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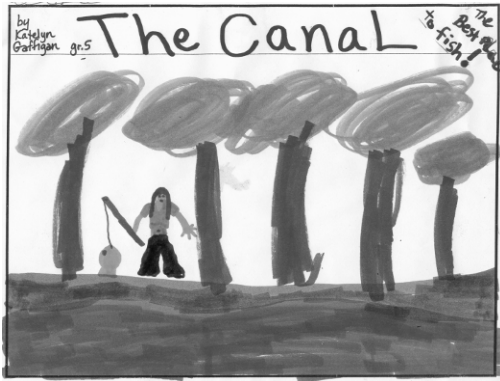
## SECTION 3

*“The very lay of the land early made of us a community” (Pressey, 1910)*

### **COMMUNITY SETTING**

The Town of Montague contains both rural and urban landscapes that have been established, developed and affected by its human inhabitants over the past several hundred years. Planning for open space in Montague must account for the complex relationships between people and the open spaces and natural resources upon which they

depend. Continued growth without consideration of its impact on natural systems will reduce the quality of life for future generations.



This section provides an inventory and assessment of land uses and landscapes in Montague, moving from the present, to the past, and to the future based on current development trends. *Regional Context* gives a snapshot of Montague today, and identifies the ways in which the location of the Town within the region has affected its growth and the quality of open space and recreational

resources. *History of the Community* looks back at how early residents settled and developed the landscape. *Population Characteristics* explores who the people of Montague are today and how population and economic trends may affect the Town in the future. Finally, *Growth and Development Patterns* describes how the Town of Montague has developed over time and the potential impacts of current land use regulations on open space, drinking water supplies and municipal services.

#### **A. REGIONAL CONTEXT**

The Town of Montague is located in western Massachusetts, in central Franklin County. Montague is bordered by the Millers River and the towns of Gill and Erving on the north and northeast, Wendell on the east, and the towns of Leverett and Sunderland to the south. The Connecticut River and the towns of Deerfield and Greenfield form Montague’s western boundary.

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## A.1 Natural Resources Context

In 2001, the Massachusetts Executive Office of Environmental Affairs created a “biomap” to guide land conservation for biodiversity in the state. As an element of the project, researchers divided the state into thirteen “ecoregions,” with distinct topography, geology, soils, plants and animals. Montague falls into two ecoregions. The western section of town is part of the Connecticut River Valley, which is distinguished from its surrounding uplands by milder climate, relatively rich floodplain soils, and level terrain with some higher outcropping ridges. The remainder of Montague falls within the Worcester-Monadnock Plateau, which includes the most hilly areas of central Massachusetts. The higher elevations and geology in this region result in generally cool and acidic soils and vegetation typical of northern New England (Massachusetts NHESP Biomap, 2001).

On a local level, residents may want to consider two perspectives from which to view the importance of “landscape-level” resources important in both the Town and the region: large blocks of contiguous forest and watersheds.

### A.1.1 Large Blocks of Contiguous Forest

Forests constitute one of the most important natural resources in Montague and the region. Significant blocks of forest in Montague and surrounding communities are permanently protected from development. The Massachusetts Department of Conservation and Recreation (DCR) owns and manages approximately 672 acres of forest in Montague, including several parcels in eastern Montague along the town’s border with Wendell, as well as land on the Montague Plains and abutting the Connecticut River. The Massachusetts Department of Fish and Game (DFG) owns and manages the Montague Plains Wildlife Management Area (WMA) located in the geographic center of Montague. It was purchased by DFG in 1999 and consists of 1,490 acres. The Montague Plains WMA is the largest inland Pitch Pine-Scrub Oak community in southern New England. Such communities are uncommon and are characterized by sandy, acidic soil and open scrubland vegetation (NHESP Biomap, 2001). DFG also owns and manages the Montague Wildlife Management Area, comprised of approximately 1,714 acres located in the southeastern section of Montague east of Route 63 near the Town’s border with Leverett and Wendell.

*Significant blocks of forest in Montague and surrounding communities are permanently protected from development.*

These blocks of permanently protected and contiguous forest in eastern Montague abut equally significant tracts of protected forest in Wendell to the east and Mount Toby State Forest to the south in Sunderland. In addition to this land owned and protected by the Commonwealth of Massachusetts, thousands of acres of forest in Montague are privately owned and managed for forestry, wildlife and open space.



*Contiguous protected forest in Montague is part of the bridge, the connection of open space across the regional landscape.*

Montague's forests are part of a regional forested landscape that stretches from the Quabbin Watershed in the east, west to the Connecticut River and north into New Hampshire. Both the North Quabbin Watershed and the Connecticut River Greenway have statewide and regional importance. A significant portion of the land area in the Quabbin Watershed is comprised of vast tracts of permanently protected forest, and the Connecticut River Greenway is a very

important riparian habitat and a vital recreational resource. Contiguous protected forest in Montague is part of the bridge, the connection of open space across the regional landscape. The importance of Montague's forested land will be addressed in greater depth in Section 4.

#### A.1.2 Watersheds

Watersheds are areas defined by natural boundaries of land that drain to a single point along a stream or river. Sub-watersheds contain first and second order stream tributaries. A first-order stream flows from a single source; a second order stream starts at the point where two first-order streams meet. These small streams are the most extensive component of any watershed. They are also the most sensitive to land use, both the negative impacts of runoff and the positive effects of forest cover. Two of the most important reasons to protect forests are preserving the long-term integrity of wildlife habitat and maintaining the quality of surface and ground waters. Montague is contained within the watersheds of the Connecticut River and the Millers River.

The Millers River watershed is located in north central Massachusetts and southwestern New Hampshire, and includes the northeast section of Montague. This watershed is bordered on the east by the Nashua River watershed, on the west by the Connecticut River watershed, and on the south by the Chicopee River watershed. From its origin in New Hampshire, the Millers River flows south, then gradually west into the Connecticut River. The Millers River drains a regional landscape that is 392 square miles in size, 320 of which are in Massachusetts (Massachusetts Department of Environmental Protection, 1995). The total river length is fifty-one (51) miles, forty-four (44) of which are in Massachusetts. Although the Millers River fluctuates between sluggish and rapid flows there is an average drop of twenty-two (22) feet per mile. This feature made the Millers and its main tributaries a magnet for manufacturing and hydroelectric power generation, which provided the impetus for the initiation of industrial activities in the late 1700s.



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Many town centers between Erving and Winchendon are located along the Millers River or on one of its main tributaries. Industry, dense residential development and the use of the river for wastewater disposal all produced serious pollution in the past. Many of the point sources of pollution (i.e., discharges that can be traced to a single point) have been regulated over the last several decades. As a result, the Millers River is much cleaner today than in the past, although some serious problems remain. Water quality in the Millers and Connecticut Rivers will be discussed at greater length in Section 4.

The Connecticut River Watershed is the largest river ecosystem in New England. It travels from its headwaters at Fourth Connecticut Lake at the Canadian border through four New England states: Vermont, New Hampshire, Massachusetts, and Connecticut, encompassing approximately 11,000 square miles. The river enters Massachusetts through the Town of Northfield and drains all or part of forty-five municipalities before entering the State of Connecticut, where it eventually empties into Long Island Sound at Old Saybrook. The watershed is 80 percent forested, 12 percent agricultural, 3 percent developed, and 5 percent wetlands and surface waters (U. S. Fish and Wildlife Service, 1995).

Forty years ago the Connecticut River was described as “the best landscaped sewer in the nation.” As a result of the Federal Clean Water Act and the investment of more than \$600 million in wastewater treatment, most of the Connecticut River is classified as swimmable and fishable (Class B) and in some areas drinkable (Class A). While the actual water quality in the river has not met these classifications, the improvement in quality over the past several decades is indisputable.

The Connecticut River Watershed was designated the “Silvio O. Conte National Fish and Wildlife Refuge” by an act of Congress in 1991. It was the first refuge of its kind, encompassing an entire watershed ecosystem. The Connecticut also received special attention in 1998 when it became one of only fourteen rivers in the U.S. designated as a National Heritage River. This designation may give watershed communities special access to federal programs to conserve, protect and enhance natural resources.

*Montague residents should participate in region-wide land use planning efforts to ensure protection of the resources we share with other communities.*

The degree of forest continuity, patterns of residential development and the quality of the water in both watersheds are beyond the control of any one community. The Town of Montague could promote the conservation of all its significant open space and natural resources, but if surrounding towns fail to protect land, plan growth or monitor and participate in the cleanup of brooks and rivers, Montague’s impact on the resources that disregard political boundaries (water, wildlife populations, scenic views, trails, etc.) will be less significant. Montague needs to take an active role in the conservation of regionally important natural resources, whether they occur in Town or not. At the same time, Montague residents should participate in region-

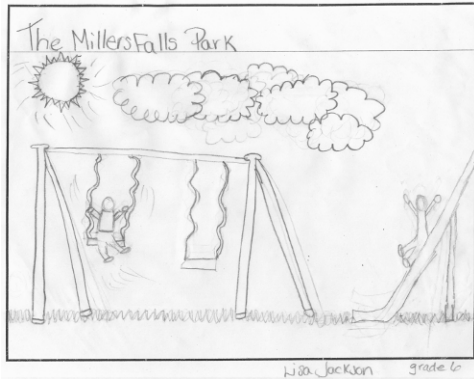


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wide land use planning efforts, to ensure protection of the resources we share with other communities.

## A.2 Socio-Economic Context

Montague is a regional employment center for surrounding towns. Water power, manufacturing and proximity to Interstate 91 and Route 2 all have had an influence on the development and growth of the Town of Montague and the region.



Like many communities along the major waterways in the region, Montague has experienced economic decline since its manufacturing heyday. As will be described in the next section, Montague's manufacturing centers developed due to the availability of water power from the Connecticut River and the presence of a vast forest resource. Then the railroad came to Montague, spurring further industrial growth in four of the five villages.

Manufacturing declined across the region during the latter half of the 20<sup>th</sup> Century.

The Town of Montague experienced slow population growth in the 1990s. While manufacturing grew during the 1990s and helped contribute to a lower unemployment rate, median household income in Montague was lower than in the county and state in 1999 (see Table 3-3). Additionally, 13.1 percent of individuals in Town were below the poverty level, compared to 9.3 percent for Franklin County (2000 U.S. Census of Population).

Although the 2000 Census may have underestimated the total population in Montague, the town has not been experiencing rapid growth in comparison to other communities in Franklin County and the Western Massachusetts region. According to the U.S. Census, the growth in population between 1970 and 2000 was only 38 persons, 0.4 percent.

Montague has an opportunity to protect natural, agricultural and recreational resources and open space in advance of future surges in development. Property values in Montague are relatively lower than in some surrounding communities, which may make the purchase of development rights in town comparatively attractive to state agencies. Montague residents should be aware, however, that

*Montague has an opportunity to protect natural, agricultural and recreational resources and open space in advance of future surges in development.*

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development pressure is building. The opportunity to purchase conservation land at affordable prices will not last forever.

### **A.3 Regional Strategies for the Protection of Open Space, Natural and Recreational Resources**

A variety of state and regional studies have been done which can help the Town of Montague further identify local recreation and land protection priorities. The Commonwealth has completed The Statewide Comprehensive Outdoor Recreation Plan (SCORP), *Massachusetts Outdoors 2006*, an update of the SCORP 2000, five-year plan. SCORP plans are developed by individual states to be eligible for federal Land and Water Conservation Fund (LWCF) grants and serve as a tool for states to use in planning for future needs and uses of outdoor resources for public recreation and relaxation. This plan notes the significance of forests and wildlife management areas as part of the protected land in the region, and specifically mentions the Montague Plains Wildlife Management Area as follows:

*Recent major additions to this inventory include the 1460 acre Montague Plains Wildlife Management Area, the Mt. Tully Wildlife Management Area in Orange, and 660 acre French King Gorge acquisitions in Erving, Gill, and Northfield.*

The SCORP also provides information about use of and demand for outdoor recreational resources in the Connecticut River Valley region that may be relevant to Montague's open space and recreational planning efforts. When assessing resource use in this region, the SCORP notes that rivers and streams, historic and cultural sites, lakes and ponds, forests, coastal beaches and shorelines, and mountains, all have 40% participation rates or greater. When reporting on satisfaction levels of users of resources in this region, residents report being most satisfied with historic and cultural sites, mountains, and trails and greenways resources. Somewhat lower than statewide levels of satisfaction were reported in this region for rivers and streams, and lakes and ponds. Rivers and streams were the area where Connecticut Valley Region residents who use these facilities were least satisfied overall. When considering new recreational projects, the Town may want to consider the following response from regional residents about future needs and interest from the SCORP:

*"In contrast to demand (or present use patterns), respondents in this region place the highest priority for new facilities on road biking (14.5%), walking (13.9%), swimming (13.8%), playground (11.3%), hiking (10.0%), and mountain biking (10.3%)".*





The Franklin County Bikeway is a project under implementation by the Franklin Regional Council of Governments (FRCOG) with the aim to provide a biking network, with both on-road and off-road facilities, throughout Franklin County, linking employment, recreational, and educational destinations. In 2008 the Canalside Trail Bike Path was completed, connecting Unity Park and the Great Falls Discovery Center in Turners Falls to northeast Deerfield on a 3.27

mile off-road path. The East Mineral Road Bridge, closed to motor vehicles, crosses the Millers River at Millers Falls, providing a connection to Erving and Northfield, including the Northfield Mountain Recreation and Environmental Center, on a shared roadway route. Other Bikeway routes traveling through Montague include the Greenfield-Montague Route (shared roadway facilities located in Montague, Bernardston, Deerfield, Greenfield, and Gill), and the Connecticut River Route (shared roadway leading to Sunderland). Future plans include the installation of Bikeway and Share the Road signs along all routes, and construction of a bicycle and pedestrian bridge over the railroad tracks on Greenfield Road (FRCOG, 2009).

The Connecticut River Scenic Farm Byway, designated in 2000, runs from Northfield south through Erving, Montague, and Sunderland into Hampshire County along routes 63 and 47. The Franklin Regional Council of Governments completed a corridor management plan in 1998 with community input which includes recommendations and priorities for promoting economic opportunities while protecting the natural, cultural, and historic resources of the Byway. Projects along the Byway are eligible for funding from the National Scenic Byway Program, a federal transportation program. Streetscape improvements in Millers Falls, completed in 2006, were partially funded through the Byway Program, and future promotional projects, such as directional signs and a website, are currently underway for the entire byway.

In 2009, the Franklin Regional Council of Governments completed a corridor management plan for the 29-mile eastern portion of the Mohawk Trail Scenic Byway (Route 2) from Greenfield to Athol. The vision for the plan is to expand economic, tourism and recreational opportunities along the Byway while educating people about the Byway and preserving its unique scenic qualities, natural resources, historical structures/places, industrial and agricultural heritage and community character. Although Route 2 does not pass through Montague, the area within a half mile of Route 2 is considered as part of the Byway, and both Turners Falls and Millers Falls are included in the plan.



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## **B. HISTORY OF THE COMMUNITY**

Given the excellent fishing opportunities offered by the Connecticut and Millers Rivers as well as the hunting resources of the Montague Plains and surrounding woodlands, it is believed the Town of Montague was the site of extensive Native American settlements. Until the late 17<sup>th</sup> century, large numbers of Native American people congregated at the falls on the Connecticut River, at the place then known as Peskeomskut, and at Millers Falls during the annual spring spawning runs of salmon and shad. The present-day village of Turners Falls derives its name from a massacre on the site that occurred on May 19, 1676. Captain William Turner, accompanied by approximately 150 men, descended upon an Indian encampment at the site of the falls. Between two and three hundred men, women and children were slaughtered as they slept or drowned in the river while trying to escape. It is believed that few Native Americans lived in Montague after this time (Pressey, 1910).



Europeans came to Montague in the early 18<sup>th</sup> century and settled in the area around Taylor Hill and Dry Hill in Montague Center, the oldest of the Town's five villages. These Colonial settlers farmed the excellent soils of the surrounding river lowlands. Lumbering was also a part of the economic base, with use of the Sawmill River as a means to power the mills. Approximately a dozen buildings survive from this period, most notably the Root Tavern on Old Sunderland Road, built in 1739. At the time of the American Revolution, there were 575 residents of Montague.



Around the turn of the century, with the construction of the Upper Locks and Canal in Turners Falls by Dutch capitalists, as well as improvements in roadways and bridges such as the Fifth Massachusetts Turnpike from Montague City to Millers Falls and the Connecticut River Bridge, the Town of Montague began to expand beyond the village of Montague Center to Montague City and Millers Falls. Population increased steadily in the early 19<sup>th</sup> century, doubling to 1,152 by 1830.

The railroad came to the Town of Montague in the 1850s. Millers Falls was the hub of both east-west and north-south routes. In 1865, John Alvah Crocker purchased the Upper Locks and Canal Co. and began the creation of Turners Falls as a planned industrial community. He built the power canal and dam on the Connecticut River and marketed both industrial and home sites in the village. Avenue A was laid out as a wide commercial street flanked by narrower streets designed to accommodate housing for mill workers.







Almost all of the architecturally significant buildings in Turners Falls date from the late 19<sup>th</sup> Century, including the Keith Paper Mill (1871), Colle Opera House (1874), Crocker Bank Building (1880), Esleeck Manufacturing (1895), and several churches. Industry also came to both Montague City and Millers Falls during this period. Development of Lake Pleasant as a spiritualist camp can also be attributed to the coming of the railroad.

Steady growth continued into the early 20<sup>th</sup> century, with the population of the Town reaching 7,925 in 1915. The Turners Falls Company began generating hydroelectric power in 1904 and went on to construct the Cabot Station hydroelectric plant in 1915, which is still in operation today. In 1936, the Town acquired and expanded the existing private airport on 185 acres on the north section of the Montague Plains, making it the largest airport in the state at the time (*Turners Falls Observer*, January 19, 1962).

With the decline of industry in the latter half of the 20<sup>th</sup> century came the increase of residential/suburban growth, particularly in the villages of Turners Falls, Montague City, Montague Center and Millers Falls. Industrial development in the 1990s was concentrated within Airport Industrial Park located between Turners and Millers Falls.

The past twenty-five years of history in Montague reflect the national trend of increasing public concern about the environment. In the 1970s, there were proposals to locate first a large-scale landfill, then a nuclear power facility on the 2,000-acre Montague Plains. The proposals were met with strong local opposition and eventually were withdrawn.

Revitalization efforts in Turners Falls began in the 1980s, with restoration of the streetscape and planning for the development of the Great Falls Discovery Center. Montague Center residents successfully advocated for protection of approximately 50 acres along the Sawmill River off North Street during the 1980s, and the town's farmers have been active participants in the state's Agricultural Preservation Restriction Program. Farming and forestry are still widely practiced in Montague, and the rivers that once provided power for industry continue to play an important economic function through recreational activities and tourism.

### **C. POPULATION CHARACTERISTICS**

In this section, Montague's needs for open space and recreational resources are assessed based upon an analysis of demographic and employment statistics. The demographic information includes changes in total population, changes in the relative importance of

different age groups in Montague and potential changes in development patterns due to shifts in the local economy.

## C.1 Demographic Information

### C.1.1 Population and Population Change

Demographics are useful for forecasting the need for open space and recreational resources. Currently Montague has a population density of 260 people per square mile.<sup>1</sup> According to the U.S. Census, during the ten-year period 1970-1980, the Town of Montague saw a decrease in population of 440 residents or 5.2 percent of its total population. Over the next two decades, 1980-2000, the number of Montague residents increased 5.7 percent, for a net gain of 17 residents between 1970 and 2000 (See Figure 3-1). This is in sharp contrast to Franklin County, which experienced a 20.8 percent increase in population from 1970-2000 and the Commonwealth of Massachusetts, which saw an 11.6 percent increase.

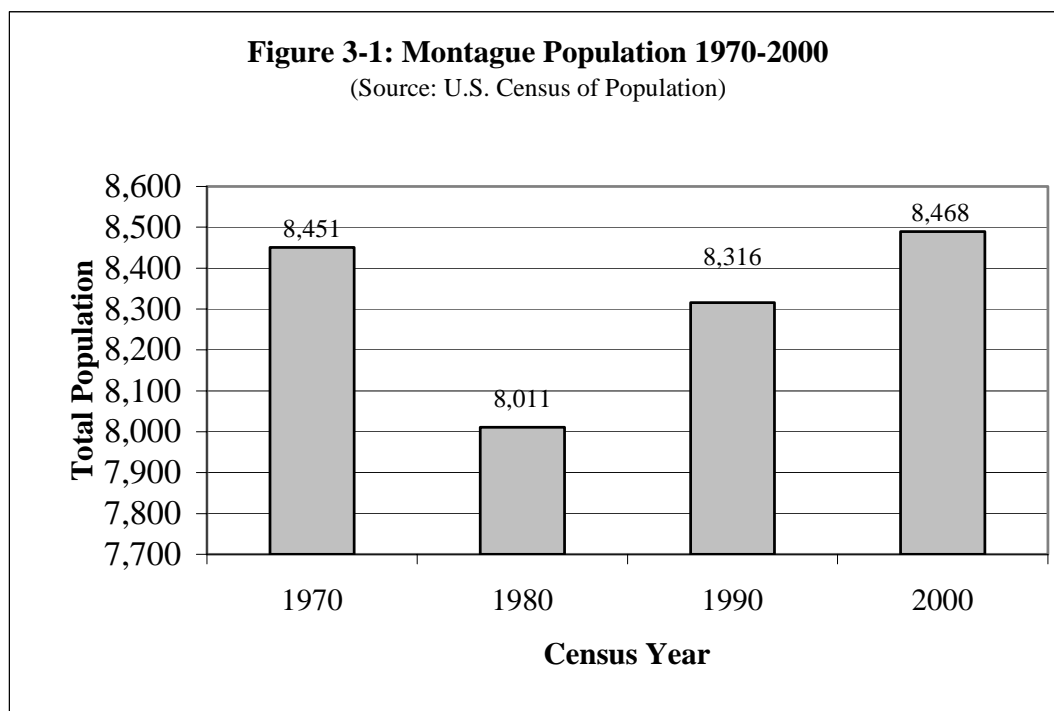


Table 3-1 displays 1990 and 2000 U.S. Census population data for Montague, Franklin County, and the State, and population estimates for 2009, the most recent data available. As already noted, Montague's population grew at a slower pace (1.8%) between 1990 and 2000 than the County (2.1%) and the State (5.5%). Since 2000, growth for all three locations has slowed, and it is estimated that between 2000 and 2009, Montague's

<sup>1</sup> Population density was calculated using U.S. Census 2009 Population Estimates divided by total square miles, which was derived from 2005 MassGIS Land Use data.



population decreased by 3.5 percent, while Franklin County's population remained stable with a .3 percent increase, and the State's population grew slightly by 3.9 percent.

**Table 3-1: Population Growth and Estimates for Montague, Franklin County, and Massachusetts, 1990 - 2009**

| Location        | 1990 Census Population | 2000 Census Population | % Change 1990 - 2000 Population | 2009 Estimated Population | % Change 2000 - 2009 Population |
|-----------------|------------------------|------------------------|---------------------------------|---------------------------|---------------------------------|
| Montague        | 8,316                  | 8,468                  | 1.8%                            | 8,175                     | -3.5%                           |
| Franklin County | 70,092                 | 71,535                 | 2.1%                            | 71,778                    | 0.3%                            |
| Massachusetts   | 6,016,425              | 6,349,097              | 5.5%                            | 6,593,587                 | 3.9%                            |

Source: U.S. Census, 1990 and 2000, and U.S. Census Population Estimates, 2009.

If the Town of Montague continues to experience a decline in population, how will this affect demand for open space and recreational resources? How will a change in population reflect the distribution of people by age?

According to the U.S. Census 2000 General Demographic Characteristics, the Town of Montague has a relatively young population, with a majority of its residents in the 0-19 (25.4%) and 20-44 (34.7%) year age groups (See Table 3-2). However, both of these age groups declined in residents between 1990 and 2000. During that time period, Montague saw the percentage of the 0-19 age group decline by 1.1 percent, and the 20-44 cohort decline by 4.5 percent. In Franklin County the loss was similar at 1.3 percent in the 0-19 age group, and 6.9 percent in the 20-44 cohort. In Montague, the percentage of 45-64 year old residents was also significant. From 1990 to 2000, this age group grew by 5.6 percent to 23.4 percent in Town, compared with an 8.4 percent increase in Franklin County. The 65+ age group (16.5%) remained relatively constant in both the Town and County during the same period.

**Table 3-2: Montague and Franklin County Age Distribution, 1990 and 2000**

|                 | Total<br>Population | % 0-19<br>years | %<br>Change<br>1990-<br>2000 | % 20-44<br>years | %<br>Change<br>1990-<br>2000 | % 45-64<br>years | %<br>Change<br>1990-<br>2000 | % 65+<br>years | %<br>Change<br>1990-<br>2000 |
|-----------------|---------------------|-----------------|------------------------------|------------------|------------------------------|------------------|------------------------------|----------------|------------------------------|
| Montague        |                     |                 |                              |                  |                              |                  |                              |                |                              |
| 1990            | 8,316               | 26.5%           | -1.1%                        | 39.2%            | -4.5%                        | 17.8%            | 5.6%                         | 16.5%          | 0.0%                         |
| 2000            | 8,489               | 25.4%           |                              | 34.7%            |                              | 23.4%            |                              | 16.5%          |                              |
| Franklin County |                     |                 |                              |                  |                              |                  |                              |                |                              |
| 1990            | 70,092              | 27.2%           | -1.3%                        | 40.9%            | -6.9%                        | 17.5%            | 8.4%                         | 14.5%          | -0.2%                        |
| 2000            | 71,535              | 25.9%           |                              | 34.0%            |                              | 25.9%            |                              | 14.2%          |                              |

Source: U.S. Census, 1990 and 2000.

If the relatively large age group of late middle-aged residents were to continue to reside in Montague, it would result in a significant senior population in ten to fifteen years, a trend predicted for the region as a whole. Therefore the Town of Montague should be concerned about providing for an aging population in its open space and recreation programming. Seniors require different recreational facilities and services, including

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accessible walking paths, arts, and leisure programs. Youth may need facilities and programs that can provide safe spaces for recreation as well as access to open space.

*The Town of Montague should be concerned about providing for an aging population in its open space and recreation programming.*

Whatever the generational makeup of the future community, recreation and open space needs may change over time. What would Montague's response be to these potentially increasing and changing needs? How can these services and facilities be created in a manner affordable to both the Town and the residents? The answers to these questions may depend in part on the

current and potential economic and financial well being of Montague, as well as availability of funding from government agencies and other sources.

Identifying the best location for the development of new open space and recreation resources requires consideration of where concentrations of population will occur and the specific needs of the various segments of the population. As will be seen in the fourth part of Section 3, Growth and Development Patterns, future growth depends in large part on zoning, soil and groundwater-related constraints, and on which lands are permanently protected from development. Town officials could identify key parcels that are close to current neighborhoods and/or areas that will be later developed for residential uses that might be future parks and walking trails. The Town should also look for opportunities to conserve land to protect valuable scenic and natural resources and provide public access to trail networks and open spaces.

#### C.1.2 Economic Wealth of Residents and Community

Measuring the income of Montague residents is helpful in assessing the ability of the citizenry to pay for recreation resources and programs and access to open space. Table 3-3 describes earning power in Montague compared to the County and the State. Median income figures describe the middle income among residents, thus eliminating any extreme numbers (either the very wealthy or very poor) from influencing the overall figure. Median household figures include data for families, for households of non-related people, and for individuals living alone. Montague households earn median incomes (\$33,750) that fall 17.2 percent below the median for the County (\$40,768) and 33.2 percent below the median for the State (\$50,502). The per capita income for the Town (total income for all residents divided by the total number of men, women, and children) is \$17,794, also lower than both the County (\$20,672) and the State (\$25,952). The percentage of people living below the poverty line in Montague is significantly higher than both the County (9.4%) and the State (9.3%) at 13.1 percent (See Table 3-3).



**Table 3-3: Median Household Income, Per Capita Income, and Percentage Below Poverty Level in 1999 for Montague compared to Franklin County and the State**

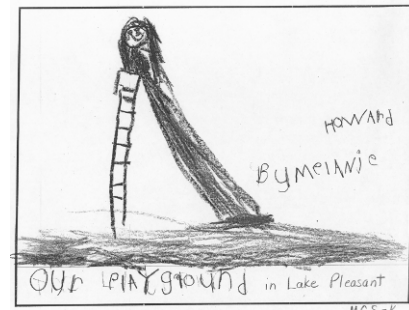
|                        | Median Household Income | Per Capita Income | Percentage Below Poverty Level* |
|------------------------|-------------------------|-------------------|---------------------------------|
| <b>Montague</b>        | \$33,750                | \$17,794          | 13.1%                           |
| <b>Turners Falls**</b> | \$24,243                | \$16,446          | 18.9%                           |
| <b>Franklin County</b> | \$40,768                | \$20,672          | 9.4%                            |
| <b>Massachusetts</b>   | \$50,502                | \$25,952          | 9.3%                            |

Source: 2000 U.S. Census of Population.

\*Persons living below poverty level for whom the poverty status has been determined.

\*\*Turners Falls is a village within the Town of Montague, and is included in the Town's overall percentage (13.1%) of individuals below the poverty level.

Median household incomes in the village of Turners Falls (\$24,243) are less than 50% of the median household income for the State (\$50,502), which qualifies the village as an Environmental Justice Population area (see Environmental Justice map). The Massachusetts Executive Office of Energy and Environmental Affairs established the Environmental Justice Policy in 2002, with the aim to ensure the protection of low income and minority populations from a disproportionate share of environmental burdens, and to promote community involvement in planning and decision-making to maintain and enhance the environmental quality of their neighborhoods. In 2000 roughly 3,150 people lived within this dense, urban area of Montague, and approximately 25% were children under the age of 18.



Relatively high levels of poverty in Turners Falls, and throughout Montague, have important implications for open space and recreation planning. To the extent that recreational programs involve fees, a substantial number of the Town's residents may be unable to afford them. Residents of Turners Falls may lack transportation to open spaces and recreational sites in other areas of Town. Finally, residents who are already struggling to pay for housing, food and other necessities may be reluctant to support Town expenditures for land acquisition, particularly if they do not have a means of transportation to the land being acquired. It is important that the Town ensure that all residents, regardless of income, have access to open space and recreational resources.

*It is important that the Town ensure that all residents, regardless of income, have access to open space and recreational resources.*

Montague's assets are its people and its natural resources. The Town's finances are affected by a relationship between the two. The services provided to residents are paid for with the tax revenues generated by different kinds of property. Housing is often considered to be a net fiscal loss, because the cost of educating children who live in town is rarely fully compensated for by the tax revenues from

residential property alone. One reason that towns encourage economic development is

for its financial contribution through tax revenues. While gross tax revenue from open space may be lower than for residential and commercial property, protected open space typically requires minimal municipal services. Therefore open space and farmland generally also generates a net fiscal gain for the community (American Farmland Trust Cost of Community Services studies; 2002). This relationship is explored in more detail in subsection D, Growth and Development Patterns.

## C.2 Labor Force and Employment Statistics

### C.2.1 Labor Force: Montague residents that are able to work

Table 3-4 shows Montague's labor force and unemployment rates for the Town, County, and State from 2000 to 2008. The labor force is defined as the pool of individuals 16 years of age and older who are employed or who are actively seeking employment. Enrolled students, retirees, stay-at-home parents and other persons not actively seeking employment are excluded from the labor force. Labor force and unemployment data are available on a monthly and annual basis from the Massachusetts Executive Office of Labor and Workforce Development. In 2008, Montague had a labor force of 4,256 with an unemployment rate of 5.6 percent, higher than the County rate of 4.9 percent and the State rate of 4.5 percent. Since 2000, Montague's unemployment rate has consistently been higher than that of the County, and has fluctuated below and above the State rate. The unemployment rate has seen a general upward trend in Montague since 2000, and was higher than both the County and the State in 2008. From 2000 to 2008, Montague's labor force declined by 105 people, or -2.4 percent, with an increase occurring early in the decade and peaking in 2003 at 4,471.

**Table 3-4: Montague's Labor Force, and Unemployment Rates in Montague, Franklin County, and Massachusetts, 2000-2008**

| Year                 | Montague's Labor Force | Unemployment Rate |                 |               |
|----------------------|------------------------|-------------------|-----------------|---------------|
|                      |                        | Montague          | Franklin County | Massachusetts |
| 2000                 | 4,361                  | 2.9%              | 2.5%            | 2.7%          |
| 2001                 | 4,363                  | 3.5%              | 3.1%            | 3.7%          |
| 2002                 | 4,467                  | 4.6%              | 4.0%            | 5.3%          |
| 2003                 | 4,471                  | 4.9%              | 4.6%            | 5.8%          |
| 2004                 | 4,383                  | 4.7%              | 4.3%            | 5.2%          |
| 2005                 | 4,358                  | 5.0%              | 4.3%            | 4.8%          |
| 2006                 | 4,358                  | 5.0%              | 4.3%            | 4.8%          |
| 2007                 | 4,307                  | 4.9%              | 4.2%            | 4.5%          |
| 2008                 | 4,256                  | 5.6%              | 4.9%            | 5.3%          |
| % change 2000 - 2008 | -2.4%                  | N/A               | N/A             | N/A           |

Source: Massachusetts Executive Office of Labor and Workforce Development, Labor Force and Unemployment data.



Table 3-5 displays the top 10 employment destinations for Montague residents according to the 2000 U.S. Census Journey to Work data. Approximately 25 percent of Montague residents were employed in Greenfield, the top employment destination. Over 20 percent (22.5%) of residents worked within Montague, the second most frequent destination, and 12 percent were employed in Amherst, a major regional employment center due to its colleges and university. Half of the top 10 destinations are in Franklin County, four are in Hampshire County, and one, the City of Springfield, is in Hampden County.

**Table 3-5: Montague 2000 Journey to Work Data by Town**

| <b>Rank</b>  | <b>Montague Resident Employment Destination</b> | <b>Number of Employees</b> | <b>Percent of All Employed Montague Residents</b> |
|--------------|---|----------------------------|---|
| <b>1</b>     | Greenfield                                      | 1033                       | 25.1%   |
| <b>2</b>     | <b>Montague</b>                                 | <b>924</b>                 | <b>22.5%</b>                                      |
| <b>3</b>     | Amherst   | 494                        | 12.0%   |
| <b>4</b>     | Deerfield                                       | 246                        | 6.0%  |
| <b>5</b>     | Northampton                                     | 153                        | 3.7%  |
| <b>6</b>     | Whately   | 140                        | 3.4%  |
| <b>7</b>     | Northfield                                      | 105                        | 2.6%  |
| <b>8</b>     | Hadley  | 104                        | 2.5%  |
| <b>9</b>     | Springfield                                     | 102                        | 2.5%  |
| <b>10</b>    | Hatfield  | 63                         | 1.5%  |
|              | Other   | 747                        | 18.2%   |
| <b>Total</b> |   | 4111                       | 100.0%  |

Source: 2000 U.S. Census Journey to Work data.

Table 3-6 shows the travel time to work for Montague residents in 1990 and 2000, compared to the County and the State. In 2000, most Montague workers commuted between 10 and 19 minutes (32.4%). The next three most frequent commute times were from 20 to 29 minutes (18.7%), less than 10 minutes (16.2%), and 30 to 39 minutes (14.6%). In 2000, Montague had roughly the same percentage of residents working from home (3.2%) as the State (3.1%), and less than the County (5.1%). However in Montague the percentage of workers who work at home declined from 1990 to 2000, while the percentage increased for both the County and the State. The trend seems to be moving in the direction of longer commute times for Montague workers, and for the County and State overall, as the percentages for all commutes over 30 minutes increased between 1990 and 2000, while the percentages of workers commuting less than 30 minutes decreased during the same period. It is important to note that this data is now a decade old, and that further analysis will be possible once new data is available from the 2010 Census.



**Table 3-6: Travel Time to Work for Montague, Franklin County, and Massachusetts Workers, 1990 and 2000**

| Geography              | Total Workers* | Work at Home | Less than 10 Min. | 10 - 19 Min. | 20 - 29 Min. | 30 - 39 Min. | 40 - 59 Min. | 60 - 89 Min. | 90 + Min. |
|------------------------|----------------|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|-----------|
| <b>Montague</b>        |                |              |                   |              |              |              |              |              |           |
| 1990                   | 3,924          | 3.5%         | 18.7%             | 38.1%        | 19.8%        | 10.9%        | 6.0%         | 2.3%         | 0.8%      |
| 2000                   | 4,111          | 3.2%         | 16.2%             | 32.4%        | 18.7%        | 14.6%        | 10.3%        | 2.4%         | 2.0%      |
| <b>Franklin County</b> |                |              |                   |              |              |              |              |              |           |
| 1990                   | 34,674         | 4.7%         | 21.8%             | 32.1%        | 17.8%        | 11.5%        | 7.7%         | 3.2%         | 1.1%      |
| 2000                   | 37,053         | 5.1%         | 16.3%             | 30.0%        | 19.1%        | 14.2%        | 9.7%         | 3.3%         | 2.3%      |
| <b>Massachusetts</b>   |                |              |                   |              |              |              |              |              |           |
| 1990                   | 2,979,594      | 2.5%         | 15.6%             | 31.3%        | 18.7%        | 15.5%        | 10.7%        | 4.7%         | 1.0%      |
| 2000                   | 3,102,837      | 3.1%         | 12.6%             | 27.4%        | 18.6%        | 16.3%        | 13.0%        | 6.5%         | 2.4%      |

\*employed workers 16 years and older

Source: U.S. Census, 1990 Census STF3A and 2000 Census SF3

### C.2.2 A Brief Look at Montague's Economy: Using Employment to Measure Competitiveness

According to 2006 U.S. Census County Business Patterns data, the industry sector with the highest percentage of employment in Franklin County is manufacturing (19.9%), an industry with a long history in the region that is still strong when compared to the State, where only 9 percent of total employment is in manufacturing. Manufacturing's share of total employment in the County has been declining for several decades, however, and dropped by 10 percent since 2000, when it accounted for roughly 30 percent of the County's total employment. The sectors comprising the next highest percentages of employment in the County are health care and social assistance (16.0%), and retail trade (14.6%). It is important to note that County Business Patterns does not publish information for a sector when it would disclose the operations of any single business, and does not include the public administration sector.

Table 3-7 shows the number of establishments and average monthly employees working for Montague employers from 2001 through 2007. This includes residents as well as those who reside elsewhere but commute to Montague for work. The number of establishments has generally grown throughout the time period, beginning at 194 establishments in 2001 and peaking in 2006 at 227, with a slight decline in 2007 to 223 establishments. The number of total employees working in town has grown from 2,713 in 2001 to 2,855 in 2007.



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**Table 3-7: Total Establishments and Employment in Montague, 2001-2007**

| <b>Year</b> | <b>Establishments</b> | <b>Total # Employees</b> |
|-------------|-----------------------|--------------------------|
| <b>2001</b> | 194                   | 2,713                    |
| <b>2002</b> | 208                   | 2,889                    |
| <b>2003</b> | 210                   | 2,903                    |
| <b>2004</b> | 217                   | 2,784                    |
| <b>2005</b> | 217                   | 2,821                    |
| <b>2006</b> | 227                   | 2,999                    |
| <b>2007</b> | 223                   | 2,855                    |

Source: Massachusetts Executive Office of Workforce Development, ES202 data.

The Massachusetts Executive Office of Workforce Development collects industry data for towns using the same categories as County Business Patterns, but also includes the public administration sector. Table 3-8 on the following page shows the percentage of total employment for industry sectors present in Montague from 2001 through 2007. Manufacturing currently has a strong presence in Montague, even more so than in the County, with 30.3 percent of all Montague workers employed in the sector in 2007. In contrast to the County, employment in manufacturing has remained steady since 2001, when it represented 30.5 percent of total employment. Health care and social assistance comprised the second largest percentage of employment in 2007 at 18.9 percent (up from 9.6 percent in 2001), followed by educational services at 14.8 percent.

According to the Montague Planning and Conservation Department's report, "Planning for Economic Development in the Town of Montague, 1990-1999," during the 1990s, the Town of Montague experienced the loss of several manufacturing facilities. The Strathmore Paper Company, located in Turners Falls, closed its doors in 1994. This was one of the largest employers in Turners Falls, employing 125 people. Also closing in 1994 was Mohawk Container with thirty-five jobs lost. Indeck Energy Services, employing fifteen, closed in 1996. Railroad Salvage, a retailer located in downtown Turners Falls, closed in 1994 with thirty people losing their jobs. This trend of job losses appears to have shifted in the late 1990s as employment in manufacturing increased by 261 employees in 2 years. Growth of industrial businesses located in the town's Airport Industrial Park and an additional industrial area on Turnpike Road account for these gains. Continued growth in manufacturing will likely require development in new areas, which will be addressed below.

**Table 3-8: Employment by Industry Sector in Montague as a Percentage of Total Employment, 2001-2007**

| Year  | 2001                  | 2002                  | 2003                  | 2004                  | 2005                  | 2006                  | 2007                  |                    |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
|   | % of Total Employment | % of Total Employment | % of Total Employment | % of Total Employment | % of Total Employment | % of Total Employment | % of Total Employment | % Change 2001-2007 |
| <b>Industry</b>                                     |                       |                       |                       |                       |                       |                       |                       |                    |
| <b>Agriculture, Forestry, Fishing &amp; Hunting</b> | n/a                   | n/a                   | n/a                   | 0.6%                  | n/a                   | n/a                   | n/a                   | n/a                |
| <b>Construction</b>                                 | 2.5%                  | 2.5%                  | 2.3%                  | 2.4%                  | 2.7%                  | 3.0%                  | 2.3%                  | -0.2%              |
| <b>Manufacturing</b>                                | 30.5%                 | 27.2%                 | 26.4%                 | 28.3%                 | 28.6%                 | 29.1%                 | 30.3%                 | -0.2%              |
| <b>Utilities</b>                                    | 0.4%                  | n/a                   | n/a                   | n/a                   | n/a                   | n/a                   | n/a                   | n/a                |
| <b>Wholesale Trade</b>                              | 1.7%                  | 1.3%                  | 1.1%                  | 1.2%                  | 1.3%                  | 2.6%                  | 2.9%                  | 1.3%               |
| <b>Retail Trade</b>                                 | 8.7%                  | 6.9%                  | 6.2%                  | 6.5%                  | 5.7%                  | 5.6%                  | 5.7%                  | -3.0%              |
| <b>Transportation and Warehousing</b>               | 6.0%                  | 6.1%                  | 6.9%                  | 3.4%                  | 2.9%                  | 2.0%                  | 2.3%                  | -3.8%              |
| <b>Information</b>                                  | 0.8%                  | 0.8%                  | n/a                   | n/a                   | n/a                   | n/a                   | n/a                   | n/a                |
| <b>Finance and Insurance</b>                        | 1.6%                  | 1.5%                  | 1.7%                  | 1.7%                  | 1.7%                  | 1.3%                  | 1.4%                  | -0.2%              |
| <b>Real Estate and Rental and Leasing</b>           | 0.4%                  | 0.3%                  | 0.3%                  | 0.3%                  | 0.3%                  | 0.3%                  | 0.4%                  | -0.1%              |
| <b>Professional and Technical Services</b>          | 0.8%                  | 1.0%                  | 0.8%                  | 0.8%                  | 1.0%                  | 1.0%                  | 1.1%                  | 0.3%               |
| <b>Administrative and Waste Services</b>            | 1.9%                  | 1.6%                  | 1.8%                  | 1.8%                  | 1.7%                  | 2.2%                  | 2.0%                  | 0.2%               |
| <b>Educational Services</b>                         | 16.3%                 | 14.7%                 | 14.4%                 | 14.4%                 | 15.5%                 | 15.0%                 | 14.8%                 | -1.4%              |
| <b>Health Care and Social Assistance</b>            | 9.6%                  | 18.3%                 | 20.7%                 | 21.8%                 | 21.4%                 | 20.8%                 | 18.9%                 | 9.3%               |
| <b>Arts, Entertainment, and Recreation</b>          | n/a                   | n/a                   | n/a                   | n/a                   | 0.5%                  | 0.6%                  | 0.6%                  | n/a                |
| <b>Accommodation and Food Services</b>              | 5.0%                  | 4.9%                  | 4.7%                  | 4.1%                  | 4.1%                  | 3.8%                  | 4.1%                  | -1.0%              |
| <b>Other Services, Ex. Public Admin</b>             | 5.5%                  | 4.9%                  | 5.1%                  | 5.5%                  | 5.2%                  | 4.7%                  | 5.1%                  | -0.3%              |
| <b>Public Administration</b>                        | 6.3%                  | 6.1%                  | 5.4%                  | 6.0%                  | 5.5%                  | 5.8%                  | 5.8%                  | -8.8%              |
| <b>Total</b>  | <b>98.1%</b>          | <b>98.3%</b>          | <b>97.8%</b>          | <b>98.9%</b>          | <b>98.2%</b>          | <b>98.0%</b>          | <b>97.7%</b>          |                    |

Source: Massachusetts Executive Office of Labor and Workforce Development, ES202 data.

\*n/a = data withheld for confidentiality reasons.

It is important to note that industry data is kept confidential if there are less than three reporting businesses within one sector, or if with three or more businesses, one accounts for 80% or more of total employment within the sector. This is the case with the agriculture and utility sectors, two important sectors of the local economy that have a significant impact on the landscape and enormous potential to affect the future of open space, natural resources and recreation in the Town of Montague. Because of their local importance, these sectors are discussed in depth. While tourism has not been an important industry in Montague in recent decades, some residents believe that it could provide a source of income for the town in the future. Therefore the potential for tourism is also discussed below.

### ***Agricultural Sector***

More than 15 percent of farmland in the Commonwealth of Massachusetts is located in Franklin County, totaling 79,465 acres on 741 farms as of 2007. Both the number of farms and the amount of land in farms in the county increased between 2002 (586 farms on 74,281 acres) and 2007 (741 farms on 79,465 acres).



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The market value of agricultural products sold in Franklin County increased 33 percent to \$56,844,000 during this time period (United States Department of Agriculture, 2007 Census of Agriculture County Profile).

According to zip code data collected by the US Census of Agriculture, there were 33 farms located in Montague's zip codes in 2007, accounting for 4.5 percent of the total number of farms in the county at that time (741). However, two of Montague's three zip codes encompass other municipalities. The 01376 zip code includes the entire town of Gill and the 01349 zip code includes the Ervingside neighborhood in the Town of Erving. Therefore, these figures overstate agricultural data for Montague alone. An actual inventory of farms in Montague suggests that there are closer to 20 farms within town boundaries. The larger number is important, however, because farms in Montague constitute a critical component of the agricultural infrastructure in the region as a whole.

*An actual inventory of farms in Montague suggests that there are closer to 20 farms within town boundaries.*

Approximately 15 percent of the town's farmers in the Montague zip codes reported sales of more than \$50,000 of agricultural products in 2007. Farms in these zip codes accounted for 4 percent of Franklin County farms with sales greater than \$50,000 (U.S. Department of Agriculture; 2007).



Important crops grown in Montague zip codes in 2007 included forage, hay, and haylage (57.6% of farms), livestock and poultry and their products (48.5% of farms), field crops (45.5% of farms), and maple products (12.1% of farms). Montague farms accounted for percentages of the total number of farms in the county producing the following commodities: tobacco (7.7% of farms); forage, hay, and haylage (6.1%); field crops (5.7%); livestock, poultry, and their products (5%); (U.S. Department of Agriculture; 2007).

These statistics illustrate the diversity of the agricultural sector in Montague and neighboring towns. The area retains a dynamic mix of small and large farms, which produce a variety of crops ranging from traditional commodities like corn, potatoes and tobacco, to newer crops intended for sale directly to consumers, including vegetables, melons and nursery crops. The town's hardwood forests still support several maple syrup producers.

Montague's farms are an important element of the county's agricultural economy and infrastructure. Montague's farmers support agricultural service businesses such as

equipment and feed dealers and veterinarians in town and in the region at large. Several of Montague's farms are part of larger agricultural businesses with land in neighboring towns. The health of Montague's farm businesses is critical to the viability of the agricultural sector in Franklin County as a whole.

Finally, agriculture is too closely tied to the landscape of Montague and surrounding towns to be judged by simple economic analysis alone. Fresh food, retention of significant historical landscapes, scenery, and rural character are just a few of the contributions that active agricultural businesses provide to Montague.

*The health of Montague's farm businesses is critical to the viability of the agricultural sector in Franklin County as a whole.*

### **Utility Sector**

The importance of the utility sector in Montague is likely due in large part to the continued use of the Connecticut River to generate hydroelectric power. Northeast Utilities repurchased its hydroelectric facilities on the Connecticut River when it went through the deregulation process in 2000. Since then the company was sold to FirstLight Hydro Generating Company, and recently sold again to SUEZ Energy North America.



Station One and Cabot Station, located in Montague, are major sources of property tax revenue for the Town. These facilities and the Northfield Mountain pumped storage station (owned by FirstLight) located in the neighboring town of Erving provide well-paying jobs for many Montague residents. The utility has made significant investments in these facilities in the past and continues to make upgrades and perform on-going maintenance. The tax revenue and jobs provided by SUEZ Energy are critical to the Town's financial stability.

SUEZ Energy is one of the largest landowners in the Town of Montague. In addition to the actual infrastructure of the Turners Falls Dam and the power canal, the utility owns most of the land along the Connecticut River. Until 1999, it also owned more than 2,000 acres of the Montague Plains. While the Commonwealth of Massachusetts now owns the majority of this property, the utility retained approximately 500 acres for future industrial development.

Ownership and use of land by SUEZ Energy has important implications for open space, natural resources and recreation in the Town of Montague. While use of the Connecticut River to generate hydroelectric power provides enormous economic benefits to the Town, it also has environmental costs. One of the most obvious ecological impacts of the utility's use of the river is the impact of the pumped storage facility, dam and power canal on migratory fish. Upstream fish passage facilities were constructed at the Turners



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Falls Dam in 1980. The Connecticut River Watershed Five-Year Action Plan, developed in spring 2002, questioned the effectiveness of the fish ladder (Ryan, Bacon et al., 2002).



The hydroelectric facilities on the Connecticut River also have impacts on river bank stability and water quality. The Watershed Action Plan noted that the river north of the Turners Falls Dam has experienced daily water level fluctuations since 1970. It was determined that the pumped storage facility and the dam exacerbate bank erosion, sedimentation and turbidity levels. Sedimentation and turbidity have a negative impact on aquatic life. To address riverbank erosion issues,

Northeast Utilities, in cooperation with a group of municipal, state and federal resource agencies, landowners and others known as the Connecticut River Streambank Erosion Committee, developed an Erosion Control Plan in 1999. The plan includes an inventory of riverbank conditions, as well as two distinct action elements: repair of eroded sections of riverbank, and a program of proactive preventative maintenance to minimize future erosion (Simons & Associates, Inc., 1999).

Since the 1999 Erosion Control Plan, the utility has been required to perform a regular inventory of riverbank conditions, which is published as the Full River Reconnaissance report. Working with the utility, the Connecticut River Streambank Erosion Committee uses this report to prioritize sites for repair. To date, over 12,000 linear feet of riverbank have been reconstructed and repaired, and roughly another 5,400 linear feet are due to be repaired as improvements continue to be implemented. Ongoing utility commitment to implementing the Erosion Control Plan is important to maintaining the integrity of the riverbanks and water quality in the Connecticut River in the Town of Montague.

The utility's use of the Connecticut River to generate power is subject to a license from the Federal Energy Regulatory Commission (FERC). Under its license, which is valid until 2018, SUEZ Energy is required to provide recreational benefits to the communities bordering the river. The company currently maintains a public boating facility in Barton's Cove, across the river from Turners Falls in the Town of Gill, a canoe launch at the end of Poplar Street in Montague City, and a park and picnic area along the river in Turners Falls. The utility leases property to the Turners Falls Rod and Gun Club for another private boating facility upstream of Barton's Cove. SUEZ Energy also leases land to the Department of Conservation and Recreation for the Canalside Trail Bike Path, an off-road shared use path that begins at Unity Park in Turners Falls, travels along the Connecticut River Canal, and ends in northeast Deerfield. The path is part of the Franklin County Bikeway, and construction was completed in 2008. These facilities provide much-needed recreational opportunities for residents of Montague, and should be maintained.

Notwithstanding the recreational facilities provided by SUEZ Energy, the company's control of the majority of land along the Connecticut River in Montague does constrain



recreational opportunities for residents. The Poplar Street canoe launch has a very steep grade and limited parking, and is not accessible to older residents or people with disabilities. The Town should work with the utility to improve opportunities for non-motorized boating in appropriate areas along the Connecticut River in Montague.

There are two tracts of land owned by SUEZ Energy or its subsidiaries that merit individual consideration. Cabot Camp has special significance for open space and recreation in Montague. Located at the end of East Mineral Road at the confluence of the Millers and Connecticut Rivers, this property has a long, interesting history. Records dating back to 1799 indicate the presence of a dam and sawmill at the mouth of the Miller's River on the site.

Evidence can still be seen of a lock cut in the rock outcropping at the northeast corner of the site, and a field stone foundation, which may have been part of the sawmill. The original buildings at Cabot Camp served as a tollhouse and carriage house for travelers along this road and the Connecticut River. Some evidence points to a possible tavern on or near the site. More recently, the property served as the summer home of a Mr. Philip Cabot of Boston, who left the property to the utility (Ryan and Lindhult et al., 1999). Cabot Camp is currently used for utility functions. It is also used, without permission, by bicyclists, pedestrians, boaters, picnickers and fishermen, and has experienced vandalism and abuse. This property has important scenic, historic and recreational value, and should be maintained for these values. Cabot Camp should be considered for acquisition by the Town of Montague or a state agency or non-profit conservation organization should it become available for its protection and maintenance for public use.



The second tract of utility-owned land with special significance for open space and natural resource planning is the Montague Plains. As previously mentioned, Northeast Utilities retained approximately 400 acres on the Plains for future industrial development when it sold land to the state in 1999. The land is zoned Industrial and Agricultural-Forestry 4-acre, and was identified as the future site of large industrial development in the 1999 Montague Comprehensive Plan. This property, however, also provides important and rare wildlife habitat. The area has been mapped by the Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries, Wildlife and Environmental Law Enforcement as containing priority habitats of rare species, estimated





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habitats of rare wildlife, and two certified vernal pools (NHESP, 2008). Ecologist Glenn Motzkin of Harvard Forest has documented a correlation between areas on the Plains that have never been cultivated and rare species habitat. Future development in this area should be designed to protect the habitat of rare plant and animal species.

### ***Tourism***

Tourism is an important industry in Massachusetts. In 2008, the state attracted 19.4 million domestic travelers, and was ranked 15th among the 50 states in domestic travel expenditures in 2006. The majority of domestic travelers are from New England and the Mid-Atlantic states. The typical traveler visited during the summer months, traveled by car, and stayed an average of 2.1 nights in Massachusetts (Massachusetts Office of Travel and Tourism (MOTT), 2008). Travel expenditures in the four western Massachusetts counties accounted for 7 percent of all domestic travel expenditures in the State in 2007 (MOTT, 2007). In 2008, the Upper Pioneer Valley Visitors Center located on Interstate 91 in Greenfield logged approximately 85,000 visitors (FRCOG personal communication).

*Montague is well-placed to take advantage of a growing trend in the travel industry known as “cultural heritage tourism.”*

Montague is well-placed to take advantage of a growing trend in the travel industry known as “cultural heritage tourism.” The National Trust for Historic Preservation defines cultural heritage tourism as “traveling to experience the places and activities that authentically represent the stories and people of the past and present.” Cultural heritage tourism includes historic, cultural and natural resources ([http://www.nthp.org/heritage\\_tourism/index.html](http://www.nthp.org/heritage_tourism/index.html)).

Ecotourism is another travel concept that Montague could explore. According the World Conservation Union, ecotourism is “environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features - both past and present) that promotes conservation, has low negative visitor impact, and provides for beneficially active socio-economic involvement of local populations” (Hector Ceballos-Lascurain, Tourism, Ecotourism and Protected Areas, IUCN; 1996).

*Natural and agricultural resources in Montague’s rural areas could serve as a basis for ecotourism.*

Montague’s natural, cultural and historic resources have great potential to serve as a draw for visitors. The villages of Turners Falls and Montague Center have designated National Register Historic Districts, which does not provide protection of these resources, but does recognize their historical significance. Many homes and commercial buildings in these districts have been restored over the past two decades. Residents are currently working to designate a third Historic District in Millers Falls. The unique history, historic homes

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and scenic beauty of the village of Lake Pleasant and its Bridge of Names are hidden gems, which also could be promoted as visitor attractions.

The Shea Theater on Avenue A offers performances for all age groups throughout the year from a variety of New England performers, as well as acting classes and summer camps, attracting approximately 30,000 patrons, performers, and students a year (FRCOG personal communication). In the past several years, art galleries and artist studios, as well as other businesses, have opened in downtown Turners Falls. The Turners Falls Fishway is open in May and June. In 2009, 5,500 visitors came to watch shad, lamprey, salmon and other fish make their journey upstream, and the number of visitors is growing each year according to personal communication with Fishway staff. The Great Falls Discovery Center, also located on Avenue A and housed within an old mill complex, is an interpretive museum highlighting the natural, cultural, and industrial history of the Connecticut River Watershed. The center, opened in 2004, received over 8,300 visitors in 2008 (FRCOG personal communication).

Natural and agricultural resources in Montague's rural areas could serve as a basis for ecotourism. State Routes 47 and 63 have been officially designated as part of a Scenic Farm Byway, and efforts are in progress to develop signs and promotional material for the corridor. Several farms on or near the Byway could benefit from increased tourism by marketing products directly to visitors. The Montague Plains Wildlife Management Area, Montague



Wildlife Management Area and Montague State Forest offer excellent opportunities for hiking, mountain biking, birdwatching and hunting. The stretch of the Connecticut River between Montague City and the Sunderland Bridge offers beautiful scenery for flat water paddlers, who are often rewarded with the sight of bald eagles fishing for meals. In early spring, the Millers River from the Town of Erving to its confluence with the Connecticut presents a challenging whitewater run for experienced boaters. The Canalside Trail Bike Path, a three-mile off-road section of the Franklin County Bikeway through Turners Falls and Montague City was opened for use in 2008, and a shared roadway section with posted signs will be added to Greenfield Road when it is reconstructed later in the decade.

The National Trust for Historic Preservation encourages communities that want to develop a heritage tourism program to look at all of the existing resources their community can offer, and to follow five basic principles:

1. Focus on authenticity and quality
2. Preserve and protect resources



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3. Make sites come alive
  4. Find the fit between your community and tourism
  5. Collaborate

(National Trust for Historic Preservation; 1999).

Ecotourism relies on similar principles:

1. Tourism activity is carried out in a relatively undisturbed natural setting
2. Negative impacts of tourism activity are minimized
3. Tourism conserves natural and cultural heritage
4. Actively involves local communities in the process, providing benefits to them
5. Contributes to sustainable development and is a profitable business
6. Education/appreciation/interpretation component (of both natural and cultural heritage) must be present

(Hector Ceballos-Lascurain, Director General, Programme of International Consultancy on Ecotourism, Special Adviser on Ecotourism to IUCN).

The village of Shelburne Falls in the Franklin County towns of Shelburne and Buckland offers one model of how Montague might use its natural and cultural resources as a draw for visitors. Shelburne Falls has a very active downtown business association, which has developed an information center, promotional brochure and a website, and sponsors several annual events designed to attract tourists. The program has been very successful.

The Turners Falls RiverCulture Project, begun in 2006, is a partnership between the arts, cultural and business communities in Turners Falls, and works to support and strengthen cultural and creative industries in Turners Falls and Montague by hosting and promoting events and marketing the area and its cultural attractions through a website and printed materials, among other activities. According to the RiverCulture website, events draw tens of thousands of people to Montague each year, most coming from out of town (RiverCulture website, [http://www.turnersfallsriverculture.org/about\\_riverculture/](http://www.turnersfallsriverculture.org/about_riverculture/)).

The National Trust for Historic Preservation (NTHP) promotes heritage tourism as a way to bring new jobs, new businesses and increased tax revenues to rural communities. “Tourism programs that capitalize on the natural, historic and cultural resources of your community can also help to build community pride and improve the quality of life for residents,” assert NTHP’s publication on rural tourism. Yet the trust also warns communities that tourism can bring challenges as well, by placing additional demands on infrastructure and the very natural resources that serve as a draw (National Trust for Historic Preservation, 2001).

While Montague has the resources to serve as a base for heritage tourism, it needs to continue to expand basic services required to support visitors, including lodging, restaurants, shopping opportunities and adequate parking. There has been some growth in restaurants in Turners Falls in recent years. Continued economic development efforts directed by public input will help to keep tourism dollars local, and should strive to protect the resources that attract visitors to the area.

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## **D. GROWTH AND DEVELOPMENT PATTERNS**

### **D.1 Patterns and Trends**

Historically, growth, development and industry in Montague were concentrated in the five village centers. Each village has distinct patterns of development, shaped in large part by their natural resources.

Fertile soils provided the basis for farming in the village of Montague Center along the Connecticut and Sawmill Rivers. The village green is the historical center of the settlement. The center of the village is densely developed and is bounded by farm fields to the south, west and north that extend to the Connecticut River.



The Connecticut River provided the power for industrial development in the village of Turners Falls, which was laid out in a grid around a power canal. Examples of industries located here in the 19<sup>th</sup> century include paper and textile mills and a cutlery. Row houses were built in Turners Falls for mill workers. Montague City developed later along the old locks and boat canals, and the Millers River powered factories in the village of Millers Falls.



The village of Millers Falls is unique in that it straddles two towns: Montague and Erving, located on either side of the Millers River. The old commercial center of the village is located in Montague, while the large mills were located in Erving. Historically, public services in the village, including mail, water, sewer and fire protection, were shared between the two towns. Montague still pumps sewage from Millers Falls to the Erving wastewater treatment plant, but other services have been separated.

In Lake Pleasant, it was likely the scenic beauty of the lake itself that made the area a destination for followers of the 19<sup>th</sup> Century Spiritualist Movement. The Spiritualists gathered around the lake in tent camps in the summer, and eventually established a permanent village of tightly clustered Victorian homes on the tiny lots that their tents once occupied.

In the center of town lies the Montague Plains, an expanse of scrub oak/pitch pine forest that is the most extensive example of this type of ecological community in the Connecticut River Valley (Motzkin et al., 1999). Wood products were harvested from the Plains in the eighteenth and early nineteenth century. During the late nineteenth





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century, large portions of the Plains were cleared for farming. Agriculture was abandoned in the early twentieth century (Motzkin et al., 1999), likely due to poor soil fertility. The airport at Turners Falls was established in 1927, two new schools were built in the 1970s, and the Town developed an industrial park adjacent to the airport during the 1980s and 1990s. There were several proposals for large-scale industrial use of the remainder of the Plains during the late 20<sup>th</sup> century, but these plans were met with opposition and nearly 2,000 acres remain essentially undeveloped.

Recent residential development has extended beyond the village centers along roads and into forested areas. Commercial/industrial expansion has occurred in the Town-owned industrial park along Millers Falls Road and on Turnpike Road near the old town landfill.

Revitalization of the downtown areas in Turners Falls and Millers Falls is one of the key challenges identified in both the Town's 1998 Comprehensive Plan and the 2004 Community Development Plan. The Town is working to promote adaptive reuse of abandoned industrial sites and storefronts in these villages, and community planning efforts emphasize the importance of developing retail, craft-based and recreational businesses to draw residents and visitors to the downtown areas. Zoning changes implemented in 1999 were intended to facilitate the development of pedestrian-oriented business in downtown Turners Falls and Millers Falls and an underused industrial area of Montague City. Due to space constraints, however, most new industrial growth will likely continue to take place outside the village centers.



The current industrial park is occupied at close to capacity for large manufacturing operations. Land retained by Northeast Utilities on the Montague Plains along Millers Falls Roads has been identified by the Town as a potential site for future industrial development. This site has significant ecological value for plants and wildlife, and is a Priority Habitat of Rare Species and an Estimated Habitat of Rare Wildlife according to the 2008 Massachusetts Natural Heritage Atlas. Development of one or more new industrial park sites could also increase demand for new housing in Montague.

Between 1988 and 2001, 258 building permits were issued for new single-family homes, an average of approximately 18 per year. From 2003 through 2008, 63 building permits were issued for new single family homes, an average of 10.5 per year (Montague Building Department, personal communication; 2002 data unavailable). New building

slowed in 2008, with only five permits issued, reflecting the current economic downturn. Much of the new residential construction has taken place in the hilly, forested areas surrounding Montague Center, on Chestnut Hill, Dry Hill and Taylor Hill. This development is predominantly higher-end construction on large wooded lots that are accessible yet not readily visible from the road. On Federal Street and Turners Falls Road, lots are being developed along the road frontage. There is a parallel trend of development of small vacant or underused lots in the village of Turners Falls, primarily consisting of modular home construction.

*From 2003 through 2008, 63 building permits were issued for new single-family homes, an average of 10.5 per year.*

Only three subdivisions have been fully built during the 1990s—the tightly-clustered community of Randall Woods near Montague City, which was developed under a Comprehensive Permit, a publicly-subsidized affordable housing development on Winthrop Street in Millers Falls, and a private development known as Whitney’s Way near the Town boundary with Sunderland. A fourth planned subdivision along Millers Falls Road near the Airport Industrial Park has not been fully developed. Montague’s subdivision regulations are cumbersome and its zoning bylaws do not allow for open space/cluster development. The Planning Board is in the process of reviewing the regulations with the goal of making them easier to use and more amenable to creative development. A Back Lot Development bylaw was added to the zoning in 2003, and allows for the development of property in the Agricultural Business District that is not



valuable for agricultural purposes. Under this bylaw, up to four lots may share a common driveway, homes must be integrated into the landscape, and a certain amount of land must be permanently protected for each dwelling unit. In practice, developers have taken advantage of special permits for common driveways to create rural developments that resemble subdivisions on Taylor Hill and Dry Hill Roads. While this technique provides an alternative to frontage development, it remains to be seen whether these “common driveways” meet the needs of residents

and the Town as well as subdivision roads.

While development in the hills around Montague Center has had relatively little aesthetic impact, it has raised concerns about increased runoff and flooding due to clearing, grading and increases in impervious surfaces. A severe flood in 1996 resulted in major washouts on Dry Hill Road. Lack of adequate drainage is also causing runoff problems on Taylor Hill Road.



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## D.2 Infrastructure

### D.2.1 Transportation System

Montague's transportation system consists of three state highways, a network of town roads, rail lines, a limited regional bus system and a small airport. Construction of the Canalside Trail Bike Path, an off-road path, was completed in 2008, and shared roadway sections are planned to receive signage in the next year.

State Routes 63 and 47 are the major commuter roads connecting Montague to larger cultural and employment centers to the south. Easy access to Amherst (20 minutes) and Northampton (30 minutes) has made Montague Center an attractive bedroom community for professionals and students. State Route 2 runs along the northern boundary of the Town, connecting Montague to Greenfield and Route 91 to the west and to Erving to the east. Lack of good roads for truck traffic has been consistently mentioned as a barrier to industrial development in Montague. Ongoing safety improvements to Route 2, could remove this barrier and promote the development of the Town's remaining industrial land.

Major Town roads include Avenue A/Montague City Road, connecting Turners Falls and Montague City, Millers Falls Road, connecting Turners Falls and Millers Falls, and Greenfield Road, connecting Montague Center to Montague City. Like many towns in the Commonwealth, Montague is struggling to maintain its roads and bridges. Greenfield Road is scheduled for comprehensive renovation in the next few years, including drainage repair, bridge restoration and addition of "share the road" signs alerting motorists of cyclists.

Roads in the southeast section of town, including Ripley Road, West Chestnut Hill Road and East Chestnut Hill Road are in need of major drainage improvements. Recent development in this area is likely to make the problem worse. Dry Hill Road is impassible even to 4-wheel drive vehicles in sections. Restoration would require enormous investment.



As of fall 2009, there were two closed bridges in Town and several others in need of repair. The Greenfield Road Bridge over the B&M Railroad tracks was dismantled in 1999, and the future plan is to replace it with a bicycle and pedestrian bridge. A bridge over the Millers River connecting East Mineral Road to the Town of Erving was redesigned and reconstructed for use as a bicycle and pedestrian bridge in 2005, and will remain closed to vehicles. Design work is complete for the Gill-Montague Bridge, a critical bridge for both industry and tourism in Montague, and reconstruction is planned to begin either in Fall 2009 or Spring 2010.



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In 2006, the Gill-Montague Transportation Authority, which formerly provided bus service between the five villages of Montague and the towns of Greenfield and Amherst, combined with the Franklin Regional Transit Authority (FRTA) to create one agency. The FRTA now administers and coordinates the combined transit service, serving 40 towns in Franklin, Hampshire, Hampden, and Worcester counties. Three fixed routes currently serve the Town of Montague, on two of which the bulk of ridership is within Montague. Ridership for the Turners Falls route was 33,846 in FY 2009, the second highest out of all FRTA routes (FRTA personal communication). Despite these numbers, the vast majority of residents rely on automobiles for transportation. However, according to the 2000 U.S. Census, roughly 13 percent of occupied housing units in Montague did not have a vehicle available to the occupants, showing that transportation alternatives to the personal automobile need to be available to all residents.

Both the New England Central and Boston & Maine railroad tracks run through the Town but do not serve town businesses. The Amtrak passenger train connecting Vermont to points south passes through the village of Millers Falls. A group of residents is advocating for a passenger rail stop in Millers Falls. If passenger rail service were developed along an east-west rather than a north-south route, it could dramatically increase residential development by making commuting to the Boston area a more viable alternative.

Montague's roads are very popular with area cyclists. There are several "loop rides" through the town, and on sunny days in the spring, summer and fall it is not uncommon to see dozens of cyclists on these roads. Popular routes in and through Montague include, but are not limited to the following:

- A Montague Center loop on relatively flat terrain through the village of Montague Center and farmland along the Connecticut River, including Main Street, Old Sunderland Road, Meadow Road, South Ferry Road, Ferry Road and Greenfield Road.
- A Montague-Sunderland-Deerfield-Greenfield loop through agricultural areas on both sides of the Connecticut River, including Main Street, Old Sunderland Road, Meadow Road, Route 47, Route 116, River Road in Deerfield, Routes 5-10, Montague City Road, and Greenfield Road.
- A Montague-Erving-Gill-Northfield loop that also features great views of farmland on both sides of the Connecticut, including Turners Falls Road, Main Road in Gill, Route 10, Route 63, Pine Meadow Road in Northfield, River Road in Erving, East Mineral Road and Millers Falls Road.



- A hilly route through forested areas in Montague, Leverett, Shutesbury and Wendell, with the option for a swim at Lake Wyola, including North Leverett Road, Locke's Village Road, Mormon Hollow Road, Wendell Road, and Route 63.
- Mountain biking destinations including Montague Plains and Dry Hill Road.



In addition to these current on-road bicycle routes, three miles of the off-road segment of the Franklin County Bikeway run through Montague. The Canalside Trail Bike Path begins in Turners Falls across the street from Unity Park, and runs along the power canal to Montague City, where it crosses Montague City Road and runs across the Connecticut River on an abandoned railroad bridge to Deerfield. Bicyclists will be able to continue along Greenfield Road on a shared roadway

section of the Bikeway. The on-road section of the Bikeway also runs along Millers Falls Road from Turners Falls to East Mineral Road, connecting to the Town of Erving over the Millers River.

The Turners Falls Municipal Airport is one of only two airports in Franklin County. It currently offers a 3,000-foot long, 75-foot wide runway that can accommodate small single-engine and two-engine planes. It is a General Aviation airport, used for transportation, business, recreation, flight instruction and civil defense. Use of the airport has actually declined since its peak in the 1980s. The current Airport Master Plan calls for an expansion of the runway to 4,150 feet in the next few years. In addition to its transportation function, the airport provides important habitat for grassland birds. It is also used for recreational purposes by birders, walkers, mountain bikers and model airplane enthusiasts.



#### D.2.2 Community Drinking Water Supply System

The Town of Montague has three developed sources of municipal drinking water. There are two public wellfields located in the village of Montague Center. A single shallow well serves the village of Montague Center and is owned and operated by the Montague Center Water District, which services approximately 160 customers in the village center. In 2008, the District provided an average annual daily amount of roughly 35,000 gallons to approximately 450 people. This well is only twelve feet deep and is thus highly vulnerable to contamination.

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The Turners Falls Water Department owns and operates two wells in the Tolan Farm well field, with a maximum capacity of approximately 2 million gallons per day. Water from the wells is piped to storage tanks with approximately 6.3 million gallons of capacity on top of Wills Hill. In 2008, the Turners Falls Water Department supplied 6,742 people with drinking water on a daily average, which included residents of the Lake Pleasant Water District (Turners Falls Water Department, personal communication).

The Turners Falls and Montague Center wells are hydrologically connected. During drought or times of high demand, pumping the Tolan Farm wells drains the Montague Center well. There is a valve connecting the two systems that allows the Turners Falls Water Department to supply Montague Center when necessary.

The third source of water is the Lake Pleasant Reservoir, which was the Town's main source of water until 1965. Lake Pleasant is owned by the Turners Falls Fire District. It covers 53 acres and has a storage capacity of approximately 150 million gallons. It is connected to Green Pond, a 15-acre reservoir that holds approximately 40 million gallons. The Turners Falls Fire District owns approximately 1,310 acres of land (MassGIS assessed acreage figure) in the watershed for Hannegan Brook, which feeds the reservoirs.



The Turners Falls Water Department is currently developing a new well next to Lake Pleasant, scheduled to be completed in 2011. It is estimated that the well will have a 2 million gallon capacity, doubling the existing capacity (Turners Falls Water Department, personal communication). This new source is greatly needed, as the two existing wells at Tolan Farm are being pumped close to the maximum capacity. The development of an additional water source also removes constraints to new industrial and large-scale residential development, which would otherwise strain the ability of the Water Department to provide water to all its users.

In 1994, the Department of Environmental Protection (DEP) downgraded the Lake Pleasant and Green Pond reservoirs to an emergency water supply. Under current law, these sources cannot be brought back online for regular use unless the Water Department builds a filtration plant. The cost associated with this project is a significant issue for residents of the district and the town. Abandonment of Lake Pleasant and Green Pond as water supplies could make them available for swimming and other recreational uses. However, according to the DEP, Lake Pleasant is hydrologically connected to the new well being developed by the Water Department, and swimming will continue to be prohibited in the lake. Additionally, the Water Department and Fire District have concerns with allowing swimming in Green Pond due to its relative small size and



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shallow depth, which could result in high bacteria levels in the summer months (Turners Falls Water Department, personal communication).

Geological studies of the Montague Plains have indicated that the area is underlain by a significant aquifer that could serve as a new municipal water supply (Motts, 1971; Lehtinen et al., 1987). Based in part on this information, the Montague Planning Board recommended the protection of approximately 2/3 of the land area of the Plains, corresponding with the region that is believed to recharge the aquifer. In 1999, the Massachusetts Division of Fish, Wildlife and Environmental Law Enforcement (DFWELE) purchased 1,490 acres (deed acres as reported in MassGIS open space coverage) of the Plains, including most of the presumed aquifer recharge land.

One study surmised that the Sawmill River Valley has high potential for development as a groundwater source (Natural Resources Conservation Service, 2002). The Montague Center well is located in this area, which due to geology is highly sensitive to pollution. The aquifer recharge area for the Montague Center well is a DEP-approved wellhead protection area, and is further protected by restrictive zoning. Despite these safeguards, there are a number of existing uses in the area, including a junkyard, auto and equipment repair businesses, farms and a railroad line that pose potential threats to groundwater quality.

#### D.2.3. Sewer Service

Montague has a municipal wastewater treatment facility on Greenfield Road with a capacity of 1.83 million gallons per day of flow; 7,440 pounds Biological Oxygen Demand (BOD) per day and 6,000 pounds Total Suspended Solids (TSS) per day. Treated effluent is discharged to the Connecticut River; sludge is shipped out of town for disposal.

With the exception of Millers Falls, which is served by the Town of Erving's wastewater treatment facility, all of the densely developed areas of town are served by the sewer system, including the remaining four village centers and the Airport Industrial Park off Millers Falls Road. Sewer service is also available at the old landfill off Turnpike Road, which has been identified as an area for future industrial development. The Riverside section of the Town of Gill is also serviced by the Montague facility.

Areas not served consist of rural areas of Montague Center, including Meadow Road, North Leverett Road and the Taylor Hill and Chestnut Hill areas, Route 47 and Route 63 south of Millers Falls, Dry Hill Road, and Turners Falls Road between Hatchery Road and the Cemetery, Greenfield Road south of Greenfield Cross Road, Hillside Road, Millers Falls Road between the Airport Industrial Park and Winthrop Street, Lake Pleasant and Green Pond Roads and Wendell Road.

Lack of sewer service presents constraints to development in several areas, most notably on privately-owned land zoned for industrial use along Millers Falls Road on the

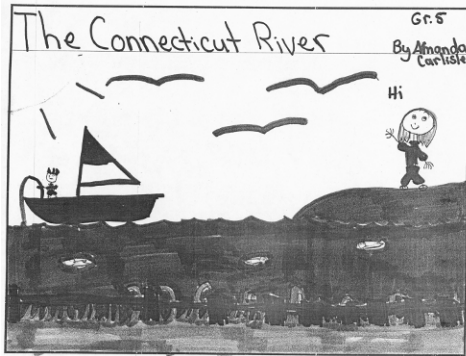
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Montague Plains. According to the Montague Highway Department, the current sewer line on Millers Falls Road is almost at capacity and cannot be extended. Extending sewer service to new industrial development on the Plains would require the construction of a new line across the Plains to connect with the line serving Montague Center.

Lack of sewer service also constitutes a barrier to residential development on Chestnut Hill and Dry Hill, where geology constrains the development of private septic systems. Extension of sewer service to Hillside Road, Taylor Hill Road or Wendell Road could significantly increase the potential for large-scale residential development in these areas.

In 2008, sewer users generated approximately 1.1 million gallons per day average flow (60% of capacity), 3,061 lbs. per day average BOD (41%) and 4,879 lbs. per day average TSS (81%). Under the NPDES permit, the WWTP is required to do a facilities study when 80% of flow capacity or BOD is reached.

In 2002, the Town began a study of its sewage treatment system. The study was designed primarily to assess a Combined Sewer Overflow (CSO) on Greenfield Road approximately 600 feet upstream of the Water Pollution Control Facility. CSOs are structures that discharge a mixture of sanitary sewage and stormwater to surface waters during wet weather. They are a significant source of water pollution and are strictly regulated by the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection. Montague was under pressure from DEP to develop plans to control its CSOs.



The CSO study identified an additional CSO that discharges to the Connecticut River in downtown Turners Falls. Through field investigation and computer modeling, the authors of the study concluded that there was a low level of control for treating combined sanitary and stormwater flows during storm events. The number of overflow events in the system was relatively high and not isolated to a single location. Each of the CSOs was estimated to contribute approximately 3.5 million gallons of combined

flow to the Connecticut River over the course of a year (Camp, Dresser and McKee, 2002).

A study conducted by the Connecticut River Swimming Hole Project of the Massachusetts Water Watch Partnership in 1998 found that fecal coliform counts in the river were higher following wet weather events than during dry weather. Average fecal coliform counts for a sample site at the Rock Dam, downstream of the CSO in downtown Turners Falls, exceeded levels considered safe for swimming. This was also true for two sites located downstream of the Greenfield Road CSO in Sunderland. These results suggested that CSOs in Montague had a negative impact on the recreational potential of the Connecticut River. However, the study also found that during dry weather, the river



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seemed to be safe enough to support swimming, fishing, boating and similar recreational uses (Walk, Schoen and Godfrey, 1998).

Since the 2002 CSO study, the Town has been committed to controlling its CSOs. In 2005 the Town approved funding for a CSO project and facilities upgrade. Since then two projects in Turners Falls that capture and retain overflow within the sewer system have been completed. A final project on Greenfield Road is due to be completed in the Spring or Summer of 2010, and includes construction of a CSO receiving facility at the Water Pollution Control Facility in order to treat the additional flow coming to the plant. Once the project is complete, the Town should meet or exceed the goal set by the DEP of reducing overflow by 85% (Montague Water Pollution Control Facility, personal communication).

Recent testing at the Rock Dam in Turners Falls between July 2008 and September 2009 show that *E. coli* levels rose above the safe level for primary and secondary recreation only once, during a wet weather event (>0.1 inches of rain over 24 hours). All other test results, including other wet weather events, reported levels suitable for primary contact recreation and secondary recreation (Tri-State Connecticut River Targeted Watershed Initiative, 2009).

### **D.3 Long-term development patterns**

Long-term development patterns in Montague will be affected by both existing and future land use controls, including zoning, by the permanent protection of more land, and by potential changes in transportation and sewerage infrastructure.

#### **D.3.1 Past Land Use Change and Land Use Controls**

According to a comparison of the 1971 and the 1999 MassGIS land use data<sup>2</sup> for Montague, the past thirty years saw the following changes:

- Infill development of high density residential uses in and around Turners Falls;
- Abandonment of commercial and industrial activity on Avenue A between the Gill-Montague Bridge and First Street in preparation for development of the Great Falls Discovery Center
- Increase in the amount of land occupied by the Turners Falls Airport;
- Expansion of the Industrial Park;
- Abandonment of pasture north and west of Taylor Hill;
- Development of ¼ to ½ acre residential lots on Randall Road and in the Randall Wood Drive subdivision;
- Development of residences on large lots along the frontage of Taylor Hill Road, East Taylor Hill Road, Turners Falls Road, Federal Street, Wendell Road, Ripley Road, West Chestnut Hill Road, and Chestnut Hill Loop Road.

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<sup>2</sup> 2005 MassGIS Land Use data is currently available, however due to changes in data collection methods and categories since 1999, it is difficult to compare the newest data with past Land Use data. In future Open Space and Recreation Plans, comparison between the 2005 data and future Land Use data will be possible.



Residential development of frontage lots on existing roads will likely be the dominant short-term development pattern given current zoning. Montague's zoning includes nine use districts and one overlay district, the Water Supply Protection District. There are four residential districts, Residential, Agricultural-Forestry, Agricultural-Forestry – 2, Agricultural-Forestry – 4, that varying density. The Residential District with a 22,500 square foot minimum lot size for single-family homes is the primary district in the village centers.

*Residential development of frontage lots on existing roads will likely be the dominant short-term development pattern given current zoning.*

There are three types of Agricultural-Forestry Districts that differ by minimum lot size and frontage requirements. The Agricultural-Forestry District has the same minimum lot size requirements as the Residential District and is the largest district south of Turnpike Road and west of Route 63. The Agricultural-Forestry – 2 District requires a two-acre minimum lot size for both single-family and two-family structures, and is located west of Main Street in Montague Center in the Taylor Hill area. There are about 400 acres in this district that could be developed. The Agricultural-Forestry – 4 District has a four-acre minimum lot size for single- and two-family homes and is by far the largest district in Montague. It is primarily located east of the Central Vermont Railroad tracks that run parallel to Rte. 63, but also north of Green Pond to West and East Mineral Hills.

Montague has four commercial districts, Rural Business, General Business, Neighborhood Business, and Central Business. The new Rural Business District replaced and expanded the old General Business District in the vicinity of Rte. 63, and includes areas once zoned Residential and AF. The General Business District is now limited to several discrete areas within Turners Falls and along Turnpike and Millers Falls Roads. The Neighborhood Business District is located in densely developed areas of Montague City, Turners Falls, and Millers Falls. It allows one- two-, three-, and four-family homes, with lot sizes from 10,000 sq. ft. to 60,000 sq. ft. The Central Business District is located in Montague City and along Avenue A in Turners Falls and along Bridge Street in Millers Falls. This is a mixed-use district, with residences allowed above the street level only.

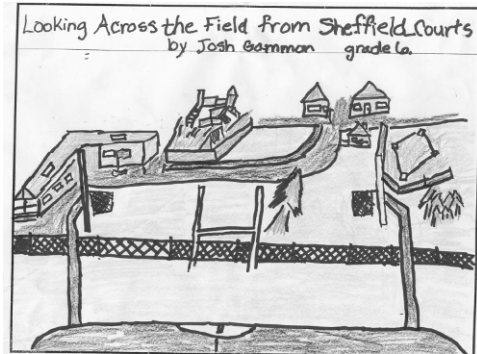


The majority of Montague's Industrial District is now the Montague Plains Wildlife Management Area, which is permanently protected from development. The Turners Falls Airport and the Franklin County Technical High School are also located within the Industrial District.





A new Historic Industrial District was created in 2001. This small district is located along the power canal in Turners Falls, and is designed to encourage redevelopment of vacant, underused and abandoned industrial buildings and sites. Mixed industrial, commercial and residential uses are permitted.



Other districts include Public—Semi-Public, Recreation/Education, and an Unrestricted district. There are also two overlay districts that could restrict development: the Floodplain and the Water Supply Protection Districts. The Floodplain District is a constraint on development unless construction is certified by a professional engineer or architect not to result in an increase in flood levels. The Water Supply Protection District is located in Montague Center and encompasses the Delineated Zone II Recharge area to the Tolan Farm Wells plus the Interim Wellhead Protection Area for the Montague Center well. The Turners Falls Water District has requested to the Planning Board that the Delineated Zone II Recharge area surrounding the new well under development adjacent to Lake Pleasant be included in the Water Supply Protection District. The area that would be affected by the zone change is approximately from the

*Montague's current zoning will create a development pattern that is more diverse than in many surrounding communities, but will not result in conservation of the rural and small town village character that many residents value.*

east side of Lake Pleasant to the west side of Route 63, and from mile marker 11 on Route 63 north to the Millers River in Millers Falls. In areas within the WSPD that are not served by municipal sewerage systems, the minimum lot size, unless the underlying district's requirements are larger, is 45,000 sq. ft. for single-family homes and 67,500 sq. ft. for two-family homes. Certain uses are prohibited within the WSPD, including business and industrial uses that use hazardous materials and any other uses that typically use materials potentially harmful to drinking water supplies. The Planning Board may grant a Special Permit for the following uses within a WSPD: the rendering impervious of more than 20 percent of the area of a single lot; any use retaining less than 50 percent of the lot area in its natural vegetative state; and commercial trucking or other motor vehicle uses and associated uses.

Montague's current zoning will create a development pattern that is more diverse than in many surrounding communities, but will not result in conservation of the rural and small town village character that many residents value. Montague zoning supports dense village center housing and a variety of residential lot sizes from ½ acre to 4 acres in the rural areas. Montague also encourages mixed commercial and residential uses in three of its village centers. However, even with this diversity of lot sizes, the potential for more development and its negative fiscal impacts is significant.

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Another way that land use can change is through the expansion of infrastructure that brings opportunities for growth and development to an area previously constrained. The public sewer system is particularly important in considering the potential for growth. New sewer lines facilitate new development. Therefore, sewer infrastructure should be expanded strategically to ensure that new industrial development occurs away from sensitive natural resources, and that new dense residential development is located close to infrastructure, services and existing development. Second, state septic regulations known as “Title 5,” often result in petitions to towns to rescue residents with problem septic systems. Expanding sewer to areas with physical and hydrogeologic constraints may open up other areas to future development. Third, expansion of sewer lines increases the cost of upkeep and repair to the town, particularly with respect to infiltration and inflow problems. Finally, new demand for public sewer service may require expansion of the wastewater treatment capacity, which can be very expensive. The point is that public sewer systems can be a valuable tool for controlling and, in a sense, rewarding dense residential development that remains close to existing infrastructure.

*Expanding sewer to areas with physical and hydrogeologic constraints may open up other areas to future development.*

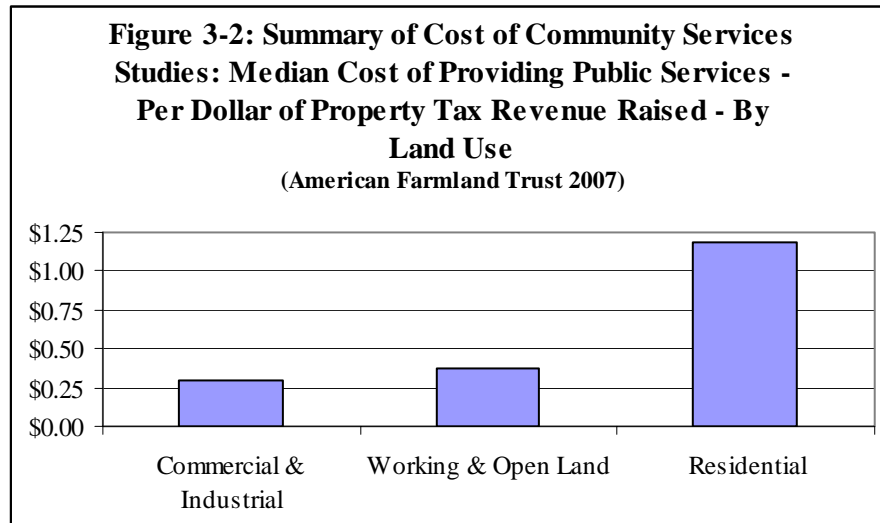
Although Montague has zoning that is designed to promote more viable downtowns, village centers, agricultural areas and rural forested landscapes, sprawl of roadside frontage lots is the current development pattern occurring in Montague today. This development pattern will diminish the differences between the villages and rural areas of town. Montague’s zoning encourages the development of homes on large lots, with few constraints except for steep rocky soils in the AF-4 District.

The challenge for Montague and other communities is to find a model for growth that protects vital natural resource systems and maintains a stable property tax rate. In designing the model, it is important to understand the fiscal impact of different land uses, which can be calculated based on the relationship of property tax revenues generated to municipal services used.

Although protected open space typically has a low assessed value and thus generates low gross tax revenues, municipal expenditures required to support this use are typically much lower than the tax revenue generated. In 1991, the American Farmland Trust (AFT) conducted a Cost of Community Services (COCS) analysis for several towns in Franklin County. A COCS analysis is a process by which the fiscal impacts of different land uses within a town are compared to determine whether a use has a positive or negative net fiscal impact. The results of the 1991 AFT study showed that protection of open space is an effective strategy for promoting a stable tax base. It found that for every dollar generated by open space, the municipal services required by that land cost on average only 29 cents, resulting in a positive fiscal impact to the town. In 1995, the Southern New England Forest Consortium (SNEFC) commissioned a study of eleven southern New England towns that confirmed the findings of the earlier AFT study. These



findings were confirmed by other COCS analyses across the country conducted over the last two decades. Figure 3-2 demonstrates the summary of more than 120 COCS studies. For every dollar of property tax revenues received from residential property, the amount of money expended by the town to support homeowners is over a dollar, while farm/forest and commercial/industrial property provide a positive fiscal impact.



Source: American Farmland Trust; 2007

The second component of a balanced land use plan concerns the development of other tax-generating land uses. Both the AFT and the SNEFC studies showed that for every dollar of taxes generated by commercial and industrial uses, the cost to towns for these uses resulted in a positive net gain. Patterns of commercial and industrial uses vary considerably between towns, and positive fiscal impact is only one of several important factors that need to be considered when encouraging this type of development. It is just as critical for communities to consider the impact of commercial and industrial development on quality of life. Viewed in this light, the best types of commercial and industrial development to encourage might have some of the following characteristics: locally owned and operated; use of a large amount of taxable personal property; “green industry” that does not use or generate hazardous materials; businesses that add value to the region’s agricultural and forestry products, and businesses that employ local residents. It is also important to consider that successful commercial and industrial development often generates increased demand for housing, traffic congestion and pollution. Therefore, the type, size and location of industrial and commercial development require thorough research and planning.

In conclusion, Montague would do well to:

- Protect open space near village centers to provide access to all ages
- Encourage locally-owned small to medium sized businesses in the transportation, communications, and public utilities and manufacturing sectors
- Take advantage of the economic gains that could be received from developing regional and local recreational-based tourism facilities and programs like bicycle

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trails that link farmland in Montague to the Montague Plains, the Connecticut River Scenic Farm Byway, the Franklin County Bikeway, and the Great Falls Discovery Center

- Locate new industrial parks close to existing infrastructure so that rural areas do not receive added pressure to develop at a higher density than appropriate
- Support the agricultural sector for all the public benefits received from active farming and to offset the costs of potential future residential development.

By pursuing strategies that combine active land protection, zoning measures that direct development while protecting natural and historical resources, and sustainable economic development, Montague can continue to grow and stabilize its property tax rates while maintaining its historic villages and rural character.

