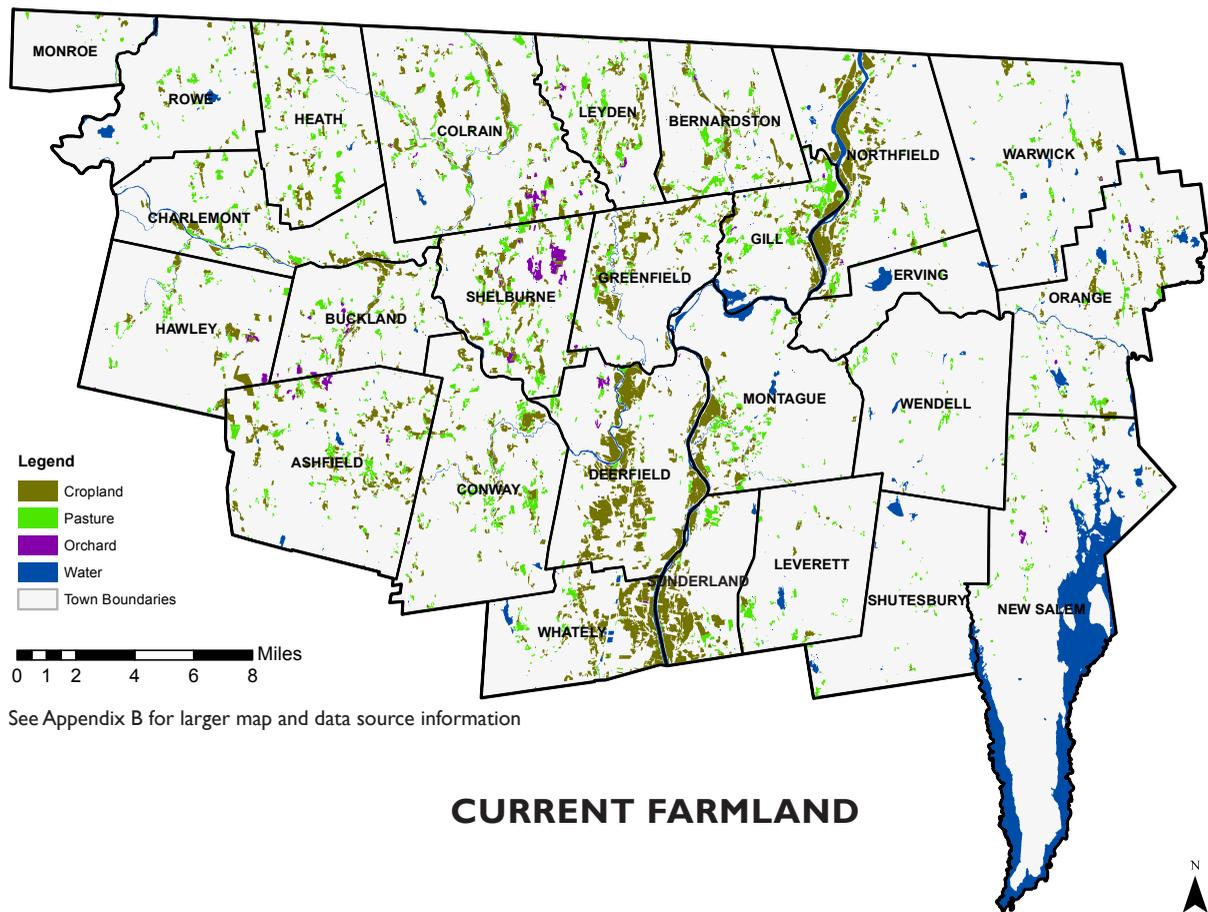
Also, the Census data are not spatially explicit; they do not provide information on where farmland lies upon the land.

Observing the data spatially allows for an evaluation of the broad patterns of farmland's spatial relationship to other land uses and natural resources. For this study, these broad patterns and relationships were evaluated for food production, land suitability for possible farmland expansion, and farmland protection.

For the purposes of this report, the distribution and patterns of farmland are described across three distinct zones: West County, the Connecticut River Valley, and East County. These zones are based upon patterns of soil and topography.



To observe the distribution and patterns of farmland across the county, this report divides the county into three zones: West County, the Connecticut River Valley, and East County.



See Appendix B for larger map and data source information

CURRENT FARMLAND

Franklin County’s farmland covers about 8 percent of the county and is unevenly distributed.

West County has the greatest amount of farmland, over 18,000 acres, almost half of the county’s farmland. The Connecticut River Valley has approximately 40 percent of the county’s farmland. East County has significantly less farmland, just 12 percent.

Over half of Franklin County’s cropland is located in the Connecticut River Valley, and most of the county’s remaining cropland, approximately 40 percent, is located in West County.

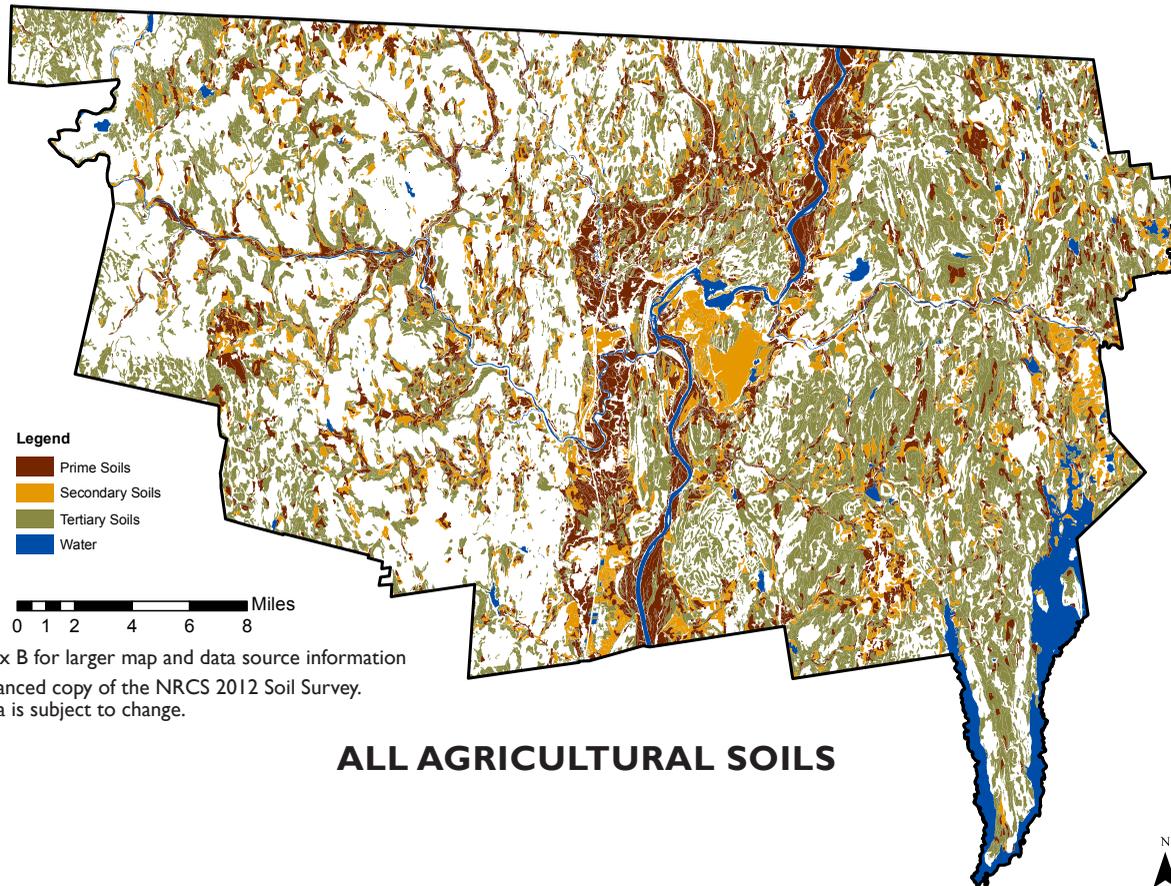
West County has significantly more pasture than either the Connecticut River Valley or East County. Orchards, likewise, are located almost exclusively in West County.

DISTRIBUTION OF CURRENT FARMLAND ACROSS ZONES

	Cropland (acres)	Pasture (acres)	Orchard (acres)	Total Farmland (acres)	Land area of County or Zone (acres)	Percent of County’s Farmland
Franklin County	23,750	12,320	1,180	37,250	463,739*	100%
West County	9,600	7,460	1,000	18,060	220,535	48%
Connecticut River Valley	12,150	2,550	100	14,800	70,975	40%
East County	2,000	2,310	80	4,390	170,171	12%

*There is a .4% discrepancy between the total amount of farmland and the sum for the three zones, due to digitizing methodology.

FOODSHED ANALYSIS: QUESTION 2



ALL AGRICULTURAL SOILS

The National Resource Conservation Service categorizes soils by *capability classes* according to their suitability for agriculture (NRCS 2012a). This study groups the agriculturally suitable soils identified by NRCS into three classes: Prime, Secondary, and Tertiary Soils.

The Prime Soils identified in this study are the prime farmland soils as identified by NRCS. The Secondary and Tertiary Soil categories were developed for this report (see Appendix B).

Prime Soils have the soil quality, growing season, and moisture supply needed to produce sustained high yields for cropland.

Secondary Soils have the soil quality, growing season, and moisture supply needed to produce a fair range of crops with good management under acceptable farming practices.

Tertiary Soils limit ease of plowing and tilling, restrict the type and yield of the crops that can be grown, and may be found suitable to less intensive agricultural uses such as pasture or orchard.

DISTRIBUTION OF AGRICULTURALLY SUITABLE SOILS ACROSS ZONES

	Prime Soils (acres)	Secondary Soils (acres)	Tertiary Soils (acres)	Total (acres)	Land area of County or Zone (acres)	Percent of all Agriculturally suitable soils in area
Franklin County	52,958	37,811	147,691	238,460	463,739*	100%
West County	17,016	13,856	56,623	87,495	220,535	37%
Connecticut River Valley	22,169	11,389	14,867	48,425	70,975	20%
East County	13,773	12,566	76,201	102,540	170,171	43%

*There is a .4% discrepancy between the total amount of farmland and the sum for the three zones, due to digitizing methodology.

OBSERVATION OF FARMLAND ACROSS ZONES

A geographic information system (MassGIS) was used to overlay land use data on aerial photographs. The spatial data on these overlays were examined to reveal broad patterns of farmland proximity to other land uses and to natural areas, including areas of agriculturally suitable soils. The images on pages 23, 25, and 27 are example areas of these overlays (maps of the land uses observed can be found in Appendix B).

Observations of geology and river floodplains were informed by geologist Richard Little and ecologist Glen Motzkin (Little 2011; Motzkin 2012). An analysis of soil types and their suitability for agriculture was drawn from the NRCS National Soil Survey Handbook (NRCS 2012b).

This report used the term *farmland parcel* to describe individual or discrete areas of farmland identified in the MassGIS maps. Because no land ownership data were readily available for the county, this study evaluates the patterns of farmland parcels, not entire farms.

WEST COUNTY

In West County, farmland parcels tend to be irregularly shaped, adapting to the sloping hillsides and narrow river floodplains that differentiate West County's landform from the other areas of the county.

The rolling upland hills of West County are moderately sloped and are formed by schist, gneiss, and other metamorphic rock, underlying stony and shallow soils.

The highest elevations of West County have soils which are considered unsuitable for

agriculture. However, the lower elevations of these hills have the greatest amount of Tertiary Soils in West County. These soils are generally limited in their capacity to support intensive agriculture, but can support pasture or orchards.

The narrow river floodplains of the Deerfield, Millers, Mill, and Swift Rivers, as well as the east and west branches of the North River, have nutrient-rich alluvial sediment, producing agriculturally rich soils with adequate depth and composition for tillage. Most of West County's tilled cropland is on these narrow floodplains. Cropland accounts for approximately 53 percent of West County's farmland.

Although agriculturally rich and productive areas, these floodplains are at risk of flooding, and flooding may occur more frequently as a result of global climate change (Martinez et al 2010). The possible impacts of flooding on farmland in this zone may need further study.

Approximately 43 percent of West County's farmland is pasture, and approximately 4 percent is orchard. Historically, West County's hillsides were extensively cleared for timber harvest, for livestock grazing on pasture, and for orchard production (Garrison 1991). These parcels are now reforested, and these reforested areas often have less biodiversity than forests that have not been extensively cleared for agriculture or forestry (Bellemare, Motzkin, and Foster 2002). Because many of West County's hillside forests have already been altered by past agricultural use, expansion of pasture or orchard in selective areas of West County's forests may have fewer negative ecological impacts than farm expansion in other areas of the county. However, review of West County's forests suggests that many are protected, either permanently or through

FOODSHED ANALYSIS: QUESTION 2

private land ownership enrollment in the Forest Stewardship Protection Program (Chapter 61). This suggests that farmland expansion would require programs to identify private land-owners interested in farmland conservation efforts who would be willing to lease their land to farmers.

Some of West County's farmland is located near rivers and streams which have been identified by the Department of Conservation's Natural Heritage and Endangered Species Program (NHESP) as critical habitat areas for many species and have been prioritized for conservation. Research on the effect of farming practices on these critical habitat areas may identify agricultural uses or practices which have the least negative environmental impact on rivers and their ecosystems. Additionally, consideration of these impacts may inform decisions of where farmland expansion in West County could have fewer negative ecological impacts to these natural resources.

Most farmland parcels in West County are clustered together and are adjacent to areas of minimal residential development. The current and expected modest rates of population growth and development in Franklin County (MDOT 2010; MISER 2003; US Census Bureau 2010) may be even lower in West County due to the distance from Interstate 91 and the commercial and business districts of the Five-Colleges area. Thus, development pressure on West County's farmland may be minimal. The location of West County's farmland on

rolling hillsides and along the meandering Deerfield, Mill, and North rivers may spark public interest in farmland protection and support of local farms. Programs and planning tools which focus on scenic or rural landscapes such as conservation restrictions or the Scenic Byway Protection Act may be strategies applicable to West County. (see page 53)



 Farmland  Development

In West County, farmland is located in areas of scattered, low-density rural residential development, as seen in this image of farmland located on the lower elevations of West County's hills.

THE CONNECTICUT RIVER VALLEY

Generally, throughout much of the Connecticut River Valley, farmland parcels are large, regularly shaped, and adjacent to each other, forming contiguous farming areas.

Large concentrated areas of farmland are possible because of the Connecticut River floodplain's flat terrain and sediment rich, well-drained sandy soils. The majority of the county's prime soils are located in the Connecticut River Valley, where they have been deposited over thousands of years. These agriculturally rich soils are concentrated in the area of ancient glacial lakes and on the wide river terraces that stretch alongside the Connecticut River.

Smaller rivers such as the Deerfield, Fall, and Mill Rivers also have deposited nutrient-rich sediment on their floodplains within the Connecticut River Valley. Within the Connecticut River Valley zone, the area that has the greatest amount of Prime Soils stretches from the towns of Whately and Sunderland, north through Deerfield, Montague, and Greenfield, to Gill and Northfield.

Prime Soils support tilled agriculture; the majority of farmland in the Connecticut River Valley is cropland: 12,150 acres. There is more cropland in the valley than in West County and East County combined.

Portions of the Connecticut River Valley, including river floodplain edges and areas with steeper slopes, have Secondary Soils. These soils can support tilled agriculture, but offer lower average crop yields and require greater management than Prime Soils.

Tertiary Soils are on areas of greater slope. In the Connecticut River Valley, there are very few soils that are too thin or stony for agricultural production.

In the valley, many parcels of farmland abut forested areas. Forests are located between farmland and river banks, and are also scattered between farmland and areas of development. Forests tend to be small and fragmented parcels; these forests (or woodlands) are often the back acreages of farmland, community woods, or windbreaks around fields. These woods offer many benefits to farms and neighboring property owners, one of which may be to provide a physical buffer mitigating the impact of farm noises and physical activity on residential areas.

Additionally, woodlands located between farmland and the Connecticut River offers critical habitat for species identified by the NHESP as threatened or endangered, protects the water quality of rivers from farm field runoff, and helps buffer farmland from erosion and flooding.

Farmland expansion into woodlands in the Connecticut River Valley may require consideration of the ecological, social, and economic impacts to farmers, land-owners, and local towns.

The Connecticut River Valley zone includes the most developed areas of the county. Most farmland parcels are located in areas of low- to moderate-density rural residential areas, although some farmland borders larger towns with moderate- to high-density development. In portions of the Connecticut River Valley contiguous areas of farmland are fragmented by scattered areas of residential, commercial, and industrial land uses.

FOODSHED ANALYSIS: QUESTION 2

Though the average population growth and development rates are expected to remain low in Franklin County into the future (MDOT 2010; MISER 2003; US Census Bureau 2010), the location of Interstate 91 in the Connecticut River Valley and the area's proximity to the commercial and business districts of the Five-College area may encourage greater development in this zone.

For Connecticut River Valley towns which may face greater development, farmland protection strategies such as cluster zoning, natural resource protection zoning, and agricultural overlay districts may prevent scattered development into agricultural areas. These strategies can help protect current farmland but may also protect agriculturally suitable soils from development (see page 52).



 Farmland  Development

In the Connecticut River Valley most farmland parcels are located amongst areas of residential development, as seen in this image of farmland located on the east bank of the Connecticut River.



The Connecticut River Valley's flat terrain and sediment rich, well-drained soils make it an optimal area for intensive agriculture.

EAST COUNTY

East County has the fewest acres of farmland in the county—only 10 percent of Franklin County’s total farmland. Farmland parcels in East County are generally smaller than those in West County and the Connecticut River Valley. Farmland is widely distributed through East County.

The greatest concentrations of farmland in East County are located in the northern portions of East County—in Warwick and Orange. Agriculturally suitable soils with the capacity for intensive cultivation (Prime and Secondary Soils) occur here in greater densities than in other areas of East County. The majority of cropland farmland and the majority of East County’s pastures are in this area.

More dispersed areas of farmland are located in the central and southern portions of East County. Generally, farmland parcels are centrally located in the towns of Wendell, Shutesbury, and Leverett, and in the northern areas of Erving and New Salem. Farmland parcels in these towns are mostly cropland fields on Prime and Secondary Soils.

In many areas of East County, farmland parcels occur in groups that are smaller than those in West County and the Connecticut River Valley zones. These areas of farmland generally lie along roadways and sit within larger areas of contiguous forest away from town centers.

East County has the least amount of agriculturally suitable soils that can sustain intensive cultivation (Prime and Secondary Soils), but overall has more agriculturally suitable soils than either West County or the Connecticut River Valley, due to its large amount of Tertiary Soils. These soils can

sustain less intensive farming on pasture or orchard parcels.

The lower rate of agricultural development in East County suggests that farming may be inhibited or less productive in this area of the county. This could be due to its landform or other environmental factors. Additional research is required to determine the land production capacity of this zone.

Current land uses may also limit the availability of agriculturally suitable soils. East County has more permanently and temporarily protected land than West County or the Connecticut River Valley. Permanently protected forests cover significant portions of Warwick, central Montague, Leverett, and Shutesbury, and the areas of New Salem around the Quabbin Reservoir. Temporarily protected forests are located in all towns of the East County area, but are generally greater in extent in the towns of Northfield, Warwick, and Orange than in the eastern Montague, Wendell, Leverett, Shutesbury, and New Salem.

Additionally, a significant portion of East County’s forests are prioritized for conservation by the NHESP. These forests offer critical habitat to threatened and endangered species and may have greater biodiversity than forests which are not prioritized for conservation. Some farms are located near adjacent to these areas. As previously mentioned, research on the effect of farming practices on these critical habitat areas may identify agricultural uses or practices which lessen negative environmental impact on forests and their ecosystems.

Due to the quantity of protected land and land prioritized for conservation in East County, opportunities for farmland expansion may be limited and may not be ecologically beneficial. If

FOODSHED ANALYSIS: QUESTION 2

farms near these areas were to expand their acreage or increase agricultural production, assessment of the ecological, social, and economic costs and benefits to farmers, land-owners, and local towns will be needed.

Farmland parcels in East County are in areas of low-density scattered residential development. Current and projected modest rates of population growth and development in Franklin County (MDOT 2010; MISER 2003; US Census Bureau 2010) suggests development pressure on East County's farmland may be low.

However, areas of East County with proximity to Interstate I-91, Route Two, and the Five-College area may be more likely to attract residential development. The towns of Sunderland, Montague, Orange and Northfield have the highest average residential property values in the county (FRCOG 2012). This may suggest that strategies to protect farmland are especially important in portions of East County.



Farmland



Development

Many farm parcels in East County are small and adjacent to limited development along roadways, set within a larger area of contiguous forest.



The East County zone has only 40 acres of orchard, about 3 percent of the county's total orchard.

QUESTION THREE

Q. Does Franklin County have enough farmland to achieve food self-sufficiency?

A. No. Given the assumptions of the foodshed analysis applied, there is currently not enough farmland in Franklin County to achieve food self-sufficiency.

FOODSHED ANALYSIS: QUESTION 3

Given the two main assumptions of the New England Good Food Vision—a diet based upon USDA dietary recommendations and sustainable agricultural practices—Franklin County does not have enough acres of farmland to achieve self-sufficiency. Assuming all current farmland were devoted to producing food for local sale, the county would still need 7,828 additional acres of farmland to meet its residents nutritional needs. If these acres were created by converting forest to farmland, approximately 2 percent of the county’s forests would be affected (MassGIS 2005).

Assuming all current cropland is devoted to producing food for local sale, Franklin County would still need 2,742 additional acres of cropland.

Assuming all current pasture is devoted to producing food for local sale Franklin County would still need 3,880 additional acres of pasture.

Assuming all of the county’s orchards would produce for local sale, Franklin County would

still need 1,206 more acres of orchard. The seafood required by the assumed average diet of the New England Food Vision could perhaps be replaced by locally hunted deer and other animals, especially given Franklin County’s extensive forests and hunting areas.

Maple sugar and honey could likewise be produced locally, but the production of local sugars is not included in the calculations of farmland acres.

However, the assumption that *all* current farmland produces food for local sale, meaning within Franklin County, is certainly not correct. Based upon figures of crop production in the Agricultural Census, the majority of the county’s cropland currently produces cash crops for regional or national sale rather than for local consumption (USDA 2009). In addition, some cropland may produce tobacco or other non-food products. Economically, it may not be desirable for farmers producing cash crops or non-food items to transfer their production to local food. In this case, Franklin County would need more than 7,828 additional acres of farmland.

FRANKLIN COUNTY FARMLAND REQUIRED FOR SELF-SUFFICIENCY COMPARED WITH CURRENT FARMLAND				
	Cropland	Pasture	Orchard	Total Farmland
REQUIRED	26,492 acres	16,200 acres	2,386 acres	45,077 acres
CURRENT	23,750 acres*	12,320 acres*	1,180 acres*	37,250 acres*
Balance	- 2,742 acres	- 3,880 acres	- 1,206 acres	-7,828 acres

*Approximations based on MassGIS mapping data.



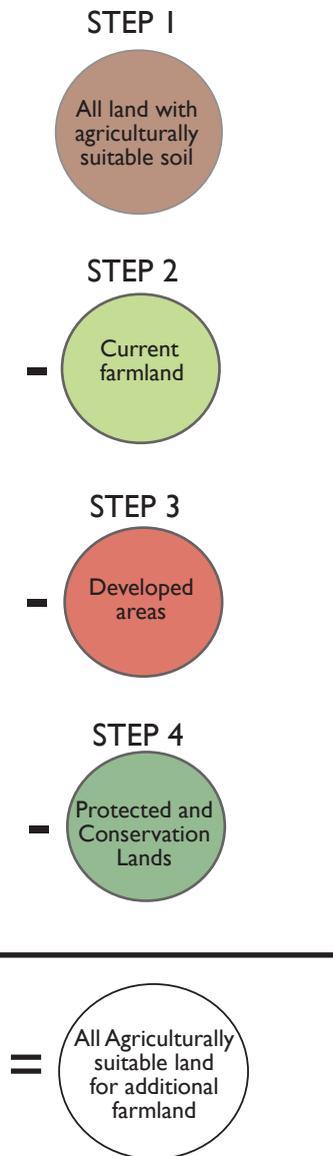
Franklin County could expand its acreage of farmland to include additional pasture.

QUESTION FOUR

Q. • Where is there potential for additional farmland in Franklin County?

A. • There are about 44,000 acres of agriculturally suitable soils where additional farmland could potentially be developed.

The diagram below shows the steps taken to identify potential areas for additional farmland throughout Franklin County.



STEPS FOR IDENTIFYING POTENTIAL AREAS FOR ADDITIONAL FARMLAND

STEP ONE

Identify all land areas with soils considered by the NRCS as suitable for agriculture.

STEP TWO

Remove all areas that are already farmed.

STEP THREE

Remove all areas that have already been developed for residential, commercial, industrial, recreational, or transportation use.

STEP FOUR

Remove all areas that have been permanently protected or have been prioritized for conservation.

RESULT

Land for additional farmland has: agriculturally suitable soils that have not been developed for agricultural, residential, commercial, industrial, or recreational use. Nor is this land in areas under permanent protection, temporary protection, or prioritized for conservation..

FOODSHED ANALYSIS: QUESTION 4

STEP ONE

This step of the analysis made use of the preliminary soil data from NRCS's 2012 soil survey of Franklin County. This data is not yet published and is subject to change. Once the soil survey is finalized by the NRCS (expected fall 2012), the analysis of agriculturally suitable soils should be reviewed and revised if needed.

The NRCS categorizes soils into land capability classes one through eight according to their suitability for conventional, cultivated field agriculture (NRCS 2012b). For the purposes of this report, soils in capability classes one through six were divided into three groups: Prime, Secondary, and Tertiary Soils (see Appendix B). Soils in land capability classes seven and eight, which require considerable effort for successful cultivation, were excluded from consideration.

PRIME SOILS

Prime Soils include all soils identified by the NRCS as prime farmland, which includes all soils of land capability class one and some of class two. Prime Soils have the soil quality, growing season, and moisture supply needed to produce sustained high yields for cropland. There are 52,958 acres of Prime Soil in Franklin County.

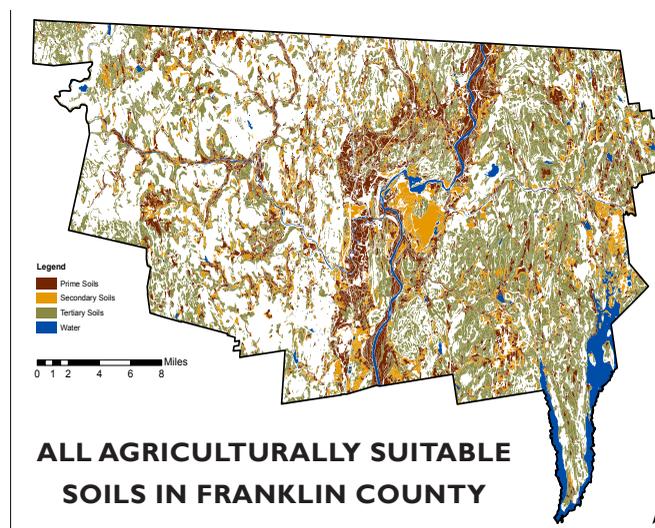
SECONDARY SOILS

Secondary Soils include all remaining soils in land capability class two and all soils in capability class three. Secondary Soils have the soil quality, growing season, and moisture supply needed to produce a fair range of crops with good management. There are 37,811 acres with Secondary Soils in Franklin County.

TERTIARY SOILS

Tertiary Soils are those in land capability classes 4, 5, and 6. Tertiary Soils are difficult to plow or till and restrict the type and yield of crops which can be grown. Tertiary Soils are typically allocated to less intensive agricultural practices, such as pasture or orchard. There are 147,691 acres of Tertiary Soils in Franklin County.

In total, there are 238,460 acres of agriculturally suitable soils in Franklin County, covering approximately 53 percent of the county.



ALL AGRICULTURALLY SUITABLE SOILS IN FRANKLIN COUNTY (acres)					
Prime Soils	Secondary Soils	Tertiary Soils	Total Agriculturally suitable soils	Land Area of County	Percent of County with agriculturally suitable soils
52,958	37,811	147,691	238,460	447,698	53%

STEP TWO

Some of the agricultural suitable soils identified in Step One is not available for additional farmland because it is already being cultivated.

To map and calculate the acreage of current farmland in Franklin County, this report used data from the 2005 Land Use-Land Cover layer from MassGIS (MassGIS 2005a; see map of Current Farmland on page 68).

According to the 2005 Land Use-Land Cover data, there are approximately 37,250 acres of farmland in Franklin County. Of these acres, approximately 35,868 are on agriculturally suitable soils. Only 15 percent of all agriculturally suitable soils in the county are currently in cultivation.

Accounting for where agriculturally suitable soils are already being cultivated, there are 202,592 acres of agriculturally suitable soils remaining for additional farmland.

All land with Prime, Secondary, or Tertiary Soils (from Step One)	238,460 acres
Farmland on Prime, Secondary, or Tertiary Soils (of 37,250 total acres of the county's farmland).	35,868 acres
Prime, Secondary, or Tertiary Soils not farmed	202,592 acres

STEP THREE

Some of the land identified in Step Two is not available for farming because it has been developed for residential, commercial, industrial, recreational, or transportation use.

Using data from the 2005 Land Use Land-Cover layer from MassGIS (MassGIS 2005), such developed lands were removed from consideration.

Approximately 31,338 acres of development in Franklin County is on agriculturally suitable soils. Development covers approximately 13 percent of the county's agriculturally suitable land.

Accounting for where agriculturally suitable soils have been developed for the above uses, there are approximately 171,254 acres of agriculturally suitable soils remaining for additional farmland.

Remaining land with Prime, Secondary, or Tertiary Soils (from Step Two)	202,592 acres
Developed areas on Prime, Secondary or Tertiary Soils	31,338 acres
Prime, Secondary, or Tertiary Soils not farmed or developed	171,254 acres



FOODSHED ANALYSIS: QUESTION 4

STEP FOUR

Since all of the remaining potential areas for additional farmland are forested, it is important to account for how much of those forests are protected for natural resource conservation or have been prioritized for conservation. These areas were removed from consideration.

To map forested areas that are permanently or temporarily protected, this study used data from the 2012 Protected and Recreational Open Space layer and the 2010 Forest Stewardship Program Properties layer from MassGIS (MassGIS 2012a; MassGIS 2010) and data from the 2005 Land Use-Land Cover layer (MassGIS 2005a).

Approximately 34 percent (125,140 acres) of the county's forests are permanently protected; approximately 12 percent (46,358 acres) is temporarily protected.

To map forested areas of high conservation need, this report used data from the 2012 BioMap 2 Layer and the 2012 Priority Habitat for Endangered Species Layers developed by the Natural Heritage Endangered Species Program (NHESP), and available through MassGIS (MassGIS 2012c, MassGIS 2012d).

These data sources account for the greatest extent of land in Franklin County that has been identified for ecological conservation by NHESP.

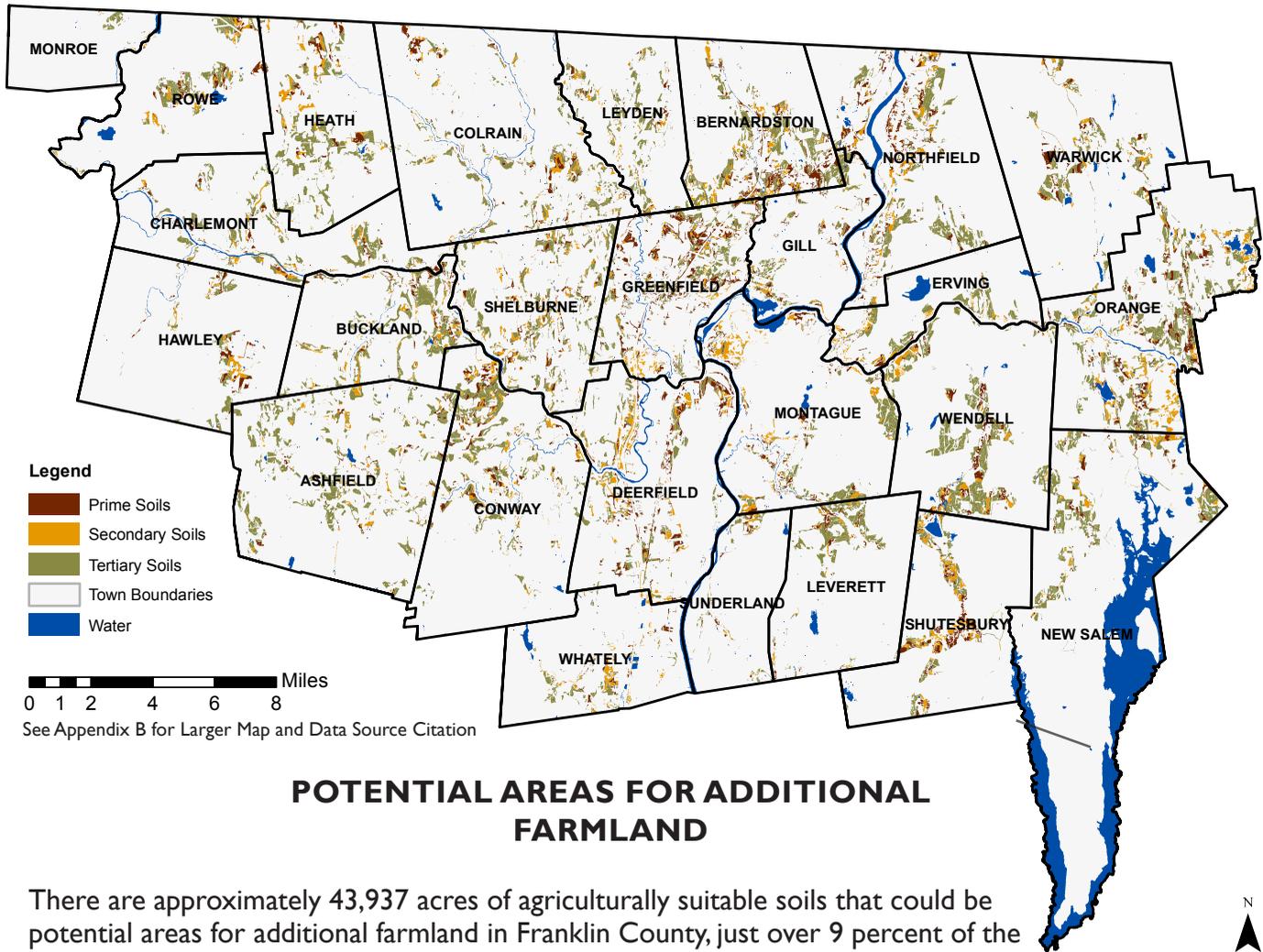
Approximately 40 percent (144,515 acres) of the county's forests are prioritized for conservation.

In total there are 127,317 acres of agriculturally suitable soils in forests that are protected or prioritized for conservation. This accounts for 53 percent of Franklin County's agriculturally suitable soils.

Remaining land with Prime Secondary, or Tertiary Soils (from Step Three)	171,254 acres
Currently protected forest areas and forest areas prioritized for conservation on Prime Secondary, or Tertiary Soils	127,317 acres
All remaining Prime, Secondary and Tertiary Soils for additional farmland	43,937 acres

There are approximately 43,937 acres of agriculturally suitable soils that could potentially become farmland in Franklin County, just over 9 percent of the county's land area.





POTENTIAL AREAS FOR ADDITIONAL FARMLAND

There are approximately 43,937 acres of agriculturally suitable soils that could be potential areas for additional farmland in Franklin County, just over 9 percent of the county’s land area. These areas are unevenly distributed across the county, with the largest percentage falling in West County. By far, there is more land with agriculturally suitable soils that could support additional pasture or orchard than there is land to that could support additional cropland.

DISTRIBUTION OF ALL AGRICULTURALLY SUITABLE SOILS FOR ADDITIONAL FARMLAND

	Prime Soils	Secondary Soils	Tertiary Soils	Total amount of agriculturally suitable soils	Percentage of all potential farmland acres	Total Land of County or Zone
Franklin County	8,717 acres	7,713 acres	27,507 acres	43,937 acres	100%	447,698
West County	3,101	3,336	14,061	20,498	47%	221,500
Connecticut River Valley	2,980	1,944	3,179	8,103	18%	71,000
East County	2,636	2,433	10,267	15,336	35%	171,500

Discrepancies may be possible due to rounding error.
See page 20 for the delineation of Franklin County Zones

FOODSHED ANALYSIS: QUESTION 4

AGRICULTURALLY SUITABLE SOILS IN THE COUNTY ZONES

WEST COUNTY

The greatest proportion—47 percent—of the county’s agriculturally suitable soils that could be developed for additional farmland is located in West County. Over two-thirds of these soils are Tertiary Soils, suitable for less intensive agricultural practices. Nearly equal amounts of Prime and Secondary Soils account for the remaining agriculturally suitable soils in West County.

PRIME SOILS

Prime Soils are located in areas where the Deerfield and North Rivers meet along the northern town line of Buckland. Additional large and contiguous areas of prime soils in West County are located in north Conway, at the convergence of the Deerfield River and South River; in east-central Hawley along Clesson Brook; and in central Rowe along Pelham Brook. Land with small amounts of Prime Soils is scattered throughout areas of Shelburne, Heath, Ashfield, Leyden, and Colrain.

SECONDARY SOILS

Secondary Soils in West County are located in large areas of Hawley, alongside Prime Soils on the bank of Clesson Brook; in Heath; along the Buckland and Ashfield town line west of Clesson Brook; along the Deerfield River in south Charlemont; adjacent to Prime Soils in central Rowe; in north Heath; and in south-central Colrain along the Green River.

TERTIARY SOILS

Tertiary Soils are scattered in a large band from central Leyden through Shelburne, Conway, and Ashfield. The largest areas of land with Tertiary

Soils in West County are in central Ashfield; in Buckland adjacent to Clesson Brook, in north Conway near the Bear River; and across central and southern areas of Heath. Smaller discrete patches of Tertiary Soils lie in Rowe, Charlemont, and Hawley.

THE CONNECTICUT RIVER VALLEY

The smallest proportion—18 percent—of the county’s agriculturally suitable soils that might be considered for additional farmland are located in the Connecticut River Valley. Prime and Secondary Soils together account for approximately 60 percent of these soils.

PRIME SOILS

Large areas with Prime Soils are located at the confluence of the Connecticut and Deerfield Rivers near the town of East Deerfield; in north Greenfield near the Mill Brook and Green Rivers; and along the southern town boundary of Bernardston. Smaller areas of Prime Soil are scattered through the town of Northfield west of the Connecticut River; in southern Gill; and in the north of Montague along the Sawmill River.

SECONDARY SOILS

Large contiguous areas of Secondary Soils are located south of Turners Falls; near the southern town boundary of Greenfield; just west of the Deerfield River floodplain in the town of Deerfield; and west of the Mill River running through Whately. Smaller areas with Secondary Soils are scattered through central portions of Northfield, in central Whately, and on the Montague-Sunderland town boundary between the Sawmill and Connecticut Rivers.

TERTIARY SOILS

Tertiary Soils in the Connecticut River Valley are primarily located in the central and southern

portions of Bernardston, just north and west of Greenfield's town center, and in the southwest corner of Gill.

EAST COUNTY

Approximately 35 percent of the county's agriculturally suitable soils for additional farmland are located in East County. East County has roughly equal amounts of Prime and Secondary Soils which together account for one-third of the East County's agriculturally suitable soils. Over two-thirds of East County's agriculturally suitable soils are Tertiary Soils.

PRIME SOILS

Prime Soils for additional farmland lie along the Roaring Brook running through central Shutesbury and running north through the southern and central portions of Wendell. Large areas of Prime Soils are also located near Tertiary Soils in Leverett, and just north of the Deerfield River near the western town boundary of Orange. Smaller areas with Prime Soils are scattered throughout Orange and central areas of Warwick.

SECONDARY SOILS

Secondary Soils are scattered along the southwestern area of Orange and along the Deerfield River near the northern town boundary of Wendell. Secondary Soils also follow the patterns of Prime Soils in Shutesbury and in the south and central area of Wendell.

TERTIARY SOILS

Large and contiguous areas of Tertiary Soils are adjacent to Prime and Secondary Soils in south and central portions of Wendell, in north Leverett, in Northfield, in Warwick, and throughout Orange. Large areas of Tertiary Soils also are located along the

western town boundary of Montague, in southern portions of Northfield, along the southern town boundary of Erving, and in the northwest corner of New Salem.

STRATEGIES FOR EXPANDING FARMLAND

Observing the patterns of how current agricultural activity relates to soils suggests various strategies for how farmland in the county might be expanded. For this study, current farmland located on agriculturally suitable soils was identified by overlaying geospatial data of cropland, pasture, and orchards from the MassGIS Land Use-Land Cover Layer (MassGIS 2005a) with preliminary data from the 2012 Franklin County Soil Survey (NRCS 2012).

CROPLAND

While most of the county's existing cropland is on Prime Soils (about 58 percent), the remaining cropland is on Secondary or Tertiary Soils. Some of the cropland on Secondary or Tertiary Soils is in small parcels adjacent to larger parcels on Prime Soils. This suggests that while Prime Soils may offer optimal growing conditions to produce sustained high yields of many different crops, expansion of cropland need not be limited to areas with Prime Soils.

Expansion of cropland for fruit, vegetable and grain production may be optimal on Prime Soils; however, Secondary Soils may also support productive fields and food production.

PASTURE

Pastures in Franklin County are on Prime, Secondary, and Tertiary Soils. Pastures are also located on some soils that are classified by NRCS as unsuitable for cultivation or for

FOODSHED ANALYSIS: QUESTION 4

grazing (see page 66 in Appendix B for information on agriculturally unsuitable soils). The diversity of agriculturally suitable soils used for pasture may be explained by the multiple uses of pasture, such as grazing livestock and growing hay.

Pastures used for hay production require less intensive cultivation practices than cropland and may be equally productive on Prime, Secondary, or Tertiary Soils that are not too steep or stony to prevent the use of haying equipment.

Pastures used for livestock graze, however, may be most productive on Tertiary Soils. Because most Tertiary Soils are formed from glacial till, they have a hard pan about two feet below the soil surface. Compared to Prime and Secondary Soils, such soils have a greater capacity to retain moisture and produce healthy pasture grasses even during dry periods (Donahue 2012c).

Expansion of livestock graze on Tertiary Soils may yield the benefit of increased forage grasses per acre.

ORCHARDS

Most orchards in Franklin County are located on Secondary or Tertiary Soils, or on soils deemed marginal for agricultural use by NRCS.

Orchards may do better on Secondary or Tertiary Soils because these soils are less susceptible to drought and often are at higher elevations that do not draw late spring frosts (Clark 2012).

Expansion of orchards on areas with Secondary or Tertiary Soils may provide optimal conditions for fruit production.

Patterns of Franklin County's current farmland indicate that productive farms successfully cultivate crops, grow fruit, and raise livestock on

to different degrees on different categories of agriculturally suitable soils. To expand farmland and increase food production, all agriculturally suitable soils should be considered valuable resources.

CONVERTING FOREST TO FARMS

Expansion of agriculture for increased local food production must be carefully balanced with the needs of natural ecosystems that support the health and vitality of farmland and the preservation of the natural resources that support the county's livelihood.

The model of foodshed analysis used for this study, the New England Good Food Vision, promotes agricultural development only to the extent that it permits permanent protection and sustainable management of New England's forests, as envisioned by Harvard University's Harvard Forest Research Center and documented in *Wildlands and Woodlands* (Foster et al, 2010). The Good Food Vision promotes agricultural development only to the extent that at least 70 percent of New England can be conserved as permanently protected forest. Research indicates that this level of conservation is critical for the protection of forest biodiversity, wildlife habitat, and the forest base, which has the capacity to mitigate global climate change, to filter pollution from air and water resources, and to protect plants, animals, and land resources from natural disturbances (Foster et. al. 2010).

While all forested areas are valuable natural resources that have cultural, recreational, and educational value (Foster et. al. 2010), some forests may have greater ecological value than others. Forest communities in Western Massachusetts that were extensively cleared in the nineteenth century for agricultural use are often less bio-diverse than those that remained forested or were cleared to a lesser extent.

While conversion of forests that were formerly farmland back to agricultural production may have some impact on wildlife and ecosystems, it would likely be less than the disturbance that would result from the conversion of forests that were never farmland.

Where are these historic crop fields, pastures, and orchards that have since been reforested?

Former crop fields, pastures, and orchards can be identified through on-site observation of landscape patterns, including the presence of old stone walls, the proliferation of tree species that colonize old fields after disturbance (such as white pine and hemlock), and other signs of plowing or grazing of livestock on the land (Wessels 1999). Reforested or abandoned farmland may also take the form of brush land, or early successional forests (Cramer and Hobbs 2007).

While further study is needed to identify ways to expand farmland with minimal negative impacts on forests and their ecosystems, the research above suggests reclamation of historic or abandoned farmland may be an ecologically sensitive way to expand farmland. This generally suggests agricultural expansion along edges between farmland and forest.

Forest edges may seem separate and marginal to many farm's agriculturally productive land, but use of woodlands as an agricultural resource may offer benefits to farmers and increase incentives for land stewardship and efficient land use (Chedzoy & Smallidge 2011). One agricultural practice which may integrate farmland and the resources of the forest edge is silvopasture, discussed on the opposite page.



Forest lands that may be more suitable for farmland expansion are old agricultural fields, which can often be identified by the presence of old stone walls and colonies of trees such as white pine and hemlock.

FOODSHED ANALYSIS: QUESTION 4

CASE STUDIES OF FARMLAND EXPANSION

SILVOPASTURE: PASTURE IN THE FOREST EDGE

Silvopasture is a system of grazing livestock in managed woodlands, balancing food production and forest health (Chedzoy and Smallidge).

John and Carolyn practice silvopasture, rotating their cows through wooded pasture. The cows eat the hardwood brush, keeping the pasture cleared, while picking around the trees and rocks.

“It’s just a fancy word for what we’ve been doing all along,” says John Wheeler, co-owner of Wheel-View Farm, of silvopasture. “What you need for pasture farming is fencing, water, and trees for shade in the summer.”

The Wheelers recently purchased a wooded parcel from their neighbors. They plan to cut the pine and hemlock that are ready for harvest and pasture their livestock amongst the remaining trees. Stonewalls run and dense stands of conifers are present on the parcel, indicating that the parcel had been previously farmed. Expanding into reforested farmland allows the more complex biodiversity of forest that has not been so recently used for agriculture to remain intact. Stonewalls and thick stands of conifers make parcels once used for pasture fairly easy to identify.

“There’s land that can be used, it’s just a matter of investment,” says John. If pasture farmers need to expand their pasture into contiguous areas, reforested pasture may be the most appropriate place for expansion (Wheeler & Wheeler 2012).

ORCHARD EXPANSION

Most orchards these days are not expanding, according to Tom Clark of Clarkdale Orchards, but “replanting and getting more efficient” by planting fruit trees with smaller rootstocks. This allows trees to be planted closer together.

If an existing orchard were to expand, however, the new section of orchard should be adjacent to the existing orchard for ease of orchard management, reports Clark.

Although Prime Soils are excellent for tilled agriculture, they are not best for orchards. Orchards are most productive on Secondary or Tertiary Soils, especially when those soils are on east-facing slopes. Marginal lands can also be effectively used for orchard, such as in the case of the small patch of apple trees depicted below, planted on a east-facing slope (Clark 2012.).



Small patches of land by roadways can be home to parcels of a productive orchard, such as Clarkdale’s small parcel depicted above in Deerfield, Mass.

QUESTION FIVE

Q. ● Should Franklin County strive for complete food self-sufficiency?

A. ● Perhaps, but there may be benefits to pursuing a model of food self-reliance, rather than self-sufficiency.

“Complete food self-sufficiency is probably not possible or even desirable. The key is to identify which foods are most suitable and yield the greatest benefits.”

— Brian Donahue
New England Good Food Vision (2012)

FOODSHED ANALYSIS: QUESTION 5

AN ALTERNATIVE TO LOCAL FOOD SELF-SUFFICIENCY: A NEW ENGLAND MODEL

The New England Food Vision (Donahue 2012a) offers a model of how much farmland would be needed for New England to meet *most*, rather than all, of its nutritional needs. In part, this alternative vision is in response to the belief that agricultural expansion should not be at the expense of the “parallel social and environmental benefits of maintaining a mostly forested landscape” (Donahue 2012a). The vision also draws upon New England’s agricultural history to envision an appropriate model of regional agriculture and accounts for people’s possible reluctance to completely switch to an all-local diet.

The following are the New England Food Vision’s proposed amounts of local food production.

GRAINS

New England would grow all of its own corn and oats, but only approximately 40 percent of its wheat for human consumption, 40 percent of its grains to produce oil (e.g., canola oil), and 40 percent of its supplementary feed grains for livestock. This model recognizes that grains are relatively easy to store and transport and proposes that New England soils would be put to best use by growing only a limited amount. The vision includes the continued importing of rice.

VEGETABLES & FRUIT

New England would grow all of its own vegetables, but only approximately 50 percent of its fruit (both field fruit and orchard fruit). The other 50 percent would be tropical fruit imported into New England.

DAIRY & MEAT

New England would raise all of the livestock (both large and small) needed for complete dairy, meat, and egg production, as well as all of the hay needed for livestock feed.

SUGAR

New England would import about half of its sugar; the remaining sugar would be maple syrup and honey produced within New England.

SEAFOOD

About 30 lbs. per person of fish or other seafood is caught or harvested annually.

MAINTAINING A MOSTLY FORESTED LANDSCAPE

As mentioned previously, the New England Good Food Vision promotes agricultural development only to the extent that at least 70 percent of New England can be conserved as permanently protected forest (Foster et al, 2010).

NEW ENGLAND'S AGRICULTURAL HISTORY

Agricultural productivity reached its height in New England between 1870 and 1910—*after* the amount of land in agricultural production was beginning to decline (U.S. Department of the Interior 1864; 1872; 1883; 1895; Vispo and Knab-Vispo 2012). Partially, this was because New England farmers began importing grains from the Midwest (Vispo and Knab-Vispo 2012). This switch away from the local production of grains allowed New England farmers to focus on crops better adapted to the region's climate and growing conditions. New England produces high yields of vegetables, fruits, and cool-season grasses for dairy and livestock graze (Donahue 1999).

Once fossil fuels became inexpensive enough, however, New England began importing the majority of its food products, and New England began the process of losing its farmland (Vispo and Knab-Vispo 2012).

FRANKLIN COUNTY

Historical data from the US Agricultural Census indicates that between 1870 and 1910 Franklin County's agricultural production focused increasingly on the cultivation of vegetables and

the production of meat and dairy. Toward the end of this period, there was an increased production of tree fruits and a decrease in grain production (USDA 2009) 1870-1920). These historical trends in food production may indicate which food products offer a comparative advantage when grown in New England.

APPLYING THE MODEL TO FRANKLIN COUNTY

Applying the results of the New England Good Food Vision to Franklin County under a model of self-reliance—rather than self-sufficiency—the county would require approximately 33,940 acres of farmland, about 25 percent less farmland acreage than the amount required for complete self-sufficiency.

CROPLAND

Franklin County would need approximately 16,547 acres of cropland, 9,945 acres less than what would be needed for complete self-sufficiency. Since there are 23,750 acres of cropland in Franklin county, there would be 10,803 acres of cropland that could grow food for regional or national export. This assumes, however, that at least 16,547 acres of cropland (see above) would be producing food for local (in-county) sale. If this is not the case, and if farmers do not have incentives to switch to local food production, Franklin County may require additional cropland acreage.

FOODSHED ANALYSIS: QUESTION 5

ORCHARD

Franklin County would need 1,193 acres of orchard, half of the amount needed under the model of complete self-sufficiency. Franklin County is just 13 acres shy of this acreage amount. However, this assumes that all orchards sell exclusively within the county. If this is not the case, Franklin County may need additional orchard acreage.

pasture. Franklin County needs 3,880 additional pasture acres. However, this assumes that all animal products are sold exclusively within the county. If this is not the case, Franklin County may need even more additional pasture acreage.

PASTURE

Franklin County would need 16,200 acres of pasture, the same amount as under the model of complete self-sufficiency. Although Franklin County has enough overall farmland, there is still a deficit of farmland that is devoted to

SUGAR

The acreage needed for local maple syrup and honey production is not calculated here.

SEAFOOD

The fish or other seafood required annually could be imported into Franklin County, grown or harvested locally, or replaced in part by locally hunted venison.

COMPARING FARMLAND REQUIRED FOR A MODEL OF SELF-RELIANCE WITH CURRENT FARMLAND

	Cropland	Pasture	Orchard	Total Farmland
REQUIRED	16,547 acres	16,200 acres	1,193 acres	33,940 acres
EXISTING	23,750 acres*	12,320 acres*	1,180 acres*	37,250 acres*
Balance	+ 7,203 acres	- 3,880 acres	- 13 acres	+3,310 acres

*Approximations based on MassGIS mapping data.



CROPLAND

Vegetables.....3,614
 Temperate fruits.....410
 43% Grains for human use.....3,638
 40% Grains for livestock use.....2,947
 Hay for livestock feed.....5,940



PASTURE

Dairy cows.....7,920
 Meat cows.....7,200
 Sheep and goats.....1,080



ORCHARD

50% Tree fruits1,193

A REGIONAL FOOD SYSTEM

“An ideal regional food system [is] a system in which as much food as possible to meet the population’s food needs is produced, processed, distributed, and purchased at multiple levels and scales within the region, resulting in maximum resilience, minimum importation, and significant economic and social return to all stakeholders in the region. This is known as **self-reliance**—as opposed to self-sufficiency wherein everything eaten is supplied within the target area.”

—Kate Clancy and Kathryn Ruhf
Is Local Enough? Arguments for a Regional Food System (2010)

Under a regional food system model, the majority of Franklin County exports would contribute to regional urban centers or other population centers that do not have the land base or current farmland to produce much of their own food, rather than to national food systems. Examples of such regional urban centers might be the Boston-metropolitan area, Springfield, Holyoke, or Hartford. With its relatively large amount of farmland, Franklin County could potentially once again become a regional producer of foodstuffs for the New England region.

Direct sale to larger, more affluent markets with growing demand for “locally” produced food may draw larger profits than selling at a local level. Farmers can use these profits to maintain the economic viability of their farms, allowing these farms the financial security required to continue production for local sale. Most of the county’s farms that sell regionally, trucking their produce to the Boston area for weekend farmers markets, CSA share drop-offs, or wholesale delivery, also produce for local direct sale (for example, Atlas Farms, Red Fire Farm, and Wheel-View Farm).

BENEFITS OF PRODUCTION FOR A REGIONAL MARKET

Contributing to a regional market may:

- Provide economic incentives to keep Franklin County’s current farmland agriculturally productive.
- Increase the financial resources of farms and the incomes of farmers by tapping into higher paying markets.
- Serve as an economic driver for employment and living wage job opportunities, especially in rural areas where there may be few incentives for job creation.

POTENTIAL STRATEGIES TO SUPPORT REGIONAL PRODUCTION

- Encourage the development of a “Buy Regional” campaign that would encourage residents of urban areas to take part in a movement analogous to the “Buy Local” campaign.
- Encourage the development of farm management education, training programs and workshops to study the types of food demanded at a regional level that yield the greatest benefits to Franklin County’s farmers.
- Collaborate with community organizations in the agricultural sector to identify the needs of Franklin County’s farms and farmers (e.g., services, financial incentives, and agricultural infrastructure) in order to provide incentives for regional models of production.

FOODSHED ANALYSIS: QUESTION 5

CASE STUDY OF REGIONAL SALE



The Wheelers raise Belted Galloways and Scottish Highland cattle to provide grass-fed beef for the regional market. Selling to a regional market helps ensure the economic viability of their farm.

WHEEL-VIEW FARM: SUPPLYING THE REGION

“We cannot grow enough to meet the demand. Not the demand here, but the demand from people in the state,” explains Carolyn Wheeler of Wheel-View Farm. The Wheelers produce grass-fed beef on their scenic farm in Shelburne. They are one of the few livestock farms in Franklin County that sells regionally. The Wheelers drive coolers of beef to grateful customers in Concord and Belmont and even send beef by mail order. They also sell locally; Green Fields Market, the People’s Pint, and local customers keep up a steady demand throughout the year. To keep up with demand, the Wheelers process about six cows a month.

The Wheelers engage in several farming practices that help them be economically successful. They practice rotational grazing and grow their hay on land leased from neighboring farms, allowing them to graze more cows on contiguous pasture. The cows they raise are Scottish Highlands and Belted Galloways, breeds well-suited to the New England climate.

John and Carolyn Wheeler report that NRCS grants, the state-run Farm Viability Program, and temporary protection of their farmland under Chapter 61(a) have all been helpful, allowing them to invest further in their farm by lowering the taxes on their land and offering them investment capital in return for temporarily giving up their development rights.

The most important factor in their success, however, may be the growing number of customers across the state looking for grass-fed beef. The Wheelers use the internet to connect them with regional consumer demand. “If we just advertised locally, it [the farm] wouldn’t fly,” says Carolyn Wheeler. The Wheelers’ ability to build a customer base over the internet and engage in a regional food system has helped the Wheelers run a financially successful farm (Wheeler and Wheeler 2012).



Preserved Land



Deerfield Land Trust
Saving Farmland and Open Space in Deerfield Since 1990

SECTION TWO

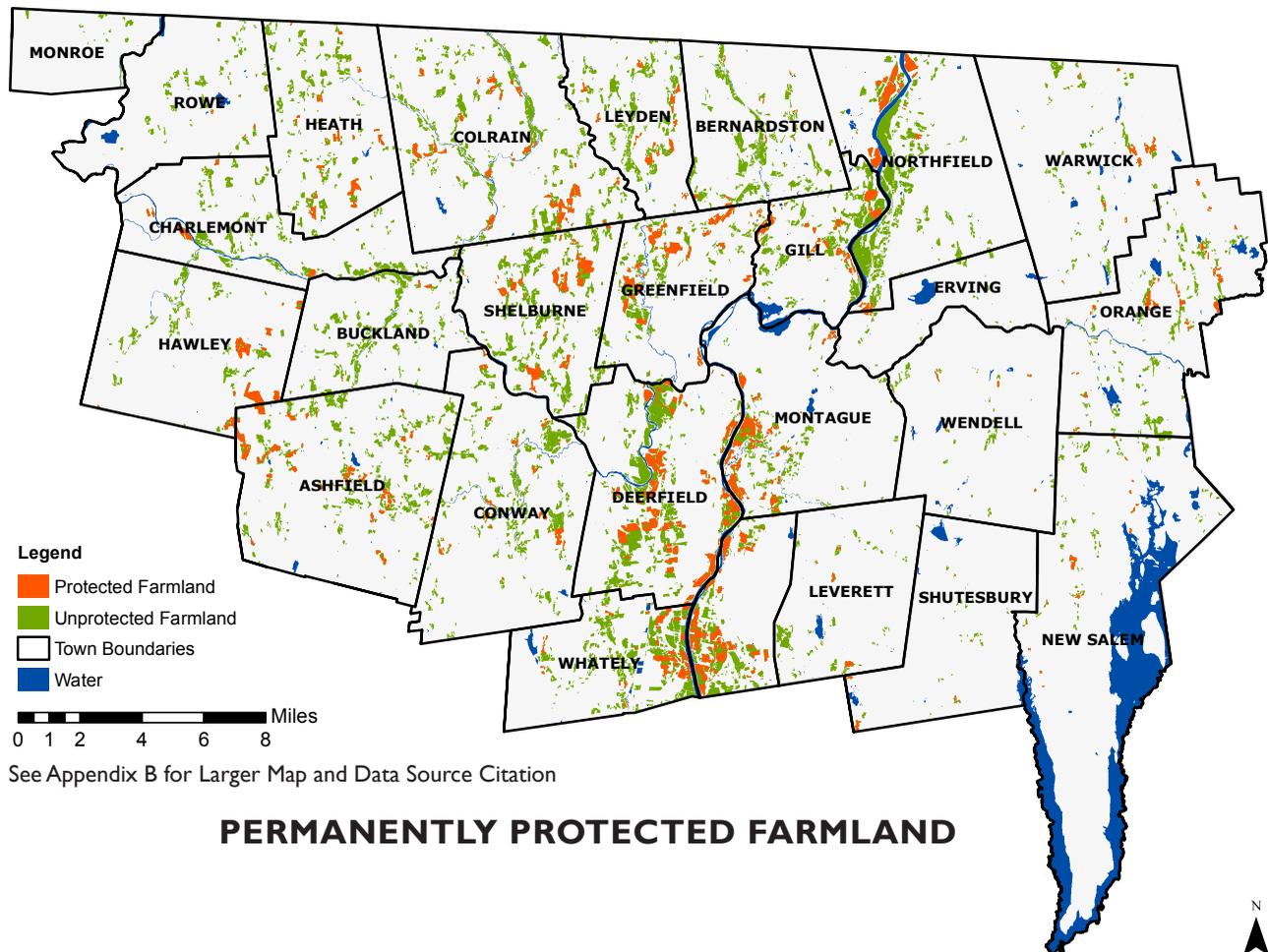
FARMLAND PROTECTION

This section discusses permanent protection strategies and other types of farmland protection that can support the land base needed for Franklin County to have a more secure food future. Other strategies beyond these protections will also be needed to maintain the vitality of farms, including other financial, economic, and cultural supports, but those are outside the scope of this report.

Farmland in Franklin County may currently face few threats of development or conversion to other land uses. However, future conditions such as climate change and post-peak oil energy costs may increase the cost for the county to rely on a global rather than a regional or local food system and require planning to ensure that

all farmland is permanently protected for its potential to meet the needs of Franklin County's future generations.

The map below was created using Massachusetts Geographical Information Systems data on permanently protected farmland identified in the Protected and Open Spaces layer (MassGIS 2012), and current farmland identified in the Land Use Land Cover Layer (MassGIS 2005). MassGIS data of permanently protected farmland includes the amount of farmland protected by Agricultural Preservation Restrictions and conservation restrictions. Other types of farmland protection, including temporary protections, were not analyzed for this study.



SECTION TWO: FARMLAND PROTECTION

Units: Acres	Cropland	Pasture	Orchard	Total farmland
PERMANENTLY PROTECTED FARMLAND	7,132	1,725	533	9,390
ALL FARMLAND IN FRANKLIN COUNTY	23,750	12,320	1,180	37,250

FARMLAND NEEDED FOR SELF-SUFFICIENCY (see page 17)	45,077
FARMLAND NEEDED FOR SELF-RELIANCE (see page 45)	33,940

Approximately 24 percent of the county’s farmland acres is permanently protected. The amount of permanently protected farmland in the county is only 25 percent of the total acres needed to meet the basic nutritional needs of the county projected for 2035 (see page 28). It is 35 percent of the farmland acreage that would be needed to produce 70 percent of the food required by Franklin County in 2035.

PERMANENT PROTECTION OF FARMLAND

Based on analysis of geospatial data on protected land, 80 percent of the permanently protected farmland in Franklin County is protected under Agricultural Preservation Restrictions (MassGIS 2012). While Massachusetts’ APR program attempts to protect a diversity of farmland, the program does set a qualifying requirement that at least half of a farm’s acreage is on prime farmland soils or soils of statewide significance (MDAR 2012). This requirement can exclude some of the county’s farms that have a greater percentage of land on productive Tertiary Soils, such as pasture or orchard. In addition, the APR program is restricted to farms that:

- have been in commercial production for the previous two years, and are likely to remain so in the future;
- have productive land for agricultural use based on certain physical features and location;
- are of a size or composition to be

economically viable for agricultural purposes now and in the foreseeable future (MDAR 2012).

The APR program therefore may exclude some land in Franklin County that is still agriculturally valuable. These may include small farms that do not produce commercially, old farms with valuable agricultural land and buildings that are not currently in production, or farms that have land that could be productive for less intensive agricultural production but that is not currently used as such.

Based on geospatial analysis of data of permanently protected farmland (MassGIS 2012), 20 percent of the permanently protected farmland in the county is protected under conservation restrictions. Conservation restrictions, granted by the Massachusetts Department of Conservation and Recreation, can be used to protect some of the farmland that is not eligible for an APR. Although conservation restrictions are used to protect the ecological assets of land for their open space, recreational, or wildlife habitat value, they can be written in such a way that agricultural uses of the land are protected, even after a property is sold to a residential or non-farming owner (Wright 2000).

“The Open Space conservation restriction is the best CR for agricultural land which may be

abandoned or is not currently in production,” states Rich Chandler, Northwestern Massachusetts field representative of the state’s APR program. “When it is managed for successional habitat, it could also support some agricultural practices.”

Conservation restrictions do have limitations when used for farmland protection. Land under a conservation restriction must meet stringent guidelines for conservation. This may constrain the activities of farmers who need greater flexibility in how their land is used, but it can support farms with large acreages in which a significant portion of the land is not required for intensive cultivation (Chandler 2012). Additionally, because the qualifying requirements of conservation restrictions are not based upon current agricultural use, CRs may be important tools for protecting potential farmland—land that is currently not farmed but is agriculturally valuable.

APRs and most CRs are permanent and legally binding protections for individual farms. Their application is dependent upon the willingness of individual farmers, landowners, and town officials to utilize them. Beliefs about how these programs work—or don’t work—can limit an individual’s willingness to pursue these protections. One misconception is that the tax breaks intended to benefit farmers are not as great as the economic value of retaining development rights (Wright 2000). Additionally, communities may not feel the need to protect farmland, believing enough land is protected already and that additional protection efforts would be too costly. Individual farmers may not pursue such protections—even if they are strongly opposed to the non-agricultural development of their farm or land—if they anticipate future need for the funds that could come from sale of their farm, if there is no plan

for continued agricultural use, or for a successor farmer to take over the land after retirement (Chandler 2012).

While use of permanent protections through APRs and CRs may be encouraged for the protection of individual farms, other strategies are available at the town and regional levels to protect a diversity of Franklin County’s agriculturally valuable lands with differing types and levels of production and economic value.

LAND USE PLANNING TOOLS

The Franklin Regional Council of Governments may encourage towns to pro-actively protect farms and potential farmland with the following zoning tools:

- Transfer of Development Rights (TDR) programs can be used by local governments to strategically encourage higher density development in areas that do not conflict with or negatively affect rural or other areas, including areas of current or potential farmland. TDR involves the sale of development rights of properties in low-density areas targeted for conservation protection to purchasers who can use these rights to develop properties in areas where higher density development is preferred (Hanly-Forde et al 2012). At a local level, TDR can be used for protection of farms and properties with agriculturally valuable land, offering the flexibility to protect farmland based on the needs of the local community.
- Rural or Agricultural Protection Zoning, which designates a minimum lot size in agricultural areas and limits subdivision of residential properties to maintain large property areas which can sustain farming operations (American Farmland Trust 2012b).
- Natural Resource Protection Zoning, which

SECTION TWO: FARMLAND PROTECTION

clusters development away from natural resource areas in rural and low-density areas (Lacy, Richie and Russell 2010).

- High Density or Cluster Zoning in town centers, which encourage subdivision of existing properties to include more commercial or residential units within one area (Esseks, Oberholtzer, Clancy & Zurbrugg 2009).
- Agricultural Overlay Districts, which can restrict minimum lot sizes, types of land use, and the number of residential units on each lot. Agricultural overlay zones augment existing zoning regulations, and are not restricted by existing zoning districts. They can be drawn to include areas across multiple zoning districts. They can be drawn based on the location of productive agriculturally suitable soils or contiguous areas of active farms (Center for Land Use Education 2012; American Farmland Trust 2012a).
- Refusal of Utility Service Extension to discourage development in agricultural areas (Esseks et al, 2009).

OTHER TOOLS FOR PROTECTION

The following tools can also be used to protect farmland, and additionally may support the economic vitality or production ability of farms.

- The Community Preservation Act allows Massachusetts communities to create a local fund through a 3 percent tax levy on property, which can be used to protect open spaces and historical sites, including farmland, and create affordable housing and recreation facilities (Community Preservation Coalition 2012).
- The Scenic Byway Protection Act recognizes certain roads for their historic, natural, or scenic qualities and can be used to encourage protection of farmland along their corridors (USDOT 2012). Many farms

located on hillsides in the western portion of Franklin County are located along Routes 112 and 116. Views of pasture and other farmland may have aesthetic value for residents and also may draw tourists to the area. Two scenic byways already exist in Franklin County, the Mohawk Trail Scenic Byway and the Route 116 Scenic Byway.

- One potential opportunity is to use the Scenic Byway Protection Act to help create an agritourism corridor that could promote the scenic recreational value of farmland in western Franklin County and help market locally produced foods to visitors (Rhode Island Agricultural Partnership 2011).
- The Farm Viability Act, which offers the level of legal protection granted by an APR for five to ten years to support the lease of farmland to farmers and prevent the sale of farmland to development (MDAR 2012).

All of Franklin County's current farmland and some of its potential farmland would be needed to achieve local food self-sufficiency, based on the foodshed assessment model used by this study. In addition, a diversity of farmland would be needed to meet the county's nutritional needs, including cropland, pasture, and orchards. Permanent protection of the farmland needed may not be achievable through the use of APRs and CRs alone, and additional tools and strategies are needed to provide the flexibility to protect farmland on a diversity of land and soil types. Other strategies will also be needed to provide the additional economic, financial, and cultural supports to help Franklin County's farms to remain economically and culturally viable.





SECTION THREE
RECOMMENDATIONS FOR
FURTHER STUDY

RECOMMENDATIONS OF FURTHER STUDY

This report has been the initial step in what is intended to be a more extensive study of comprehensive regional food systems of Franklin County. Recommendations for further study that are informed by the findings of this report include the following.

LOCATION OF POTENTIAL FARMLAND

All of the potential farmland identified by this study is forested. Development of additional farmland would require clearing of some forest to permit cultivation. As discussed in this report, forested areas that were extensively cleared for farming in the past are often less bio-diverse than older forests that have not been significantly altered (Bellemare, Motzkin & Foster 2002). This suggests that agricultural development of previously farmed forests may have fewer negative impacts on the environmental resources of Franklin County's forest than the impacts that may result from clearing of other forests for cultivation. Forests with agriculturally suitable soils that were cleared for farming in the past have demonstrated some capacity for production and may be located adjacent to areas of current agriculture.

One strategy to identify potential farmland which previously was in agricultural use is to overlay the map of potential areas for additional farmland developed by this report with maps of historic land use. The *Forest Change and Human Populations in New England Data Layer* developed by Harvard University's Harvard Forest (Harvard University 2006) identifies changes in forest cover across New England from 1650 to 2006, indicating the locations of past farmland in forests which had been extensively cleared in the past but which are forested today.

AVAILABILITY FOR AGRICULTURAL USE

Once the locations of previously cultivated potential farmland are identified, studies can focus on determining the likelihood or possibility that these reforested areas may again be useful for future food production.

Owners of farms located near or adjacent to these areas could be interviewed to assess their desire to expand their farmland for increased local food production.

Owners of these potential farmlands could be interviewed to assess their willingness to lease their land to neighboring farms. Additionally, interviews of these landowners could identify their level of willingness to consider temporary or permanent protection of their property to protect the agriculturally-valuable resources of their property into the future. If landowners express willingness to either lease their property for agricultural use, or to transfer or sell development rights of their land, programs may be developed to coordinate these efforts and to connect current and future farmers with potential farmland on privately-owned land.

Towns with public land that previously has been farmed could identify methods to protect these agriculturally suitable areas, and to lease these acres to current farmers wishing to expand their production or to new farmers seeking affordable farmland.

Areas of previously cultivated potential farmland could be assessed for their food production capacity, which can inform the type of agricultural practices that may be most suitable to the conditions of these sites.

SECTION THREE: FURTHER STUDY

FEASIBILITY OF INCREASING LOCAL FOOD PRODUCTION

Further assessment is needed to determine whether the level of potential food production measured by this study may be possible.

This study's calculations are based in part on the assumption that the agricultural practices of rotational and multi-species grazing and increased reliance on hay and forage grasses to feed livestock can increase the amount of meat and dairy produced on Franklin County's farmland.

Assessment of dairy and livestock farmers' willingness and ability to adopt these agricultural practices is needed to determine whether the foodshed analysis used for this report reflects agricultural practices that can increase dairy and livestock production. While recognizing that future conditions may influence farmers' willingness or need to increase their level of production, these baseline measures can inform further foodshed planning. If it is found that many farmers are either unable or unwilling to adopt such practices, an alternative model could be used to determine the food production capacity of Franklin County's farmland.

Additionally, this study identified that most of Franklin County's farmland does not produce food for local sale that can be used to meet the nutritional needs of the county's population, but instead produces food that is sold for regional or national export. Assessment of the incentives and disincentives for farmers to increase vegetable, fruit, and grain production for local sale is also needed.

ADDITIONAL STUDIES

Possible next steps in developing a comprehensive regional food system:

- Quantitative analysis of land use characteristics across the county.
- Quantitative analysis of the current level of land production, and estimation of the full capacity for production.
- Qualitative analysis to estimate consumption rates of county residents. One consideration of such an analysis may be to determine how current or future consumption rates may differ from the assumed diet used by this study. This study calculated the amount of farmland needed to feed Franklin County's projected population in 2035 under the assumption that residents will consume less meat (approximately one-third of the amount that is consumed by the average individual in the U.S.). If Franklin County residents consume more meat than the amount accounted for by this study, Franklin County could require more farmland than that calculated in this study to meet the nutritional needs of its future population.
- Qualitative analysis of the food access concerns of low and moderate income residents, through stakeholder focus groups, survey, and interviews.
- Food economy assessment including: demographic and economic data, and identification of current or potential business locations
- Inventory of existing infrastructure and assessment of the needs of further infrastructure into the future.

One resource for Franklin County's ongoing food systems planning which was noted during the development of this report may be the establishment of a regional foods coordinator.

SUMMARY



Franklin County does not currently have enough farmland to meet the nutritional needs of its population. Both cropland and pasture acreage would need to be expanded. Alternatively, Franklin County could pursue a more place-based model of increased local food production, one that requires less farmland expansion yet still substantially increases food security. Vital to this model is the protection of current farmland, in particular the protection of pasture, and the transition of farmers towards selling locally. Additional pasture acreage would still be needed. In this scenario, Franklin County could have greater access to fresh and healthy food without impacting the county's existing forests and natural resources.

Protection of farmland and implementation of programs to support the economic vitality and productivity of Franklin County's farmland move Franklin County towards its goal of increased local food production. The diversity of farmland needed to grow the foods to meet Franklin County's nutritional needs requires the use of diverse and complementary strategies.

APPENDIX A: FOODSHED ANALYSIS

FOODSHED CALCULATIONS

The foodshed analysis employed by this report—the New England Food Vision—determines the acreage of New England farmland required to meet *most* of the nutritional needs of New England’s population. Acreage amounts are calculated based upon three main assumptions: a diet based upon USDA dietary recommendations, the practice of sustainable agriculture, and a New England population of 17,000,000 people by the year 2060.

The table on page 62 shows the acreage of farmland needed to meet the nutritional needs of New England. The total acreage is broken down into the amounts needed for each food type and grouped into three main categories: cropland, pasture, and orchard.

Column One shows *baseline* acreage amounts for how much farmland is required to meet *all* of New England’s nutritional needs—this includes acreage amounts for food types that would be imported into New England (i.e. rice, tropical fruits, sugar). These amounts were calculated by the New England Good Food Vision and, when possible, were based upon the approximate caloric yields of New England farmland (how much of each type of food can be produced by an average acre of regional farmland, converted from pounds to calories).

Column Two shows the acreage amounts that New England would need to achieve complete self-sufficiency—if no food were imported into New England. These amounts have been extrapolated from the calculations of the New England Food Vision. To do this extrapolation, the calories provided by imported foods are instead provided by foods that would be grown within New England. Because the approximate caloric yields for foods grown within New England are based upon New England growing conditions, this does not always imply a direct transfer of acreage. The calories previously provided by rice are here provided by oats (this is not a 1:1 ratio of oat acres to rice acres). The calories previously provided by tropical fruits are provided by temperate fruits. The calories

previously provided by imported sugars could be provided by maple syrup or honey; however, the acreage needed to produce maple syrup and honey are not included in the calculations of farmland acreage.

Column Three is the “Vision” proposed by the New England Food Vision. This vision proposes that New England supplies most of its nutritional needs, but not all. Rice, tropical fruits, and sugar would still be imported. In addition, 60 percent of wheat, 60 percent of grains for oils and beer, and 60 percent of supplemental feed grains for livestock would be imported.

The proposed vision does not advocate for even greater agricultural production because it recognizes the “parallel social and environmental benefits of maintaining a mostly forested landscape” (Donahue 2012a). The New England Good Food Vision uses the framework of the Harvard Forest *Wildlands and Woodlands* (2010) proposal, which calls for at least 70 percent of New England to be conserved in permanent forest (75-80 percent of Northern New England and 50 percent of Southern New England).

The proposed vision is also informed by New England’s agricultural history—New England began importing grains from the Midwest in the late 1800s. During the same time period, New England reached the height of its agricultural production. The vision recognizes that grains are relatively easy to store and transport and proposes that New England soils would be put to best use by growing only a limited amount of them.

In addition, the vision accounts for people’s possible reluctance to completely switch to an all-local diet by proposing that New England continue to import rice, tropical fruits, and sugar.

In the table on page 63, these New England-based calculations are adapted to the population of Franklin County.

ACRES OF FRANKLIN COUNTY

ACRES OF NEW ENGLAND FARMLAND

This table shows the acres needed for New England to achieve the varying degrees of self-sufficiency described on page 61, for its 2060 projected population of 17,000,000 residents.

New England

		1. ALL ACRES NEEDED		2. SELF-SUFFICIENCY		3. SELF-RELIANCE	
		Grown In New England	Grown Outside of New England	Grown In New England	Grown Outside of New England	Grown In New England	Grown Outside of New England
CROPLAND							
Vegetables	Green & Leafy Veggies	35,000		35,000		35,000	
	Orange & Red Veggies	147,000		147,000		147,000	
	Starchy Veggies	198,000		198,000		198,000	
	Other Veggies	120,000		120,000		120,000	
	Dry Beans, Soybeans, & Peas	303,000		303,000		303,000	
	Total	803,000		803,000		803,000	
Field Fruits	Temperate Fruits	91,000		182,000		91,000	
	Tropical Fruits		91,000				91,000
	Total	91,000		182,000		91,000	
Grains for Human Consumption	Wheat	784,000		784,000		313,600	470,400
	Corn	87,000		87,000		87,000	
	Rice		58,000				58,000
	Oats	47,000		172,124		47,000	
	Grain for Bear	247,000		247,000		98,800	148,200
	Grain for Veg Oil	655,000		655,000		262,000	393,000
	Total	1,820,000		1,945,124		808,400	
Animal Feed	Supp. Feed Grain	1,637,000		1,637,000		1,637,000	
	Hay for Dairy Cows	600,000		600,000		600,000	
	Hay for Beef Cows	600,000		600,000		600,000	
	Hay for Sheep & Goats	120,000		120,000		120,000	
	Total	2,957,000		2,957,000		2,957,000	
PASTURE							
Animal Pasture	Dairy Cows	1,760,000		1,760,000		1,760,000	
	Beef Cows	1,600,000		1,600,000		1,600,000	
	Sheep & Goats	240,000		240,000		240,000	
	Other Livestock						
	Total	3,600,000		3,600,000		3,600,000	
ORCHARD							
Orchard	Temperate Fruits	265,000		530,000		265,000	
	Tropical Fruits		265,000				265,000
	Total	265,000		530,000		265,000	
TOTAL FARMLAND REQUIRED:		1. ALL ACRES NEEDED		2. SELF-SUFFICIENCY		3. SELF-RELIANCE	
Cropland		5,671,000		5,887,124		3,677,200	
Pasture		3,600,000		3,600,000		3,600,000	
Orchard		265,000		530,000		265,000	
Total		9,536,000		10,017,124		7,542,200	

FARMLAND

This table shows the acres needed for Franklin County to achieve the varying degrees of self-sufficiency described on page 61, for its 2035 projected population of 77,000 residents. To create this table, each acreage amount in the New England table (to the left) was multiplied by .0045 (i.e., 77,000 / 17,000,000).

Franklin County

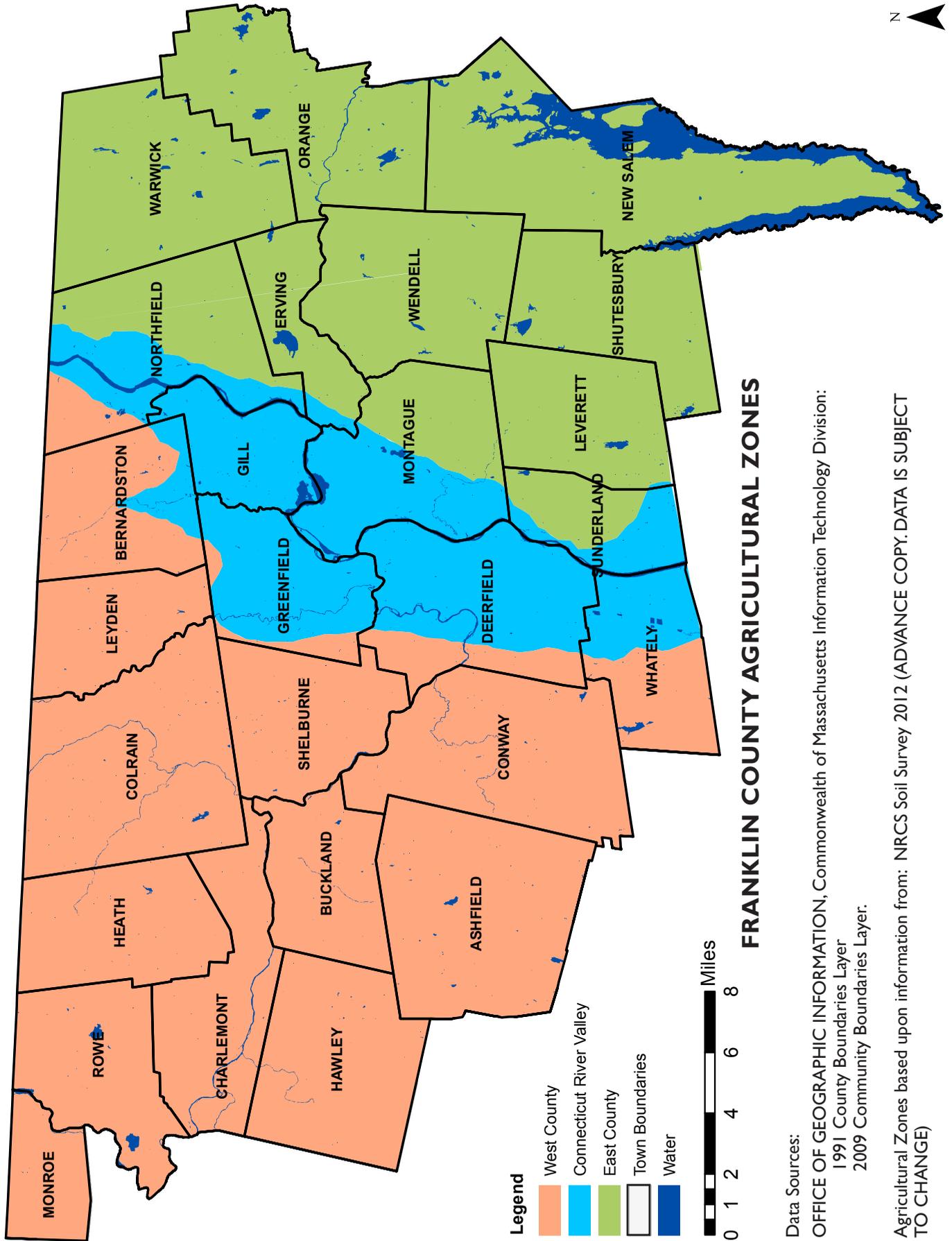
1. ALL ACRES NEEDED		2. SELF-SUFFICIENCY		3. SELF-RELIANCE	
Grown In Franklin Co.	Grown Outside of Franklin Co.	Grown In Franklin Co.	Grown Outside of Franklin Co.	Grown In Franklin Co.	Grown Outside of Franklin Co.

CROPLAND

Vegetables	Green & Leafy Veggies	158		158		158	
	Orange & Red Veggies	662		662		662	
	Starchy Veggies	891		891		891	
	Other Veggies	540		540		540	
	Dry Beans, Soybeans, & Peas	1,364		1,364		1,364	
	Total	3,814		3,814		3,814	
Field Fruits	Temperate Fruits	410		820		410	
	Tropical Fruits		410				410
	Total	410		820		410	
Grains for Human Consumption	Wheat	3,528		3,528		1,411	2,117
	Corn	392		392		392	
	Rice		261				261
	Oats	212		775		212	
	Grain for Bear	1,112		1,112		445	667
	Grain for Veg Oil	2,948		2,948		1,179	1,769
	Total	8,192		8,753		3,638	
Animal Feed	Supp. Feed Grain	7,367		7,367		2,947	4,420
	Hay for Dairy Cows	2,700		2,700		2,700	
	Hay for Beef Cows	2,700		2,700		2,700	
	Hay for Sheep & Goats	540		540		540	
	Total	13,307		13,307		8,887	
PASTURE							
Animal Pasture	Dairy Cows	7,920		7,920		7,920	
	Beef Cows	7,200		7,200		7,200	
	Sheep & Goats	1,080		1,080		1,080	
	Other Livestock						
	Total	16,200		16,200		16,200	
ORCHARD							
Orchard	Temperate Fruits	1,193		2,385		1,193	
	Tropical Fruits		1,193				1,193
	Total	1,193		2,385		1,193	
TOTAL FARMLAND REQUIRED:		1. ALL ACRES NEEDED		2. SELF-SUFFICIENCY		3. SELF-RELIANCE	
Cropland		21,992		26,492		16,547	
Pasture		16,200		16,200		16,200	
Orchard		1,193		2,385		1,193	
Total		39,385		45,077		33,940	

APPENDIX B: MAPS OF LAND USE AND NATURAL RESOURCES:

Agricultural Zones	p. 65
All Agriculturally Suitable Soils	p. 66-67
Protected Farmland	p. 68
Development.....	p. 69
Forest Cover	p. 70
Protected Forests	p. 71
Forest Prioritized for Conservation	p. 72
Agricultural Soils for Possible Farmland	p. 73
Permanently Protected Farmland.....	p. 74



Data Sources:
 OFFICE OF GEOGRAPHIC INFORMATION, Commonwealth of Massachusetts Information Technology Division:
 1991 County Boundaries Layer
 2009 Community Boundaries Layer.

Agricultural Zones based upon information from: NRCS Soil Survey 2012 (ADVANCE COPY. DATA IS SUBJECT TO CHANGE)

AGRICULTURAL SOIL CLASSIFICATION

This report used the following steps to classify Franklin County's agriculturally suitable soils (see map page 67).

1) NRCS Soil Capability Classes

NRCS identifies the agricultural soil capabilities of all soils, rating them by their capacity to produce cultivated crops over time without deteriorating. There are eight soil capability soil classes identified by NRCS (NRCS 2012b), which are listed and defined below.

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or require very careful management, or both.

Class 5 soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

Class 6 soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

Class 7 soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.

Class 8 soils have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for esthetic purposes.

2) Agriculturally suitable soils were identified.

All soils of capability Classes 1 through 6 were included in this report. The Conway team excluded capability Classes 7 and 8 soils due to their limitations for agriculture.

3) Geospatial soil data was gathered from the NRCS's preliminary copy of their 2012 Franklin County Soil Survey.

An updated Soil Survey of Franklin County is currently under development by NRCS; the geospatial data of this survey is only available in draft form. The geospatial data show soil mapping units throughout the county. These geospatial soil units were joined with a table from the NRCS that lists the capability class status of soil units throughout Massachusetts. This table also lists which soil units are considered by the NRCS as prime farmland soils.

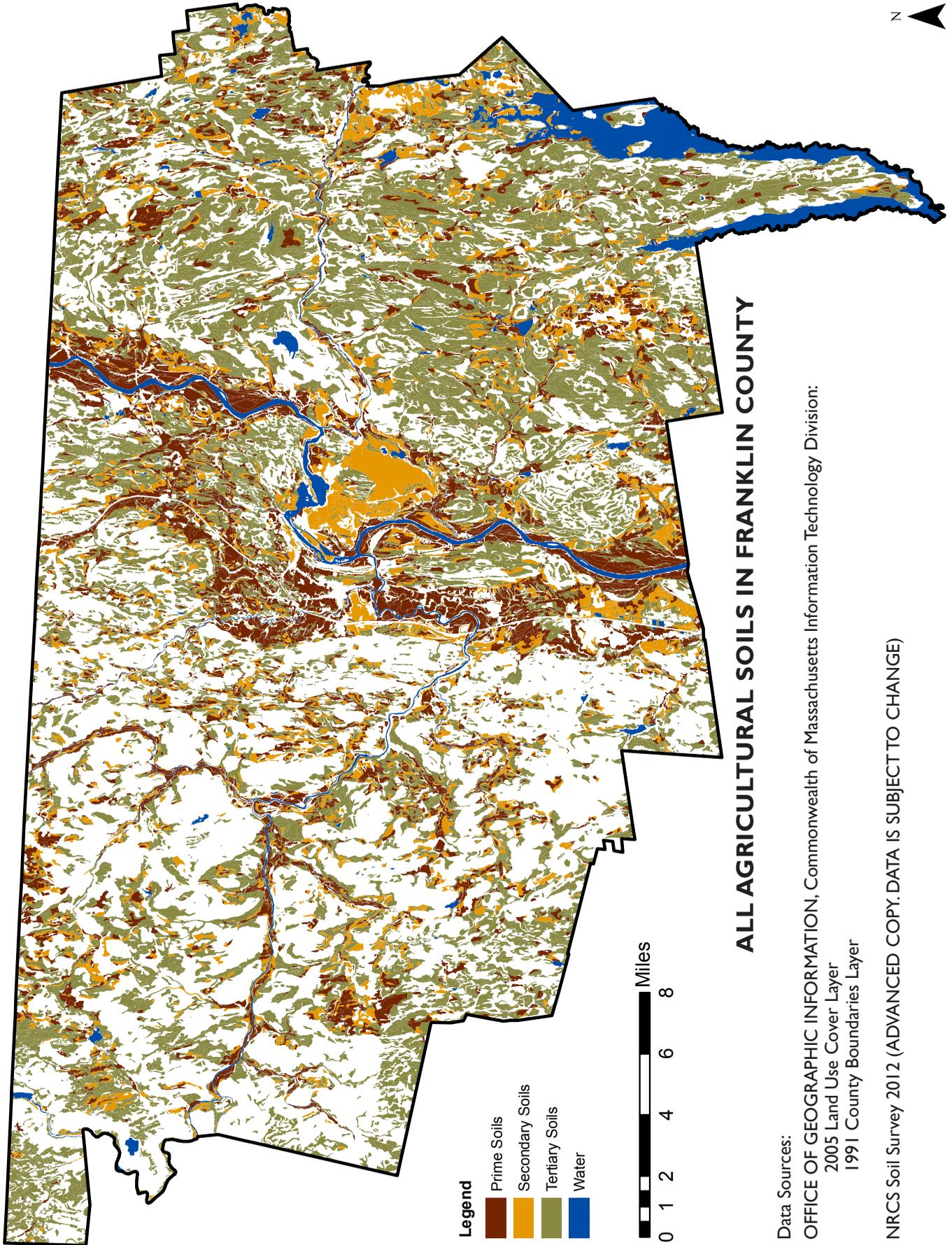
4) Soils with similar capability classes were grouped into three main categories.

All agriculturally suitable soils identified in this report were then grouped into three categories based upon their capability class descriptions. These categories are Prime, Secondary, and Tertiary Soils.

- **Prime Soils:** In this report, all soil units identified as prime farmland soils by the NRCS are identified as Prime Soils. Prime Soils include all soil units with capability Class 1 and include the majority of soil units with capability Class 2.

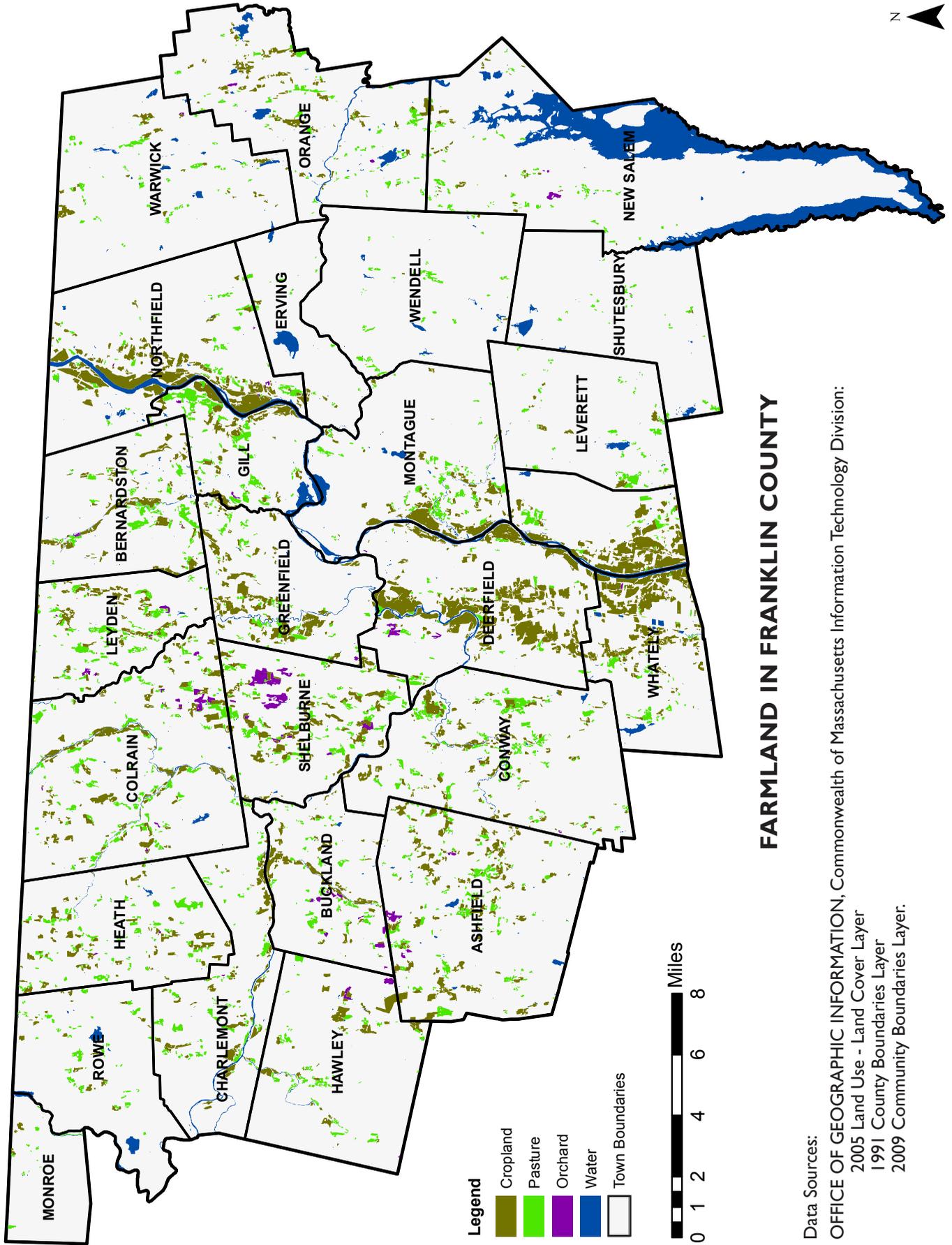
The Secondary Soil and Tertiary Soil categories were identified specifically for this report.

- **Secondary Soils:** Secondary Soils are all soil units with capability Class 2 not identified by the NRCS as prime farmland soils, and all soil units with capability Class 3. These capability classes are grouped together due to their ability to support crop cultivation, even though soil units with capability Class 3 have a reduced ability to support all crops.
- **Tertiary Soils:** Tertiary Soils are all soil units with capability Classes 4, 5, and 6. These soils are grouped together due to their severely limited ability or inability to support crop cultivation, and due to their suitability for grazing.



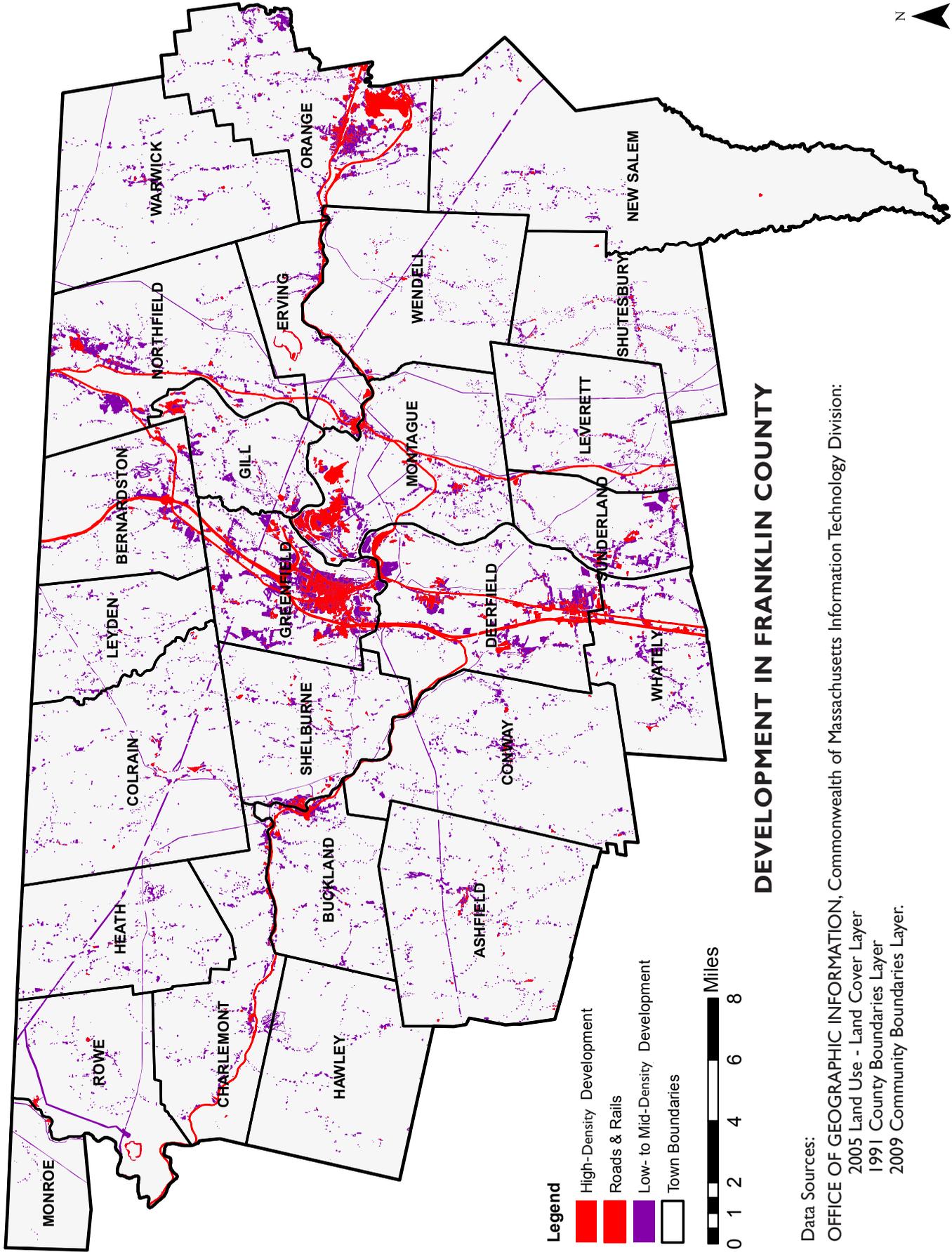
Data Sources:
 OFFICE OF GEOGRAPHIC INFORMATION, Commonwealth of Massachusetts Information Technology Division:
 2005 Land Use Cover Layer
 1991 County Boundaries Layer

NRCS Soil Survey 2012 (ADVANCED COPY. DATA IS SUBJECT TO CHANGE)



FARMLAND IN FRANKLIN COUNTY

Data Sources:
 OFFICE OF GEOGRAPHIC INFORMATION, Commonwealth of Massachusetts Information Technology Division:
 2005 Land Use - Land Cover Layer
 1991 County Boundaries Layer
 2009 Community Boundaries Layer.



DEVELOPMENT IN FRANKLIN COUNTY

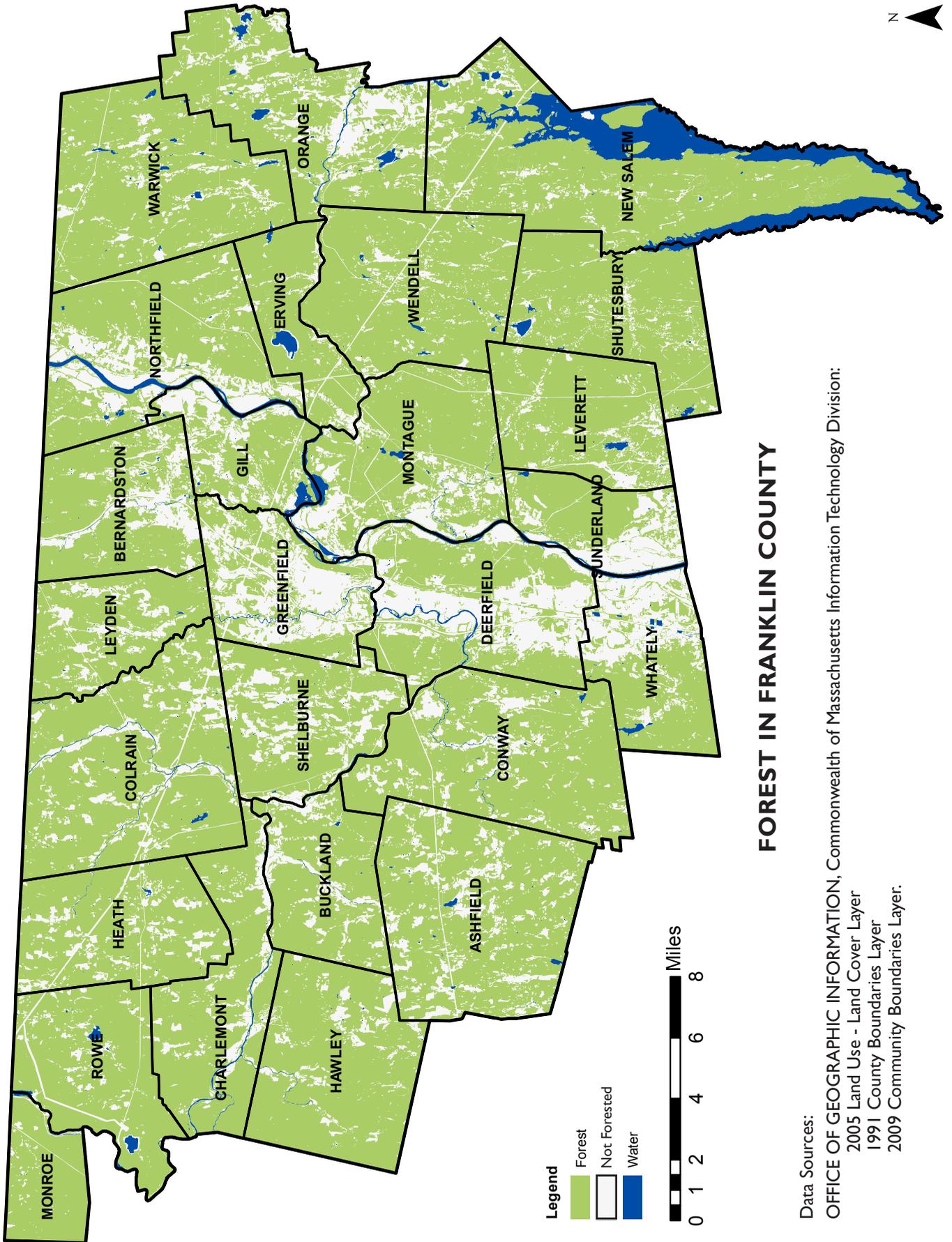
Data Sources:

OFFICE OF GEOGRAPHIC INFORMATION, Commonwealth of Massachusetts Information Technology Division:

2005 Land Use - Land Cover Layer

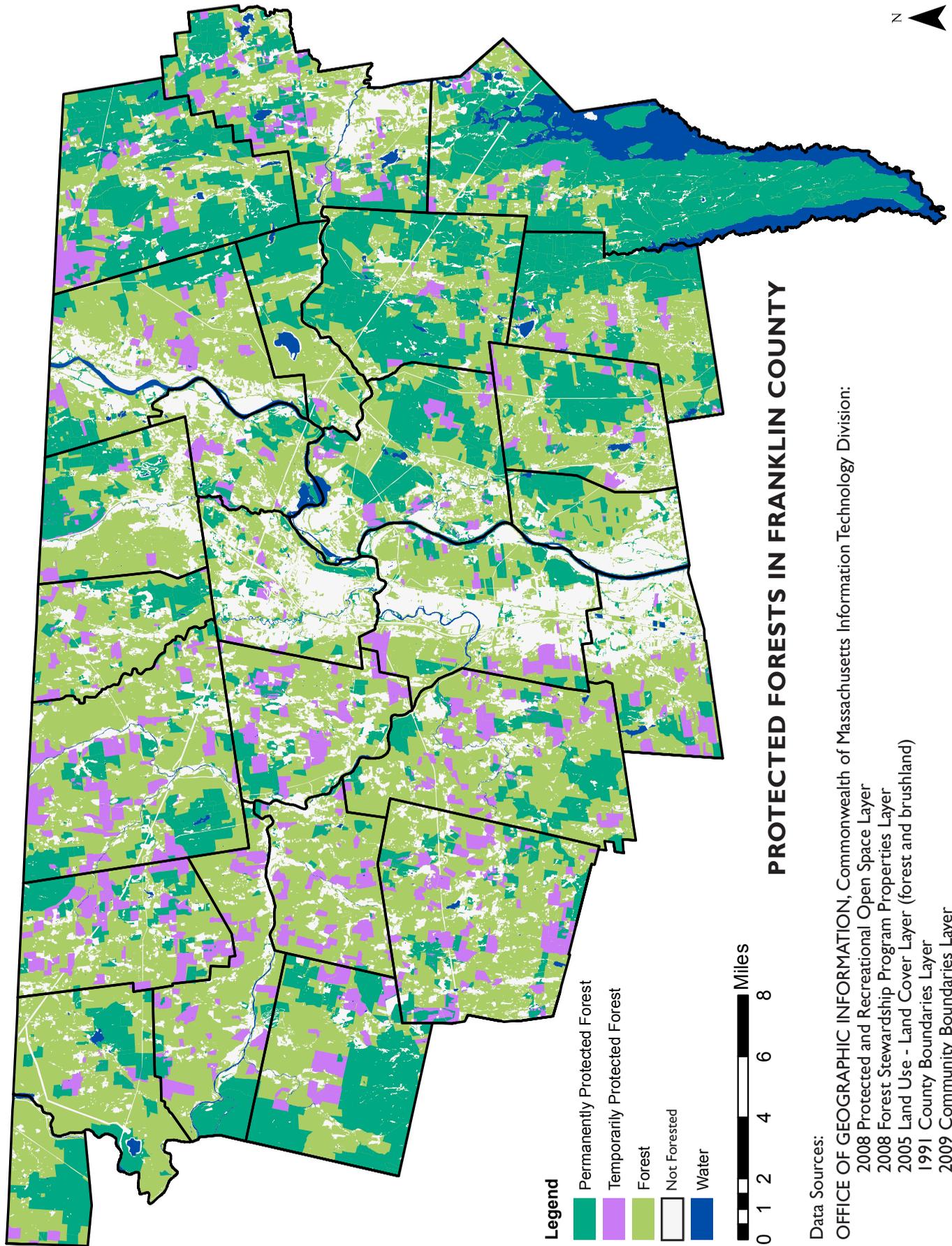
1991 County Boundaries Layer

2009 Community Boundaries Layer.



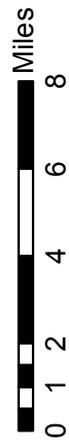
FOREST IN FRANKLIN COUNTY

Data Sources:
 OFFICE OF GEOGRAPHIC INFORMATION, Commonwealth of Massachusetts Information Technology Division:
 2005 Land Use - Land Cover Layer
 1991 County Boundaries Layer
 2009 Community Boundaries Layer.



Legend

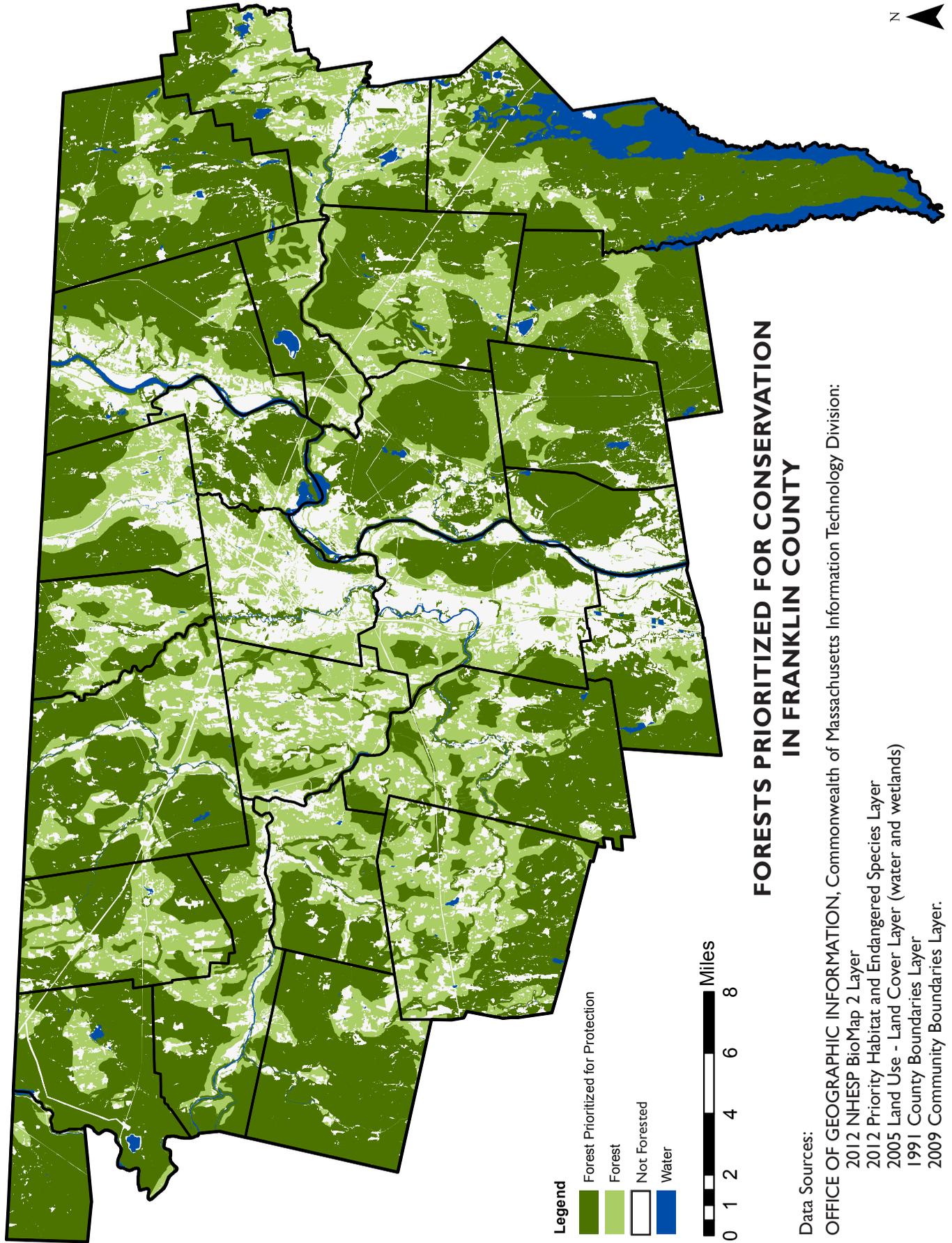
- Permanently Protected Forest
- Temporarily Protected Forest
- Forest
- Not Forested
- Water

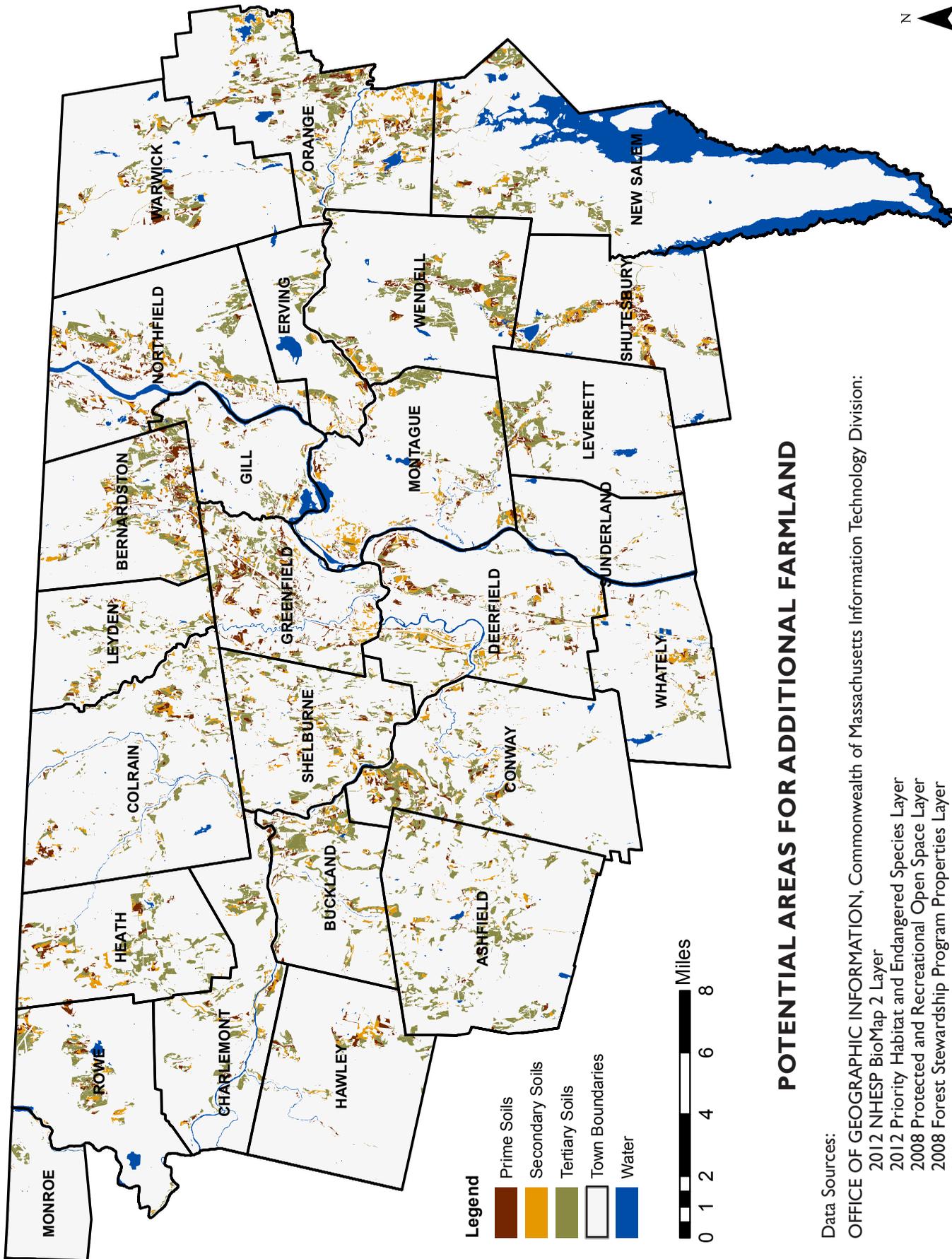


PROTECTED FORESTS IN FRANKLIN COUNTY

Data Sources:

- OFFICE OF GEOGRAPHIC INFORMATION, Commonwealth of Massachusetts Information Technology Division:
- 2008 Protected and Recreational Open Space Layer
- 2008 Forest Stewardship Program Properties Layer
- 2005 Land Use - Land Cover Layer (forest and brushland)
- 1991 County Boundaries Layer
- 2009 Community Boundaries Layer



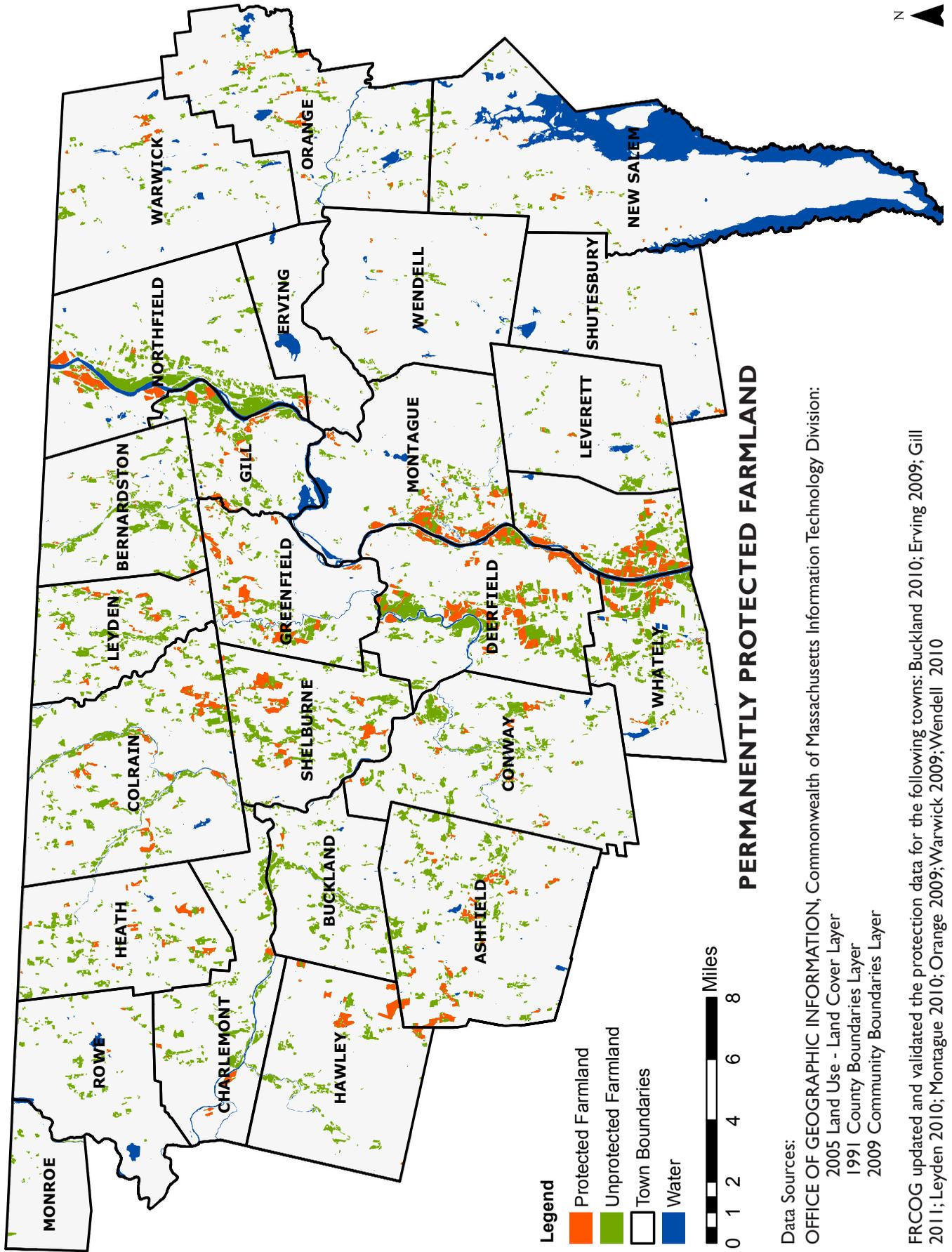


POTENTIAL AREAS FOR ADDITIONAL FARMLAND

Data Sources:

- OFFICE OF GEOGRAPHIC INFORMATION; Commonwealth of Massachusetts Information Technology Division:
- 2012 NHESP BioMap 2 Layer
- 2012 Priority Habitat and Endangered Species Layer
- 2008 Protected and Recreational Open Space Layer
- 2008 Forest Stewardship Program Properties Layer
- 2005 Land Use - Land Cover Layer
- 1991 County Boundaries Layer
- 2009 Community Boundaries Layer

NRCS Soil Survey 2012 (ADVANCED COPY. DATA IS SUBJECT TO CHANGE.)



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