CHAPTER 6

LAND USE AND ZONING

Introduction

How a community expands and develops its land over time reflects its history and values. Since its original settlement, Orange has contained a mix of farming and business enterprises, and a mix of rural low density and higher density residential settlement patterns. These mixes of business and residential activities in Orange continue today. The Town of Orange is often seen as less rural than neighboring towns and is considered one of the more urban communities in the region and a center for regional employment activity. At the same time, however, Orange is still predominantly rural, with considerable amounts of forestland, farmland and other open space and natural resource areas. According to the most current land use data available (1999), developed land uses in Orange account for only 14 percent of the Town's total land area. The majority of land today in the Town is forestland, which comprises 16,700 acres (73% of Orange's total acreage). Farmland accounts for another 1,530 acres (6.6%).

Orange and its goals and vision for the future continue to emphasize a balance between development and the preservation of open space, rural character, and important natural and scenic resources. The Town seeks new economic activity, employers that offer quality job opportunities, and appropriate development and growth, while also striving to maintain and preserve Orange's rural character, natural resources, and farms and forest areas. Orange is the only town in the region with two industrial parks. The Town also has a history as a mill town and as an important commercial and industrial center. At the same time, local land trusts and organizations have led a concerted effort, particularly during the last four years, to permanently protect thousands of important open space acres from future development. As a result, today, approximately 6,800 acres within the town are permanently protected as open space, and another 3,750 acres are temporarily protected from development through their owners' enrollment in the State's Chapter 61 property tax-abatement program.

The purpose of the Land Use and Zoning chapter is to examine the current land use conditions and development patterns. The chapter identifies zoning and non-zoning strategies which may be useful for ensuring that future development in Orange is balanced with preserving the Town's rural character and valued natural, historic, and scenic resources, and that future growth occurs in a way that best supports the community's goals and vision for Orange's future.

The Land Use and Zoning chapter opens by reviewing land use patterns and development trends in Orange, and the Town's current zoning districts and zoning regulations. The chapter then discusses recent efforts to protect private open space parcels from development,

and the residential construction trends over the past few decades. Next, the chapter reviews the build-out analysis for Orange, and the work that was done for the Community Development Plan to identify the potentially most suitable locations for future residential, small commercial, and industrial growth. The chapter then provides an analysis of the impacts of two different development policy scenarios (free market and growth management) on land use values as expressed in the goals and objectives. The chapter closes by presenting recommendations that have been developed by the Master Planning Committee to direct future land uses and growth in Orange, and to address the identified potential issues associated with new development.

Land Use Goals and Objectives

The Land Use and Zoning chapter's direction and discussion are governed by the following land use goals and objectives which were identified and supported during the Community Development Planning and Master Planning processes. These goals and objectives were established by reviewing the results of the Orange Community Survey that was conducted in 2002, revisiting the recommendations presented in the previous chapters of the Master Plan, and by obtaining additional input from the Master Planning Committee members. The Land Use and Zoning chapter synthesizes work conducted earlier for the for the Open Space and Recreation Plan (2001) and the Community Development Plan (2004), and for the Community Facilities and Services chapter of the Master Plan, and considers how to revise Orange's current land use and zoning policies to best support the Town's goals and vision for the future.

Goal A

- To promote economic growth, and commercial and industrial development, in appropriate areas of town, and in a way that helps sustain Orange's historic, scenic, and natural resources and that provides high quality employment opportunities for residents.

Objectives

- Encourage the re-use of currently vacant or underutilized commercial buildings and industrial sites, especially in Orange Center, through the redevelopment of those properties for the expansion of businesses and industry.

- Work with existing businesses to address space and infrastructure issues that may be compromising the businesses' ability to compete or expand.

- Support the diversification of the Town's employment base by promoting home businesses and companies that sell or produce locally created goods or services, such as farm, forest, and food products, and local crafts.

- Encourage heritage and recreational tourism businesses that will help promote the Town's historic, scenic, and natural resources, including Orange's historic village centers, the Millers River, Tully River, Lake Mattawa and other lakes and ponds, and the community's farms and forest lands.

Goal B

- To preserve and protect Orange's rural character, natural resources, outdoor recreational resources, and open undeveloped spaces through appropriate zoning and non-zoning measures.

Objectives

- Identify areas in Orange that might be used for future recreation areas, or for future water supplies, and work to maintain public access to these areas.

- Consider amending Orange's zoning bylaws to include more effective non-point source pollution controls within the Water Resource Districts, which contain the Zone II recharge areas; protect the land within the Zone I wellhead protection areas and Zone II recharge areas with conservation restrictions to reduce the possibility of water supply contamination.

- Review the current zoning's guidelines on development density, and consider increasing the minimum lot size and frontage requirements in the more rural sections of town, such as the Rural Residential District (Zone D), to help maintain these areas' rural character.

- Explore options to encourage developers to use Orange's Open Space Development Bylaw, which allows subdivisions to have smaller lot sizes in exchange for land being set aside as open space, and which can have lower construction costs due to reduced infrastructure expenses.

- Promote the permanent protection from development of prime farmland and properties that contain unusual plant communities and rare and endangered species habitat; coordinate with regional and state land protection efforts to ensure the conservation of large blocks of interior forest and connecting wildlife corridors.

Goal C

- To balance development with the provision of municipal services and the protection of natural resources.

Objectives

- Consider establishing a growth boundary for future water line and sewer line extensions consistent with the areas where the Town wishes to direct future development.

- Promote infill residential development and the use of vacant or underutilized commercial and industrial sites downtown for residential purposes, such as new senior housing, as appropriate.

- Further investigate the feasibility of residential, commercial, and industrial development in the areas identified in the Community Development Plan as the potentially most suitable locations for future growth. These areas were selected largely because of their proximity to existing services and to current town activity centers with a mix of developed land uses. Pursue zoning changes as appropriate to promote the desired types of development in these locations (such as accessory apartments and infill development).

Current Land Use Patterns and Land Use Changes since the 1970s

This section discusses the current land use patterns and development trends in Orange, and the land use changes that have occurred in the Town in the last three decades.

Current Land Uses

Much of the information on Orange's current land uses and land use changes over the past three decades comes from the Resource Mapping Project (RMP) at the University of Massachusetts-Amherst. The RMP used 1:25,000 scale aerial photography to estimate land uses statewide in 1971, 1985, and 1999. The aerial photographs were utilized to interpret and classify land into different land use categories. These land use classifications are based on a method developed by Professor William MacConnell at the University of Massachusetts-Amherst Forestry Department.

Table 6-1: Natural Resources and Agricultural Land Acreage in Orange, 1999

Land Use	Acres	% of Town's Total Land Acreage
Natural Resource and Agricultural Lands		
Forestland, including Forested Wetlands*	16,723	72.6%
Cropland, Pasture, Nurseries, and Orchards	1,531	6.6%
Surface Water	632	2.7%
Non-Forested Wetlands	582	2.5%
Total Area for Natural Resources and Agriculture	**19,468**	**84.5%**
Total Land Area in Orange	**23,044**	**100.0%**

**"Forested wetlands" are a subset of Forestland. Forested wetland areas were determined from the U.S. Fish and Wildlife Service's National Wetlands Inventory, 2001.*
Source for all other land uses: MassGIS, MacConnell Land Use Coverage, 1999.

Orange's total land area is 23,044 acres. Because development in the Town has historically been concentrated into a few village areas, much of Orange today remains undeveloped. According to the 1999 MacConnell (RMP) land use data, 84 percent (19,468 acres) of the Town's total land area is undeveloped and remains largely in a natural state *(see Table 6-1)*. Most of this undeveloped land consists of forestland. Forestland, including forested wetlands, occupies 16,723 acres in Orange, which equals 73 percent of the Town's total land area. Agricultural uses, including cropland, pastures, orchards, and nurseries, account for another 1,531 acres (7% of Orange's total land area), and surface waters and non-forested wetlands together comprise another 1,214 acres (5%). Surface waters include the Millers and Tully Rivers and their associated brooks, and Lake Mattawa, Tully Pond, Packard Pond, Lake Rohunta/Eagleville Pond, and numerous other small bodies of water.

Approximately 30 percent of Orange's undeveloped acreage (6,800 acres) has been permanently protected from development and another 16 percent (3,750 acres) is temporarily protected through its participation in the Commonwealth's Chapter 61 property tax-abatement programs. The Chapter 61 programs offer tax reductions for forestland, farmland, or open space properties if the owners commit to keeping the properties undeveloped for a certain period of time, typically at least five to ten years. The Orange Open Space and Recreation Plan (2001) documented the permanently and temporarily protected land parcels in Orange at the time the plan was completed. As described later in the chapter, a considerable amount of acreage in Orange has been permanently protected from development since the completion of the Open Space and Recreation Plan. The large areas of undeveloped land in Orange contribute to the natural beauty of the region, and provide the Town with a wealth of natural and scenic resources including historically significantly agricultural and community landscapes, and scenic views along the Millers and Tully Rivers, and from Lake Mattawa, Tully Mountain, and state forestland.

Table 6-1 above categorizes Orange's 19,468 acres of natural resource and agricultural lands. Of the close to 3,600 other acres in Orange, most are developed land *(see Table 6-2)*. Developed land uses account for an estimated 14 percent of the Town's total land area, and include single-family, two-family and multi-family residences, commercial and industrial businesses, public and institutional buildings and green space, recreational facilities, waste disposal sites, and transportation facilities and infrastructure. The remaining 2 percent (376 acres) of land in Orange is classified as "open land," a category that includes power line right-of-ways, former agricultural land, and areas with no vegetation. The 1999 Land Use and Land Use Change (1971-1999) Map at the end of the chapter shows land uses in Orange in 1999 (as estimated from aerial photographs using the RMP methodology).

Residential Land Uses

As Table 6-2 indicates, most of Orange's developed land area is occupied by housing lots and structures. Accounting for 2,178 acres in total (as of 1999), housing comprises 68 percent of Orange's developed land area, and 10 percent of its total land area. As shown in the table, 58 percent (1,268 acres) of the residential acreage is for lots of a half-acre in size or larger. Another 32 percent (697 acres) is for lots a quarter-acre to a half-acre in size. Eight percent

(171 acres) of the residential acreage is for lots under a quarter-acre, and two percent (42 acres) is for multi-family housing. Most of the small lots less than a quarter-acre in size, and multifamily housing in Orange, are located in the Village Residential/Commercial (A(c)) and Village Residential (A(r)) zoning districts. In these village districts, the minimum lot size for single-family and two-family homes is 10,000 square feet (0.23 acres) if the parcel is served by town sewer and 21,780 (0.50 acres) if it is not. Some of the small-lot housing is in the Residential/Commercial District (B), where the Leisure Woods Mobile Home Park is located. Multifamily dwellings over two units are allowed in Orange in all districts by special permit, except for in the overlay CARD District in the center of downtown Orange where they are allowed by right. Orange's zoning districts are shown on the Current Zoning Map at the back of this chapter.

Table 6-2: Developed Land Acreage in Orange, 1999

Land Use	Acres	% of Total Land Acreage	% of Developed Land Acreage
Developed Land			
Residential	**2,178**	**9.5%**	**68.1%**
Half-acre lots or larger	1,268	5.5%	39.6%
Quarter-acre to half-acre lots	697	3.0%	21.8%
Smaller than quarter-acre lots	171	0.7%	5.3%
Multi-family housing	42	0.2%	1.3%
Recreation	**79**	**0.3%**	**2.5%**
Commercial	**123**	**0.5%**	**3.8%**
Industrial	**149**	**0.6%**	**4.7%**
Mining (gravel production, etc.)	**19**	**0.1%**	**0.6%**
Transportation	**421**	**1.8%**	**13.2%**
Waste Disposal	**41**	**0.2%**	**1.3%**
Urban Public and Open*	**190**	**0.8%**	**5.9%**
Total Land Area for Developed Land	**3,200**	**13.9%**	**100.0%**
Land Area for Natural Resources and Agriculture	19,468	84.5%	
Land Area for Other Open Land**	376	1.6%	
Total Land Area in Orange	**23,044**	100.0%	

**Urban Open and Public includes cemeteries, public and institutional structures and green spaces (e.g. parks), and vacant land. **Other Open Land includes power line right-of-ways, former agricultural properties, and areas with no vegetation. Source: MassGIS, MacConnell Land Use Coverage, 1999.*

Other Developed Land Uses

After housing, the next more common developed land uses in Orange are transportation (421 acres), urban open and public lands (190 acres), industrial uses (149 acres), and commercial activities (123 acres) *(see Table 6-2)*. The urban open and public land use classification includes cemeteries, public and institutional structures and green space, such as parks, and vacant land. The Town's current commercial and industrial land uses are concentrated in and near the downtown where they were located historically, along Route 2A east of downtown, and in the two Orange industrial parks.

It is important to mention that the estimation of developed land uses, which is based on aerial photography, does not differentiate between actively used and vacant buildings. If a commercial or industrial property is no longer in active use, or is currently under-utilized, the analysis of the aerial photographs will not likely capture these nuances. As long as a commercial or industrial building/plant is present, no matter what the current degree of activity occurring inside the facility, the aerial photo-interpretation considers the property to have a commercial or industrial land use.

Land Use Changes since 1971

The 1999 Land Use and Land Use Change (1971-1999) Map shows 1999 land uses based on aerial photography interpretation, and indicates which areas experienced land use changes or new development between 1971 and 1999 with a cross-hatch pattern. The changes in the acreage of different land uses during this time period are also shown in Table 6-3.

Table 6-3: Changes in the Acreage of Different Land Uses in Orange, 1971 to 1999

	Land Use Acreage 1971	Land Use Acreage 1985	Land Use Acreage 1999	Change in Acreage 1971-1999	Percentage Change 1971-1999
Natural Resource and Agricultural Lands	**20,639**	**20,324**	**19,468**	**-1,171**	**-5.7%**
Forestland (including Forested Wetlands)	18,151	17,695	16,723	-1,428	-7.9%
Cropland, Pasture, Nurseries, and Orchards	1,670	1,716	1,531	-139	-8.3%
Surface Water	497	503	632	135	27.2%
Non-Forested Wetlands	321	410	582	261	81.3%
Other Open Land* (including power line right-of-ways)	**140**	**134**	**376**	**236**	**168.6%**
Recreational Land	**46**	**46**	**79**	**33**	**71.7%**
Residential Land	**1,439**	**1,653**	**2,178**	**739**	**51.4%**
Half-acre lots or larger	698	791	1,268	570	81.7%
Under half-acre lots	734	818	868	134	18.3%
Multi-family housing	7	44	42	35	500.0%
Other Developed Land	**778**	**887**	**943**	**165**	**21.2%**
Commercial & Industrial	148	190	272	124	83.8%
Transportation	406	401	421	15	3.7%
Urban Public and Open**	158	221	190	32	20.3%
Other Developed Land (mining, waste disposal)	66	75	60	-6	-9.1%
Total	23,042	23,044	23,044		

**Other Open Land includes power line right-of-ways, former agricultural properties, and areas with no vegetation.*
***Urban Open and Public includes cemeteries, public and institutional structures and green spaces (e.g. parks), and vacant land.*
Source: MassGIS, MacConnell Land Use Coverages, 1971, 1985, and 1999.

A review of the Land Use and Land Use Change Map and Table 6-3 highlights the amount of natural resource and agricultural lands that were converted to other uses between 1971 and 1999 largely as a result of development pressures. Over the twenty-eight year period, 1,567

acres of natural resource and agricultural lands were changed to other uses. Most of the affected land was forestland, which decreased by 1,428 acres. The amount of farmland, including cropland, pastures, orchards, and nurseries, shrunk by 139 acres (8%) during the same time period. The amount of surface water and non-forested wetland both experienced increases.

Much of the decrease in Orange's natural resource and agricultural land acreage between 1971 and 1999 resulted from conversion of this land to residential purposes. Over the twenty-eight year period, there was a 51 percent increase in the land area for residential uses. This increase included an 82 percent expansion (570 acres) in the land used for home lots a half-acre or larger, 18 percent growth (134 acres) in the land for residences with lots of less than a half-acre, and a 500 percent expansion (35 acres) in the acreage for multi-family homes. A primary component of the increased area for multi-family homes was the construction of Orange's two largest subsidized apartment complexes, King James Court and Pine Crest, during the late 1970s.

During the same time period, there was also a significant increase (236 acres) in the amount of other open land, which includes power line right-of-ways and former agricultural properties. There was also significant growth (84%) in the acreage for commercial and industrial land, due in part to the creation of the Orange Industrial Park in 1980. (Orange's newest industrial park, the Randall Pond Industrial Park, was constructed in 2002, and therefore is excluded from the 1999 commercial/industrial land use figures.)

Residential Development Trends

As mentioned above, Orange has seen significant residential growth and development since the early 1970s. Between 1970 and 2000, the amount of housing in Orange expanded by almost 1,000 units, increasing from 2,312 housing units (1970) to 3,303 (2000) (*see Table 6-4*). This represents 43 percent growth in the amount of housing over this time period.

Table 6-4: Housing Growth in Orange, 1970 to 2000, Comparison to the County and State

	Number of Housing Units				Increase 1970-2000	
Area	1970	1980	1990	2000	Unit Increase	Percentage Increase
Orange	2,312	2,957	3,106	3,303	991	42.9%
Franklin County	21,576	26,832	30,394	31,939	10,363	48.0%
Massachusetts	1,890,400	2,208,146	2,472,711	2,621,989	731,589	38.7%

Sources: U.S. Census Bureau, Census of Population & Housing, 1970, 1980, 1990, and 2000.

According to data collected on new housing starts in Orange, between 1985 and 2004, building permits were issued for 530 new housing units, including 522 single-family homes and 8 duplexes *(Table 6-5)*. This averages to 26.5 new housing units annually over this 20-year period. Much of Orange's housing growth during this time took place between 1985 and 1990. The 253 building permits issued during those six years account for almost half of the permits (48%) issued during the whole 1985-2004 period. In the 1990s, residential growth slowed considerably as the region and the town experienced an economic downtown;

between 1990 and 1999, single-family housing starts averaged 13.8 per year. Housing construction started to pick up again during the last few years as the economy began to recover. Since 1998, the Town has experienced increasing levels of residential growth once again. In 2003, building permits were issued for 34 new single-family homes, and in 2004, building permits were issued for 59 new single-family homes and 4 duplexes.

Table 6-5: Building Permits Issued for New Homes in Orange, 1985 to 2004

Year	New Housing Units Authorized
1985	27
1986	53
1987	48
1988	35
1989	50
1985 to 1989 Total	**213**
1985 to 1989 Annual Average	**42.6**
1990	40
1991	18
1992	23
1993	18
1994	12
1990 to 1994 Total	**111**
1990 to 1994 Annual Average	**22.2**
1995	15
1996	12
1997	10
1998	5
1999	11
1995 to 1999 Total	**53**
1995 to 1999 Annual Average	**10.6**
2000	13
2001	15
2002	24
2003	34
2004	67
2000 to 2004 Total	**153**
2000 to 2004 Annual Average	**30.6**
1985 TO 2004 TOTAL	**530**
1985 TO 2004 ANNUAL AVERAGE	**26.5**

Sources: Town of Orange Annual Reports and Building Permit Records; 1985-2004; 1985- 2000 information summarized by Edward Berry, Orange Resident and Development Consultant.

Orange has also been seeing a growing number of new ANR (Approval-Not-Required) building lots and new subdivisions. For example, in 2004, for example, sixty-eight

potentially buildable subdivision approval-not-required (ANR) lots were created. Recent subdivisions include a 33-lot subdivision approved in 2003, and 19-lot subdivision approved in 2004. Also in 2004, a special permit for 16 duplexes (32 housing units) was granted.

A primary factor contributing to the recent residential growth in Orange is the Town's relatively affordable housing prices compared to other nearby communities. Though the housing prices and housing demand in Orange have increased significantly in the past few years, with the median single-family sales price increasing from $67,050 in 1998, to $129,900 in 2003, Orange is still relatively affordable. In addition, Orange's location in eastern Franklin County and on Route 2, a major east-west corridor in Massachusetts, means that Orange is within potential commuting distance to Interstate 495 and the Boston metro area. As a result of the Town's lower housing prices and commuting potential, Orange is increasingly attractive to eastern Massachusetts residents who are unable to find suitable housing they can afford closer to Boston.

An important trait of Orange's recent residential growth is its location. As shown on the Land Use and Land Use Change (1971 to 1999) Map, and as indicated by the recent new residential construction figures, much of the new development is taking place in the outlying, most rural sections of Orange. This type of development can fragment the landscape, and can negatively impact the quality of wildlife habitats, watershed quality, and recreational opportunities within a community. As development increases in rural areas and forestland becomes divided, wildlife habitats may become so segmented that animals requiring large amounts of interior forest habitat may be forced to search for it in more remote areas. Fragmenting large blocks of contiguous forestland with development also increases the amount of impervious surface within sub-watersheds, which can jeopardize the water quality and quantity of many first and second-order streams. These streams are the most extensive and sensitive components of a watershed's stream network. In addition, the value of recreational opportunities associated with hiking, cross-country skiing, snowmobiling, and mountain biking often depends on whether a network of fields and forests to use for these activities exists away from residential areas. As development fragments these field and forest networks, the quality of the scenic and nature-based experience related to these activities diminishes.

As residential development in Orange becomes more spread out over time, it can also adversely impact the Town's rural and scenic character. Additionally, the new development can lead to greater need for municipal services, such as police and fire protection, school transportation, snow removal, and road maintenance, in the rural sections of town. Development in outlying areas can also create a demand for expanding or extending municipal sewer and water lines to serve the new residences. All of these factors can lead to higher municipal costs, which in turn can result in higher property taxes for residents. The potential fiscal impacts of residential development, and other types of development, are discussed in more detail later in the chapter.

Protection of Open Space Areas

Since the completion of the Orange Open Space and Recreation Plan in 2001, considerable energy has been spent by the Orange Conservation Commission, Mount Grace Land Trust, and other land protection agencies and organizations to protect additional previously unprotected open space areas in Orange from development. Some of this land protection activity occurred through the Tully Valley Private Forest Lands Initiative, a three-year land protection effort that was launched in 2000 by the Executive Office of Environmental Affairs (EOEA). The primary goal of the Tully Initiative was to protect lands within the Tully Watershed that were especially vulnerable to sprawling residential development patterns, and in doing so to prevent the fragmentation of contiguous forestland areas, and to help protect the region's biodiversity and economic viability of sustainable forestry activities. The Mount Grace Land Trust was the lead agency for the initiative and partnered with EOEA in negotiating the purchase of conservation restrictions for unprotected open space parcels. The Department of Environmental Management (DEM), the Department of Fish and Game, the New England Forestry Foundation, and the Trustees of Reservations were also important participants. By the time of its completion in 2003, the Tully Initiative had resulted in the permanent protection of more than 9,100 acres of forestland in the north-central Massachusetts region.

Between 2001 and 2004, through the Tully Initiative and other land protection efforts, the amount of permanently protected land in Orange increased by approximately 4,000 acres (140%) *(see Table 6-6)*. As of April 2004, 6,800 acres of land in Orange are permanently protected from development; 54 percent of this land is privately owned, the remainder is publicly owned. The permanently protected parcels account for 30 percent of the Town's total land area (23,045 acres).

Table 6-6: Permanently Protected Land in Orange, 2001 and 2004

Permanently Protected Land	Area in Acres, 2001	Area in Acres, 2004	Change, 2001 to 2004	
			Number of Acres	Percentage Change
Publicly-Owned	1,722	3,112	1,390	81%
Privately-Owned	1,108	3,690	2,582	233%
Total Area	**2,830**	**6,802**	**3,972**	**140%**

Sources: Orange Open Space and Recreation Plan, 2001; MassGIS, April 2004; acreage estimated by FRCOG GIS staff.

It is important to note that a considerable amount of the land in Orange that became permanently protected since 2001 was considered unfeasible for future development. It is estimated that of the 4,000 newly protected acres, only 2,600 (65%) potentially could have been developed. The remaining 1,400 acres have characteristics such as steep slopes that make future development very unlikely and cost-prohibitive, if not impossible.

Zoning Districts and Current Zoning Regulations

This section describes and discusses Orange's zoning districts and key aspects of the Town's zoning bylaws. A community's zoning districts and zoning regulations affect the character of a community and how the community develops and grows over time. The Town of Orange established its zoning code in 1977, and has made a number of revisions and amendments to the code over the past 38 years. The Orange Zoning Bylaws, and their regulations on the permitted and prohibited land uses in different parts of town, the minimum lot sizes, setbacks and frontages, and the allowable lot coverage, have all influenced the development patterns in the community during the past four decades, and have played a role in the land use trends and changes that were discussed in the last section. The zoning bylaws will also affect the way that Orange develops in coming decades, as is discussed in the next section of this chapter, Potential Future Patterns of Development.

Purpose of Zoning

The first section of Orange's Zoning Bylaws describes the purpose of the bylaws, indicating that the purpose is to "promote the general welfare of the Town of Orange, to protect the health and safety of its inhabitants, to encourage the most appropriate use of land within the town, to increase the amenities of the town, to minimize confusion and congestion, and to conserve the value of property within the town."

Primary Zoning Districts

The next section of Orange's Bylaws describes the Town's zoning districts, the boundaries of each, and each district's use and dimensional restrictions.

The Town of Orange has five primary zoning districts. These districts are shown on the Current Zoning Map at the end of this chapter, and the acreage for each district is listed in Table 6-7. The Rural Residential District (D) is the largest of Orange's zoning districts by far, encompassing 75 percent (17,264 acres) of the Town's total land area. The Rural Residential District includes most of the land in Orange that lies north of Route 2A, as well as most of the area south of Route 2A and west of Holtshire Road. The next largest districts are the Residential District (C), with 2,099 acres, and the Residential/Commercial District (B) with 2,012 acres. The Residential/Commercial District extends from south of the Millers River to the Orange-New Salem border and encompasses most of the area west of South Main Street, including the Orange Airport, the Leisure Woods Mobile Home Park, and the Town's two industrial parks. The Residential District is located south of the Millers River, primarily between Holtshire Road and South Main Street, and also extends south to the Orange-New Salem border.

Table 6-7: Primary Zoning Districts in Orange

Primary Zoning Districts	District Code	District Acreage	% of Total Town Acreage
Village Residential	A(r)	769	3.3%
Village Residential/Commercial	A(c)	900	3.9%
Residential/Commercial	B	2,012	8.7%
Residential	C	2,099	9.1%
Rural Residential	D	17,264	74.9%
Total		**23,044**	**100.0%**

Source: FRCOG Planning Department, GIS Staff, 2001.

The Village Districts (A), which are the Town's smallest zoning districts, include downtown Orange. The Village Residential District (A(r)) is located primarily along North Main Street and South Main Street. The Village Residential/Commercial District (A(c)) extends from the downtown along the Millers River and Route 2A to the Athol-Orange border. In the center of downtown also lies the small overlay CARD district, which allows higher development density than is, permitted anywhere else in town.

Use Regulation Schedule

The zoning bylaws list, by district, the uses that are allowed by right, those that are allowed by special permit, and those that are prohibited (Section 2230). Prohibited uses include those that could be a nuisance to other nearby properties (e.g. an automobile body shop in a residential district) and those that could potentially harm the public's health or welfare (e.g. an industrial use which generates significant quantities of hazardous materials located near a public water supply).

Table 6-8: Principal Use Regulations by Zoning District, Orange Zoning Bylaws

Y . . A permitted use
N . . An excluded or prohibited use
SP . . A use authorized only by Special Permit

	DISTRICT					
	A(r)	A(c)	B	C	D	CARD
Residential Uses						
One & Two Family Dwellings	Y	Y	Y	Y	Y	Y
Multi Family Dwellings over 2 units	SP	SP	SP	SP	SP	Y
Non-family Accommodations (boarding house, etc.)	Y	Y	SP	Y	SP	
Mobile Home	N	N	N	N	N	
Mobile Home Park	N	N	N	N	N	
Storage Trailers	SP	SP	SP	SP	SP	
Extensive Uses						
Agriculture or Forestry	Y	Y	Y	Y	Y	
Campground, Extensive Outdoor Recreation	N	N	SP	SP	SP	

	DISTRICT					
	A(r)	A(c)	B	C	D	CARD
Commercial Earth Removal	SP	SP	SP	SP	SP	
Community Service Uses						
Public Utility	SP	SP	Y	SP	SP	
School (educational use exempted from zoning regulations by G.L. CH. 40A, Section 3)	Y	Y	Y	Y	Y	
Other Educational Use	SP	SP	SP	SP	SP	
Church, Other Religious Use	Y	Y	Y	Y	Y	
Other Non-Commercial Community Service Uses	SP	SP	SP	SP	SP	
Business Uses						
Dog Kennels	N	N	N	SP	SP	
Hotel or Motel	N	Y	Y	SP	SP	
Take-out or Drive-in Food Service	N	Y	Y	SP	N	
Junkyard, Salvage	N	N	SP	SP	SP	
Farm Stand (local products)	Y	Y	Y	Y	Y	
Other Retail Services, Sales	SP	Y	Y	SP	SP	
Manufacturing, Processing	N	SP	Y	SP	SP	
Light Manufacturing	N	Y	Y	SP	SP	
Bulk Storage, Warehousing	N	SP	Y	SP	SP	
Transportation Terminal	N	SP	Y	SP	SP	
Incineration Plants	N	N	N	N	N	
Offices for up to 2 professionals	Y	Y	Y	SP	SP	
Professional Building with 3 or more offices	SP	Y	SP	SP	SP	
Offices other than the above	SP	SP	SP	SP	SP	
Motor Vehicle, Gasoline and Other Fuels, Farm Equipment, Motorboat Equipment and Parts thereof: Sales, Service and Rental	N	SP	SP	SP	SP	
Barber or Beauty Shop, Shoe Repair Shop	SP	Y	SP	SP	SP	
Gift Shops, Craft Shops, Sporting Goods, Sale or Lease	SP	Y	Y	Y	Y	
Drive-In Theaters, Cart Tracks, Mini-Golf, Driving Ranges, Similar Commercial Outdoor Recreation	N	SP	SP	SP	SP	
Other prepared food serving facilities; i.e. restaurants	SP	SP	SP	SP	SP	
Theater, Bowling Alley, Dance Hall, Nightclub, Arcade or other indoor Entertainment	N	SP	SP	SP	SP	
Shopping Centers, Malls, Retail Establishments of over 7,000 sq. ft. retail floor area	N	SP	SP	SP	SP	
Golf Courses, Shooting or Skeet Ranges, Archery Ranges, Similar Outdoor Recreation	N	SP	SP	SP	SP	
Other Principal Uses						
Other principal uses have externally observable attributes similar to a use permitted (Y or SP) above.	SP	SP	SP	SP	SP	

Source: Orange Zoning Bylaws, May 2002, Section 2230.

Dimensional Schedule

The allowed intensity of uses varies by zoning district. Each district has its own specific minimum lot, minimum yard and maximum building requirements. These requirements are summarized in Table 6-9. The bylaws allow for higher density development in areas that are served by municipal sewer than in areas without sewer access. For example, in the A(r) and A(c) Districts, lot sizes can be as small as 10,000 square feet (0.23 acres) if the lot is served by municipal sewer; if the parcel is not served by sewer, the parcel must be at least 21,780 (0.50 acres) in size. The CARD District allows the highest densities with a minimum lot size of just 5,000 square feet (0.11 acres) and 100% lot coverage, with no setbacks required. The Rural Residential District (D) has the lowest allowable development density with one-acre minimum lot sizes and 200 feet frontage requirements.

Table 6-9: Intensity of Use Schedule, Orange Zoning Bylaws

	DISTRICT				
	A	B	C	D	CARD
Max. Lot Coverage	70%	35%	25%	25%	100%
Max. Number of Stories	4	3	3	3	5
Min. Lot Area (sq. ft.)					
with sewer	10,000	21,780	43,560	43,560	5,000
without sewer	21,780	43,560	43,560	43,560	
Min. Lot Frontage (ft.)	50	100	100	200	
Min. Front Yard (ft.)	20	20	35	35	
Min. Side Yard (ft.)	10	10	15	20	
Min. Side Yard (ft.) for Multi-Family >4 units per Lot	20	20	30	40	
Min. Rear Yard (ft.)	15	15	25	35	
Additional Lot Area Required for Each Detached Dwelling Unit					
with sewer	10,000	20,000	20,000	20,000	
without sewer	20,000	40,000	40,000	40,000	
Additional Lot Area Required for Each Attached Dwelling Unit over 2					
with sewer	10,000	20,000	20,000	20,000	0
without sewer	20,000	40,000	40,000	40,000	

Source: Orange Zoning Bylaws, May 2002, Section 2320.

Flag Lots

Flag lots are building lots located behind other lots with minimal access and frontage on a public road. Under Orange's Zoning Bylaws (Section 2320), flag lots are allowed for single-family homes and accessory structures in Districts B, C, and D. Flag lots must have at least double the required lot area for their respective district, and the access portion of the lot cannot count towards the required area. The access strip for the flag lot must have a length between 150 and 1000 feet and a width between 40 and 75 feet. The width of the flag lot as measured where the principal building will be constructed must at least equal the required frontage for the district where the lot is located.

Overlay Zoning Districts

In addition to the Town's main zoning districts, Orange also has two overlay districts designed to protect its water resources. These districts are the Floodplain District and the Water Resource District. Uses and activities within the overlay districts must conform both to the requirements of the underlying zoning districts and to the additional restrictions for the overlay areas. The Floodplain District includes all areas within the 100-year floodplain designed of the Town of Orange Flood Insurance Rate Map (FIRM) and the Flood Boundary and Floodway Map, both of which are dated July 5, 1982 and which were issued by the Federal Emergency Management Agency (FEMA). Under the zoning bylaws, "development within the 100 year floodplain (land subject to a one percent or greater chance of flooding in any given year) shall be allowed only if authorized by a Special Permit from the Planning Board, after finding that the proposed development meets all other applicable requirements, and will constitute no hazard to either site occupants or others" (Zoning Bylaws, Section 3320). Land uses with low flood damage potential and causing no obstruction to flood flows are encouraged within the Floodplain District as long as they are allowed in the underlying district and do not require structures, fill, or storage of equipment and materials. Such uses include farming and other agricultural activities, forestry, outdoor recreation activities, wildlife management and conservation.

The Water Resource District includes the Zone I and Zone II Wellhead Recharge Areas approved by the Massachusetts Department of Environmental Protection (DEP) for Orange's three primary public water supply wells. These wells provide drinking water to residents through the Town's municipal water system. The purpose of the district is to "protect the public health by preventing contamination of the ground and surface water resources providing the water supply for the Town of Orange" (Zoning Bylaws, Section 4410). Within the Water Resource Districts, a number of principal and accessory land uses that could negatively impact the public water supply are prohibited. These land uses include:

- Facilities that treat, store, or dispose of hazardous waste (except for very small quantity generators of waste);
- Wastewater treatment facilities;
- Storage of hazardous materials, fuel oil, gasoline, sludge, or septage;
- Storage of road salt or deicing chemicals;
- Junk yards and salvage yards;
- Truck terminals with more than 10 trucks;
- Gasoline stations, auto repair shops, and auto body shops; and
- Landfills and dumps.

A few other land uses are allowed only by special permit. These land uses include:

- Residential dwellings with less than a one-acre lot that are served by on-site sewage disposal systems;
- Any use other than a single-family dwelling with on-site disposal of wastewater to a system with a capacity greater than 1,500 gallons per day;
- Land uses that result in impervious surfaces covering more than 15 percent or 2,500 square feet of any lot, whichever is greater; and
- Very small quantity generators of hazardous waste (as defined under 310 CMR 30.000).

Home Occupations

Home occupations are allowed by-right as accessory uses in Orange, under Section 2411 of the Town's Zoning Bylaws. As specified by the bylaws, no more than 4 people can be employed on-site for the home business. The home occupation must be carried on completely within the residence or accessory building, and no more than 50 percent of the floor area of the residence and 50 percent of the floor area of the residence and accessory building(s) combined can be used for the business. There must be no external displays for the business except for permitted signs and the business must generate no excess traffic, noise, smoke, dust, heat, glare, or odors. Parking for the home business must be accommodated off-street, and must not occupy more than 35 percent of the lot's area.

Open Space Developments

Open Space Developments are allowed in Orange by special permit, under Section 5700 of the Town's Zoning Bylaws. An Open Space Development sites houses together into one or more groups with smaller individual lot sizes in exchange for land being set aside as open space. Open Space Developments allow the same overall density as elsewhere but cluster housing together to preserve open space and natural resources, to encourage a less sprawling pattern of development, and to promote the efficient provision of water and sewer services and therefore lower the cost of new housing. Under the Open Space Development bylaw, at least 60 percent of the housing units in an Open Space Development in Orange must be detached single-family dwellings. Up to 40 percent of the units can be attached. Also, the development must be at least six acres in size, and at least 35 percent of the acreage must be set aside as common open space. No more than half the common open space may be wetlands, floodplains, and slopes greater than 25 percent. Overall, 88 percent of the dwelling units can be on 20,000 sq. ft. lots, while 12 percent can be on 10,000 sq. ft. lots. Roadways and accessory units shall not be counted as open space. To date, no Open Space Developments have ever been built in Orange.

Potential Future Patterns of Development

Many factors can influence a town's future patterns and levels of development. These factors include future local and regional economic conditions, both of which were discussed in the Economic Development chapter. Important factors also include a town's zoning and development regulations, as well as the characteristics of properties that are potentially available for new development. Orange's current zoning regulations were discussed in the previous section of this chapter. This section builds upon that discussion and talks about the town's potential for new development under the present zoning, as estimated through the Town's build-out analysis (2001). The build-out analysis calculated how much growth could occur in Orange under a full build-out scenario where permitted land uses are expanded and intensified to the maximum level and density allowed under the current zoning. This section also reviews the mapping of the potentially most suitable areas for future residential commercial, and industrial development that was conducted for the Orange Community Development Plan (2004).

Results of the Build-out Analysis

The build-out analysis for the Town of Orange was conducted in 2001 by the Franklin Regional Council of Governments (FRCOG), and was sponsored by the Executive Office of Environmental Affairs (EOEA). EOEA supported the creation of build-out maps and analyses for all 351 municipalities in the Commonwealth to help communities consider their potential for future residential, commercial, and industrial development under their current zoning, and the potential long-term impacts of such growth on municipal services, municipal costs, traffic levels, water quality, and open space lands and natural resources. The basic build-out analysis methodology was developed by EOEA and the thirteen Massachusetts regional planning agencies. For each town, the build-out analyses projected the following characteristics under the maximum build-out scenario, over the present conditions:

- Level of increase in residents;
- Growth in the public school population;
- Additional residentially developed land;
- Increase in dwelling units;
- Additional commercial and industrial developed land;
- Increase in water demand from new residential, commercial, and industrial development;
- Expansion of non-recycled solid waste; and
- Creation of new roads to support the additional residential development.

The first step of the build-out analysis was to determine the land area that could potentially be developed. This step started with all the acreage in a town and then excluded already developed areas. From the remaining, undeveloped acreage, the build-out methodology then excluded land areas with characteristics or environmental constraints that would make development impossible or very unlikely. Such characteristics and constraints included land areas being permanently protected as open space (i.e. State Forest or farmland under the

Agricultural Preservation Restriction Program), land having a steep slope, land being located within 400 feet of a public water supply; or land being located within a 100 feet of a stream or river, a buffer area regulated by the Massachusetts Wetlands Protection Act (Massachusetts General Laws, Chapter 131, Section 40). The build-out analysis then estimated the total number of new homes and commercial/industrial square footage that could result if every piece of unprotected, potentially buildable land were to be developed, assuming that no additional land is permanently protected within the community, and that the current zoning remains unchanged.

Overall, the build-out analysis estimated that 54 percent (12,552 acres) of Orange's total land area was still developable, and that 80 percent (10,029 acres) of the potentially developable area lay within the Rural Residential District (D). The D District allows single-family and duplexes by right and has a minimum lot size of 43,560 square feet (1 acre) for single-family homes. An estimated 10 percent (1,256 acres) of the potentially developable area was in the Residential District (C), and 7 percent (906 acres) was in the Residential/Commercial District (B). The remaining 3 percent (361 acres) was in the Village Residential and Village Residential/Commercial Districts (A(r) and A(c)).

After calculating the developable area in each zoning district, the build-out analysis then made assumptions about the type of future development that would take place in each district *(see Table 6-10)*. Table 6-10 lists the build-out analysis' assumptions about the type of future development in each district. The potential future land uses assumed for each district do not include all the land uses that are permitted in each district under the current zoning. For example, although the Rural Residential District (D) allows two-family dwellings by right, it was assumed that only single-family dwellings would be built in the D district. Similarly, although residential districts A(r) and C allow some non-residential uses, it was assumed that future development in these districts would be completely of a residential nature.

Table 6-10: Build-out Assumptions of Future Types of Development, by Zoning District

Zoning Districts	Assumed Future Development
Village Residential District (A(r))	88% single-family homes; 8% two-family; 2% three-family; 2% four-family
Village Residential/Commercial District (A(c))	58.3% single-family homes; 5.3% two-family; 1.3% three-family; 1.3% four-family; 18.4% commercial; 15.4% industrial
Residential/Commercial (B)	63.2% single-family homes; 5.7% two-family; 1.4% three-family; 1.4% four-family; 6.7% commercial; 21.6% industrial
Residential (C)	88% single-family homes; 8% two-family; 2% three-family; and 2% four-family
Rural Residential (D)	100% single-family homes

Source: Franklin Regional Council of Governments, Build-out Analysis for the Town of Orange, 2001.

For each type of future land use projected for a zoning district, the build-out analysis estimated the build factor, defined as the proportion of potentially developable land that could be developed for that use given frontage and lot requirements and other constraints, such as floodplains and steep slopes.

Using the assumptions about the future types of development *(in Table 6-10)*, and the calculated build factors, the build-out analysis then projected the level of new housing units and additional commercial and industrial square footage at maximum build-out. Based on this analysis, it was estimated that at full build-out, there could be up to 11,437 additional housing units, 10,855 (95%) of which would be single-family homes. The analysis projected that 74 percent of these new housing units would be located in the Rural Residential District. On the non-residential side, the analysis estimated that at full build-out, there could be an additional 5.67 million square feet of floor area of commercial and industrial activities. Two-thirds of this commercial and industrial space was expected to be created in the Village Residential/Commercial District, and one-third in the Residential/Commercial District.

The build-out analysis estimates of additional housing units and new commercial and industrial square footage were then used to project the total additional community facilities and services, including drinking water supplies, waste disposal, schools and new roads, that would be needed at maximum build-out. Table 6-11 summarizes these projections.

By maximum build-out, the analysis forecasted that Orange's population would grow to 38,935 people, more than 5 times the current population (7,512), and that there would be an additional 6,500 schoolchildren. Other impacts included:

- an increase in the Town's daily water demands of 2.78 million gallons a day;
- an expansion of the Town's solid waste stream by approximately 11,400 tons per year; and
- the construction of 192 miles of new roads to support the additional residential development.

Table 6-11: Summary of the Maximum Build-out Projections, including Community Needs

Zoning District	Potentially Developed (acres)[a]	Number of New Dwelling Units	Additional Commercial/ Industrial Floor Area (square feet)	New Residents[b]	New School Children[c]	Additional Water Usage (gallons/ day)[d]	Additional Solid Waste (Recycled and Non-Recycled) (tons/year)[e]	New Roads (miles)[f]
A(r)	163	661	--	1,721	355	129,025	628	3
A(c)	198	532	3,720,025	1,384	286	382,767	505	2
B	906	609	1,940,528	1,582	327	264,198	577	5
C	1,256	1,143	--	2,972	614	222,900	1,084	9
D	10,029	8,492	--	23,705	4,895	1,777,853	8,647	173
Totals	**12,552**	**11,437**	**5,660,553**	**31,364**	**6,477**	**2,776,443**	**11,441**	**192**

a. Takes into account wetlands.

b. Assumes 2.60 people per dwelling unit (the 1990 Orange average).

c. Assumes 0.54 school children per household (the 1997 Orange average).

d. Assumes daily usage of 75 gallons per person for residential development, and 75 gallons per 1,000 square feet of floor space for commercial and industrial development (figures from the MA Department of Housing and Community Development's Growth Impact Handbook).

e. Assumes 0.3648 tons per person/year for non-recycled solid waste (the Statewide average). Commercial and industrial solid waste is excluded because its disposal is not typically dealt with by towns, but by private haulers.

f. Assumes that house lots would be built on both sides of the new roads.

There are a number of other infrastructure improvements and expansions that would be needed at full build-out, but that were not explicitly considered as part of the build-out exercise. These include an expansion of the Town's wastewater treatment facilities, the development of new public water sources, and new sewer and water lines. They also include school expansions and development of new parks and recreation areas to accommodate the additional population. Many of the needed infrastructure expansions would have large financial costs, which the Town and town residents would have to absorb.

The build-out analysis did not consider factors other than zoning, such as regional and local economic conditions, that could influence how a community develops in the future. It also assumed that the zoning guidelines and restrictions, and the environmental regulations affecting development, will remain the same over time, and that no additional farmland, forestland, or recreation areas in Town would become permanently protected as open space. Furthermore, under the maximum build-out scenario, the time frame until full build-out could be many decades, as the build-out analysis does not predict how fast or slow the projected growth would occur. Already, the build-out scenario for Orange is out-of-date since the town has protected close to 4,000 additional acres from development since the build-out analysis was completed.

The build-out analysis provided an important wake-up call to communities regarding potential future growth and encouraged many towns to more actively plan for the future and to think about possible zoning strategies and other tools which they could use to prevent the build-out scenario from becoming a reality.

Identification of Potentially Suitable Areas for Future Development

This section summaries and builds upon information presented in the Natural Resources and Open Space chapter *(Chapter 1)*, Economic Development chapter *(Chapter 2)*, and Housing chapter *(Chapter 3)* regarding the spatial analysis and mapping of the potentially suitable areas for future development in Orange.

This analysis and mapping focused first on identifying which areas of Orange may be unsuitable for any future development due to the environmental and open space constraints documented earlier through the Open Space and Recreation Plan, and updated for the Natural Resources and Open Space chapter. Areas which are constrained from future development include land which has been permanently protected from development; wetlands; land with slopes over 25 percent, and land which is already developed. These areas are shown on the Land Use Suitability Map in Chapter 1.

The analysis and mapping then removed those areas from consideration, took into account potential constraints to development for the remaining areas, and then works with the potentially developable areas and the documented constraints to identify suitable locations for new industrial, commercial, and residential development.

The areas that are potentially constrained from development in Orange include:

- Areas with a slope of 15 to 25 percent;
- Land over aquifers;
- Interim Wellhead Protection Areas and Zone II Areas;
- Estimated Habitats of Rare Wildlife in wetland resource areas, Priority Habitats of Rare Species, and Core Habitats for Rare Species and Natural Communities;
- Areas with Prime Farmland Soils; and
- Land within the Regional Greenway.

These areas and the areas which the Master Planning Committee identified as being the potentially most suitable for future industrial, commercial, and residential development are shown on the development suitability maps in Chapter 2.

Areas Most Suitable for Residential Development

Because of its current water and sewer access, and services such as stores, offices, Town Hall, and the main library, the Master Planning Committee believes that the downtown could be an appropriate location for infill development, new residential growth, and mixed residential and business development. The downtown currently has a number of vacant and underutilized buildings and sites, and some of these could be redeveloped as residences, or for a mix of residential and business uses. For example, the historic Putnam Hall building has been considered for future senior housing.

In addition to its support for downtown residential development, the Master Planning Committee has identified two other areas which are also considered potentially to be the most suitable for new homes. These areas are both close to the downtown and to current town water and sewer services, which could reduce potential site development costs and impacts. These sites are shown on the Small Commercial and Residential Development Suitability Map (Chapter 2) and identified with yellow stars. The first site is located between Walnut Hill Road and South Main Street near Hickory Club Road. This site is considered suitable for residential development as is allowed in the Residential (C) zoning district. The other site is located off of North Main Street and is considered suitable for Rural Residential development (zoning district D). Both zoning districts C and D allow one and two-family homes by right and multi-family dwellings by special permit. The minimum required lot size in both districts is 43,560 square feet (1 acre) for a single-family home.

Areas Most Suitable for Industrial or Large Commercial Development

Industrial or large commercial land uses could include an office park, a retail business larger than 5,000 square feet, or a manufacturing, materials testing, scientific research, or assembly work facility. The potentially suitable land areas for new industrial or large commercial development are located near transportation infrastructure and have slopes of 15 percent or less. They are also not situated near residential or recreational land uses, or near historic, scenic, or environmental or open space resources with which they may not be compatible.

Specifically, the potentially suitable areas meet the following criteria:

- They are included in the potentially developable areas shown on the Land Use Suitability Map;
- They have slopes of 15 percent or less;
- They are situated within a quarter-mile of an existing rail line, or with a half-mile of a major roadway or the Orange Airport;
- They are located within a half-mile of existing water and sewer services;
- They are not situated within 200 feet of existing residential land uses;
- They are not located within Zone II or Interim Wellhead Protection Areas;
- They are not currently used as farmland;
- They are not situated within areas that have been identified by the Natural Heritage Endangered Species Program (NHESP) as containing sensitive, rare, or endangered species; and
- They are not located within the greenway identified in the Orange Open Space and Recreation Plan (2001).

Areas that meet all nine of the above criteria are shown on the Industrial/Large Commercial Development Suitability Map *(in Chapter 2)* as being potentially suitable for this type of development. The areas that the Master Planning Committee considers potentially the most suitable for industrial or large commercial development are indicated on the map with red stars. Five sites for future industrial or large commercial development have been identified. Three of the sites are adjacent to the Orange Airport and Randall Pond Industrial Park. The other two sites are located north of East Main Street.

Areas Most Suitable for Small Commercial Development

The Master Planning Committee also identified areas most suitable for small commercial development. Small is defined as a building footprint of 5,000 square feet or less. Such uses might include small offices or a small retail establishment. The Master Planning Committee has identified downtown Orange as the most suitable location for new small business development and for mixed commercial and residential development for the following reasons:

- The downtown was historically and is still currently, an important center for civic, business, and residential activities.
- The downtown is served by the Franklin Regional Transit Authority's Link route, a regional bus service that operates weekdays along Route 2/2A between Greenfield and Athol.
- The downtown has a number of structures and building lots that are presently underutilized or in disrepair that could benefit from rehabilitation or redevelopment.

Areas in Orange to Encourage Conservation and Discourage Future Development

The Orange Open Space and Recreation Plan, Orange Community Development Plan, and Orange Master Plan all recognize that to best serve residents of this and future generations, particular regions and natural resources of town need to be conserved and protected from the negative impacts of development and intensive land uses. These areas include:

- Aquifers and drinking water supply protection districts;
- Areas with slopes over 15 percent;
- Estimated Habitats of Rare Wildlife in wetland resource areas, Priority Habitats of Rare Species, and Core Habitats for Rare Species and Natural Communities;
- Areas with Prime Farmland Soils; and,
- The Regional Greenway, which is located in the hills of western and northern Orange and which connects large areas of protected forest around the Quabbin Reservoir in the south to those in Wendell, Warwick, and New Hampshire.

These areas and resources can be conserved through:

- Managing the land in less-intensive uses like long-term forest management and agriculture;
- Restricting development through the purchase and holding of the land by public and private entities for conservation purposes in perpetuity;
- Strongly encouraging the use of Open Space Development over conventional subdivisions in Zone D, the Rural Residential District, which would create open space;
- Regulating uses on these areas through existing local and state laws; and
- Removing unnecessary burdens on farmers with a Right-to-Farm bylaw.

Summary of Major Land and Development Trends in Orange

The following bullets summarize the major development patterns and trends in Orange.

- Increasing levels of residential growth and new construction in the last five years.

- Most of the new residential development is Approval-Not-Required (ANR) single-family home development occurring outside of the traditional village centers, and on roadside lots.

- The current patterns of residential development are impacting Orange's rural character, natural resources, and municipal service costs. As a result of sprawling growth, some forestland and farmland has been lost and converted to developed land uses.

- Current population projections and trends call for continued modest population growth in Orange over the next twenty years. Projections developed by the Massachusetts Institute of Social and Economic Research estimate that Orange's population could increase from 7,512 in 2000 up to 8,020 by 2020 (6.7% growth) or could decline slightly. Projections developed by the Franklin Regional Council of Governments forecast that Orange's population could expand 14.9 percent by 2020, growing to 8,640. If the current residential trends hold over the coming decades, Orange's 2020 population is likely to be close to the higher end of these forecasts, or to surpass them altogether. Much of Orange's population growth is likely to be driven by an increasing number of adults age 25 and over, particularly elderly adults age 65 and over.

- Most commercial and industrial development is occurring in and near Orange's village areas and industrial parks, and along Route 2A east of Orange Center.

- The Town of Orange is currently working on a number of revitalization and redevelopment initiatives in the downtown area, including the creation of Riverfront Park, which should help promote infill development and help promote the economic health of the downtown, and the town as a whole. Some of these projects should also raise the visibility and viability of the Town's nascent recreational and heritage tourism industry, which in turn can help protect Orange's valued natural, historic, and scenic resources.

- Under a maximum build-out scenario, the Town of Orange could potentially grow more than four-fold in terms of new residents and new housing development. Since most of the growth between the present and maximum build-out is expected to occur in the Rural Residential District, increasing the minimum lot size or frontage requirements in the district could have a large impact on the Town's potential future growth.

- The protection of approximately 2,600 acres of previously unprotected, potentially developable open space land in Orange during the last few years will help protect the integrity of Orange's forestland and biodiversity. The protection of these parcels and proposed changes to the Town's zoning can help direct new development in Orange to areas that are most suitable for new growth.

A Town's Choice: Sustainable Development or Unmanaged, Market-Based Growth

The evidence presented in this chapter as well as in the other chapters of the Master Plan strongly indicates that the Town of Orange needs to develop a cogent policy of development to guide its growth in a manner that conserves its community values and assets, including its neighborhood and rural characteristics, its natural systems and resources, and a local economy and set of community services that contribute to the quality of life for all residents. These values are clearly reflected in Table 6-12, which simplifies the relationship between

the land use-related resources and town characteristics most valued by residents, and the types of strategies/policy initiatives identified by the Master Planning Committee to best sustain them.

The first two values in Table 6-12 (economic growth; rural character and natural resources) involve sets of resources or conditions. The Town has identified strategies to promote these resources and to impact where the development or conservation should occur. The third value, a reasonable rate of development, deals mainly with how fast remaining open land can be developed. The policy initiatives for this value seek to manage growth by encouraging development in the most appropriate areas.

Table 6-12: The Basis for Orange's Development Policy: Land Use and Zoning Goals and Objectives Tabulated as Values and Initiatives

What is Valued	Growth Management Policy Initiatives
Economic Growth	Re-use of currently vacant or underutilized commercial buildings and industrial sites, especially in Orange Center.
	Work with existing businesses to address space and infrastructure issues.
	Support development of home businesses and companies that sell or produce locally created goods or services.
	Encourage heritage and recreational tourism businesses.
Rural Character and Natural Resources	Maintain public access to future recreation areas and water supplies.
	Include more effective non-point source pollution controls within the Water Resource Districts.
	Protect the land within the Zone I wellhead protection areas, and Zone II recharge areas.
	Increase the minimum lot size and frontage requirements in the Rural Residential District (Zone D).
	Encourage use of the Open Space Development Bylaw.
	Support the protection of valuable natural resources land from development.
A Reasonable Rate of Development Consistent with the Capacity of Municipal Services and the Protection of Natural Resources	Develop a growth boundary for future water line and sewer line extensions consistent with the areas where the Town wishes to direct future development.
	Promote infill development and the use of vacant or underutilized commercial and industrial sites downtown for residential purposes
	Pursue zoning changes as appropriate to promote the desired types of development in these locations that are potentially most suitable locations for future growth (e.g. accessory apartments).

The Town of Orange is at a critical juncture in its history. Ten years ago, the Town was not experiencing the same level of development pressures as is seen today. The Town's Open Space and Recreation Plan (2001) had an important message: plan and protect now before future development pressures lead to higher land values and make conservation options increasingly expensive. Fortunately, many Orange landowners desiring payment for the protection of their forestlands were able to take advantage of the conservation opportunities presented by the Tully Initiative. The Tully Initiative, sponsored by the Massachusetts

Executive Office of Environmental Affairs, resulted in Orange landowners protecting nearly 4,000 acres, mostly through conservation restrictions, between 2001 and 2004. However, while some of the most scenic and valuable forested parcels have been protected, the Town still remains vulnerable and could lose much of what its residents value.

Orange residents seek a high quality of life with good jobs, decent housing, an affordable tax rate, and an environment that provides clean drinking water, clean air, and scenic views of forests, fields, and wetlands. Orange residents want growth but not by sacrificing rural character or the quality of their natural resources. Residents seek economic growth for the jobs it might create for themselves or their neighbors, but also so that additional commercial and industrial property owners can share some of the tax burden to pay for the rising costs associated with community services like education, police, fire and highways.

The Town of Orange can choose to continue to influence where and how development occurs, or, it can choose to forgo action in favor of letting market forces dictate how and where land gets developed. If the Town chooses to take control over where and how development occurs, it could produce favorable results: growth will occur; natural resources will be conserved; and, the rate of open space development will not exceed the capacity of the municipal infrastructure (schools, highway, police and fire, sewer, water), or reduce the quality of the natural resources that support residents' quality of life (drinking water supplies and recharge, working farm and forestland, and wildlife). If the town chooses to only follow the market, the long-term results will be similar to, or worse than, those described for the maximum build-out scenario.

An analysis of the two scenarios (Free Market and Managed Growth) are presented to illustrate the potential impacts of these two choices on economic growth, natural resources and rural character, and the rate of development. The Free Market approach does not have specific strategies associated with it while Managed Growth approach uses the policy initiatives described in Table 6-12.

Both scenarios assume that projected growth for the 2000-2020 period will be consistent with the FRCOG's population projections. Over the next twenty years, Orange is projected to increase in population by 15 percent, from 7,518 to 8,638, an increase of 1,120 people, who will be housed in an estimated 453 new dwelling units (based on the number of people per owner occupied housing unit in 2000 (2.47)). It is assumed that market forces left unhindered would continue the current trend of most residential development in Orange occurring in the Rural Residential District (D), in ANR lots and traditional subdivisions.

It is also important to consider that the location and types of economic development can influence the rate of development within the community and the overall fiscal stability of the town. This is discussed further beginning on the next page, as part of the comparison of the two growth policy scenarios.

The real estate market does not direct development to sustain natural resources or to please residents as a whole. It is assumed that market forces would not directly lead to changes in zoning, such as to encourage or discourage different types of development. Therefore,

Scenario One assumes that there will be no changes to zoning or to the numbers of acres in conservation. It follows then that the build factor (0.85) employed in the build-out analysis still applies. An estimated 453 new homes are projected to be built in Orange by 2020. Using the build factor above (0.85), a developer constructing these new homes in a pattern of subdivisions or on ANR lots along road frontage, would use at least 533 acres of land (453/0.85).

Scenario One - Free Market: Let Market Forces Dictate How and Where the Projected Growth will Occur

Location and Pattern of Development

According to the Land Use Suitability Map *(in Chapter 1)*, Chestnut Hill, known for the Orange State Forest, wildlife habitat, Garlic and Arts Festival, etc., could be the site of a large subdivision, potentially visible from Lake Matawa. A development of that scale, in this area, could drastically reduce the wildlife value of existing protected lands as well as the quality of the groundwater that recharges two of the town's three wells. The developable land in fact includes the Zone III recharge area for the drinking water supplies.

The new homes could also be developed as ANR frontage lots spread all over town, the dominant development pattern in western Massachusetts. All types and locations of residential development would likely result in some of the same costs in support of the public schools and general government services. However, there are three other general categories of municipal costs that usually increase as development becomes more and more sprawling: police/fire, highway, and environmental costs. There are certainly always costs associated with population increases no matter where new housing is located but, as police and fire personnel need to respond to more service calls that are more frequently farther away, the need for more staff, more cruisers, and more hours for patrolling will likely occur. As traffic volumes rise on the same roads and as new town roads are built, the highway department responsibilities would increase as would staffing and funding needs. The environmental costs associated with an increase in new road development from subdivisions include more runoff of pollutants, decreases in the biodiversity of the stream network that would receive these waters, and the fragmentation of habitat due to spread-out development. Unprotected farmland and scenic views would become developed. Imagine the impact of the 453 projected new homes on the Town's rural character, if all were built on ANR lots. Each home would require 200 feet of frontage given the zoning requirements in the Rural Residential District. The result would be nearly nine miles of roads with frontage lots on both sides.

The Town of Orange has been successful in the management of economic development with the creation of two industrial parks. Both industrial centers would not have been developed without the volunteer efforts of residents who worked together to set aside appropriate land, developed the performance measures by which new industries could locate in the parks, and oversee their promotion. This was a Town-sponsored process and the products were intended to serve Orange residents as a whole with jobs, and over the long term, with property tax revenues.

Would a free market approach to economic growth result in locating new businesses without consideration of town values? Possibly, or possibly not. Could you imagine if Orange officials were to be approached by another big-box retailer? Or by a bottling plant that wanted to locate its wells on the Tully River? Without proper planning and growth management, the type of development that could occur may not be what residents want, and may not support the community's main values.

The impacts of a free-market development strategy in Orange could result in losses in water quality, scenic views, and increases in residential real estate taxes beyond that which would be expected under the managed growth scenario. The negative impacts of development can be minimized through thoughtful zoning.

Because both growth scenarios (market-based and managed growth) deal with the same projected number of dwelling units (453 new homes), the argument that considers the fiscal impacts associated with each new dwelling unit is not as useful as comparing the likely impacts of the location, pattern, and rate of development on the town's values. For example, if market forces are allowed to dictate the pattern and location of development given existing zoning, the projected homes, if build in a sprawling pattern on ANR lots along the Town's roadways, would likely require more in town services than would more concentrated housing or infill development near existing infrastructure as is described for the Managed Growth Scenario.

In addition, without managed growth, the location of new subdivisions could be placed far beyond the existing water and sewer system (i.e. greater than a ½ mile). Any expansion of existing Town infrastructure to include such new subdivisions could in effect accelerate the development of those units within the project, and the development of lots along the new line extension(s), and could possibly provide for a greater total number of units than would otherwise have been built were only on-site sewer systems and private wells used.

For example, the Orange Water Department is considering the development of a new water source in West Orange, just north of the Millers River. The primary motivation behind the new water source is the potential need for increased fire protection capacity. As more and more homes are built in town, the department's ability to provide fire protection with existing water supplies is reduced. The Department expects that a new well in West Orange would provide sufficient added volume and water pressure to meet the needs of an expanding customer base in this part of town.

If the course of the water line connecting the system to the new well, were to pass over already developed land, the short-term impacts could be minimal. However, if the new water line were to cross currently undeveloped land, the impacts could include additional residential and commercial development, and the demand for new sewer lines to meet the needs of the new higher density land uses.

As documented in the Community Facilities and Services chapter, the Orange Wastewater Treatment Plant needs to reduce the amount of stormwater and groundwater that enters its system by way of leaks in pipes and manholes and illegal tie-ins with rain gutters and sump

pumps. This is a long-term need that both Town officials and plant operators agree on. Even if we assume that the Town will be successful in decreasing the inflow and infiltration problems over time, a large-scale subdivision development with access to sewer or water could still result in an undesirable increase in the hydraulic flow to the already burdened treatment plant.

Scenario Two – Growth Management: The Town of Orange Continues to use Zoning and Non-Zoning Techniques to Direct Growth to Sustain Town Values

Unlike the free market approach where the impacts of development would be addressed one project at a time and where the collective costs from development would likely keep Orange officials playing "catch-up", growth management takes the whole Town of Orange and the town's values and future into consideration. This explains why communities are often more successful in approving "smart growth" zoning bylaw changes after the completion of a comprehensive planning process like a master plan.

According to the Master Plan Land Use and Zoning objectives, the following **bolded** policies would guide residential, commercial, and industrial development in Orange, in the desired ways, over the next ten to twenty years. Their impacts on the location and pattern of development, on the values of natural resources and economic growth and on the rate of development are discussed below.

Location, Pattern, and Rate of Development

Orange could establish **a ½-mile growth boundary** for future water line and sewer line extensions similar to that described in the Town of Orange Community Development Plan's Small Commercial and Residential Development Suitability Map. A ½-mile buffer of the existing (2004) sewer and water lines would encompass areas most suitable for future residential, commercial, and industrial development both north and south of Orange Center.

The growth boundary would then include the Village Residential Commercial (A(c)) District, the Village Residential ((A(r)) District, and portions of the Residential Commercial (C) and Rural Residential Districts (D). The Town might also want the growth boundary to include existing parcels surrounding Lake Mattawa, as there is a need to protect the water quality of the lake. As more and more of the homes around the lake become year-round residences, the risk of septic problems increases. The projected new housing between 2000 and 2020 (453 units) could be developed in the A(c) district, which according to the build-out analysis still has 198 developable acres. The Village Residential district contains another 163 acres of developable land that could support 660 new dwelling units, well beyond the twenty-year projected need for housing. A strategy of **infill development** could result in a reduction of open space development if these needs could be partially met through the development of housing in and around Orange Center. Zoning that encourages the development of accessory apartments could help provide both new streams of revenue for low- and moderate-income homeowners as well as help families provide for the housing needs of family members that would otherwise require additional, detached units.

New development within the growth boundary could have to follow improvements in the current wastewater treatment system, and the reclamation of sewer capacity through the rehabilitation of the sewer collection system, the rerouting of illegal tie-ins between the sewer system and rain gutters and sump pumps, and water conservation.

Through zoning and non-zoning measures, Orange could encourage the **redevelopment of vacant or underutilized commercial and industrial sites downtown for residential and commercial uses**. This redevelopment would serve several purposes, including: encouraging residential development of the upper floors of buildings downtown that would help to provide a customer base for nearby businesses; providing low-rent commercial space; and concentrating development and promoting infill development consistent with the limits of the Town's infrastructure and with the desire to limit the development of undeveloped land. This policy would likely be executed in conjunction with the Town **working with existing businesses to address space and infrastructure issues.** This is a policy that is practiced by small towns and big cities throughout the Commonwealth to focus economic development effort and dollars on existing businesses instead of trying to recruit big box retailers or other industries from outside the town or region. Both space and infrastructure needs of existing businesses could be met in the growth boundary area. In addition, the town could take action to fill some of the first floor vacant buildings by **encouraging the creation and success of home-based businesses and those companies that sell or produce locally created goods or services**. Home-based businesses can grow into companies that need more space and access to sewer and water. In addition, future sites for industrial and large commercial development have been identified within the growth boundary area on the map showing land suitable for those uses (*see the Economic Development Chapter*).

For areas outside of the growth boundary, the Town's objectives or policy initiatives seek to limit the impact that future development could have on natural resources and rural character and as a result, will in the long-run, help reduce costs associated with development.

The build-out analysis conducted in 2001 warned that based on current zoning and acres of conserved land at the time, there were 10,000 acres of developable land in the Rural Residential District (Zone D). Since 2001, 4,000 acres of land have been protected, of which only 2,600 acres were developable. Therefore, in Zone D, there is an estimated 7,400 acres of land that can still be developed (10,000 acres – 2,600 acres). That would be enough land to support an additional 6,300 single-family homes assuming the one-acre lots would be in subdivisions with 15 percent of the original parcel used in road and infrastructure. Imagine 630, ten-lot subdivisions! Or consider the impacts on the town's rural character with 63, 100-lot subdivisions. Such a development pattern would create a landscape dominated by large subdivisions surrounding islands of protected farm and forestland. This may be a potential future for Orange but not the one the Master Planning Committee supports. Instead the Master Planning Committee would like the Town of Orange to combine several policies to protect natural resources while at the same time allowing for the reasonable development of a rural district.

Increasing the minimum lot size and frontage requirements in the Rural Residential District (Zone D) from one acre to two acres and from 200 ft. to 300 ft. respectively will help protect the Town's rural character and reduce the total number of units that will be able to be developed in Orange. In comparison, Warwick to the north has only one district with a minimum lot size of three acres and a required frontage of 200 ft. while Wendell to the southwest has one district with requirements of two acres and 300 ft. Over the long-term, the increases in the required frontage and lot size will reduce the build-out potential for the district from 6,300 units to 3,150 units in conventional subdivisions or 3,700 more single-family homes using a modified Open Space Development design.

In the short term, the increase in minimum lot size coupled with a **mandated or modified Open Space Development (OSD) Bylaw in Zone D**, would increase the amount of protected land in the district and would strengthen incentives to use the bylaw. The current OSD Bylaw, which has never used, allows a developer to take the same number of units that could be built on a parcel using a conventional subdivision scheme and cluster them together on a portion of the property, setting aside at least 35 percent of the other land as protected common space. One advantage of cluster subdivisions is that they can have reduced development costs because of lower infrastructure needs since more infrastructure can be shared. Aside from this benefit, however, Orange's current OSD bylaw offers little additional advantage to developers and can result in more a lengthy review process.

The Master Planning Committee proposing modifying the current OSD bylaw. One suggested change would be to allow for increases in the number of allowed housing units (by 20% for example) in exchange for the developer meeting performance standards dealing with design, road layout, drainage, quality of open space, etc. Table 6-13 estimates the number of lots that could be developed using either a conventional subdivision design or an OSD design with a one-acre and a two-acre minimum lot size on a 60-acre parcel of land.

Table 6-13: Numbers of Single-Family Building Lots and Acres of Protected Open Space with Conventional and Modified Open Space Development Subdivision Designs with a 60-Acre Parcel

Subdivision Design	One-acre Minimum Lot Size		Two-Acre Minimum Lot Size	
	Number of Dwelling Units	Number of Acres Protected Open Space	Number of Dwelling Units	Number of Acres Protected Open Space
Conventional	51	0	25	0
Modified Open Space Development (OSD) (Added 20% Bonus Lots in exchange for meeting performance standards)	61	29	30	45

Source: FRCOG Planning Department calculations using existing Orange Zoning Bylaws, 2004.

Given existing zoning and a one-acre minimum lot size, a 60-acre Open Space Development subdivision could result in fifty-one lots and thirty-eight acres of protected open space as compared to a conventional subdivision design with fifty-one lots and no open space. By allowing for a 20 percent increase in lots in return for a higher quality project, the number of

lots would be increased to sixty-one lots and the open space acreage would then be reduced to twenty-nine acres.

With a two-acre minimum lot size, a conventional sixty-acre subdivision with 15 percent of the lot in road and drainage would leave fifty-one acres to be split into roughly twenty-five, two-acre lots and no open space. Use of the modified OSD bylaw could result in the developer building an additional five lots for a total of thirty.

Whether the town keeps the one-acre minimum lot size, or adopts a two-acre minimum lot size, a modified OSD bylaw, as proposed, would offer additional incentives for its use over conventional subdivisions.

Use of the OSD bylaw coupled with the increase in minimum lot size in Zone D, could reduce the total number of acres of developable land in Orange from 7,400 acres to 1,850 acres and protect an additional 5,550 acres. In short, by strongly encouraging the use of a modified OSD bylaw in Zone D, the Town would cut the maximum build-out population in Zone D in half, to 3,700 more single-family homes, on a quarter of the remaining developable acreage. The other 5,550 acres could be protected at little cost to the Town. These neighborhood open space areas could support recreational trails, community gardens, woodlots, and future water supplies.

Protecting land with important natural and ecological values is another important policy that would help to sustain the rural character of the community as well as conserve the value of existing infrastructure. For example, the Town of Orange considers the **protection of land within the wellhead protection and recharge areas** a high priority. Protecting the land within the 11-acre Zone I of all three of the Town's wells will help ensure that they remain uncontaminated. In addition, the Town could seek to encourage protection of forestland within the Zone II and Zone III recharge areas as well. A well can cost millions of dollars to bring on-line. Losing a well to contamination is an expensive event. There are many examples of wells in the region no longer active due to pollutants entering the groundwater.

Protecting the land within the recharge areas of the wells is also a priority of the Town. However, it is unlikely that the Town can gain control of all of these acres since the recharge areas for the wells already contain residential and industrial development, Route 202, and active farmland. In addition to protecting land, the Town may also consider establishing **more effective non-point source pollution controls within the Water Resource Districts.** The Town recognizes that any developed use that increases the rate and quantity of runoff could reduce the amount of water that permeates soils to recharge the groundwater that ultimately serves as the town's drinking water supply.

The Fiscal Impacts of Land Conservation

As Orange considers which types of new development are the most sustainable and should be encouraged, it is important to understand the relationship between land uses and municipal

costs. Residential, commercial, industrial development, and undeveloped open space each generally have a different fiscal impact on town finances depending on the relationship between the additional property tax revenues generated by the new development, and the additional municipal costs incurred as a result of the new development. If the municipal expenditures associated with new development exceed the new tax revenues created, then net municipal costs increase. These costs, or at least a large portion thereof, are then passed onto residents, businesses, and landowners in the form of higher property taxes.

Different developed land uses have different fiscal impacts to the community. A Cost of Community Service (COCS) analysis is one way of seeing how a town balances its budget considering the costs and revenues attached to different land uses within a town. The COCS methodology was developed by American Farmland Trust (AFT) in the mid-1980s to give communities a simple mechanism for evaluating the contribution of different land uses to the local tax base. In the COCS analysis, municipal records on costs and tax revenues are reviewed, and the costs and revenues are assigned to different land use types, including residential, commercial and industrial uses, and farmland, forestland, and open space.

In 1992, American Farmland Trust conducted a COCS analysis for several towns in the region. The results of that study showed that the protection of open space and the creation of new commercial and industrial development are effective strategies for promoting a stable tax base. However, it is important to note that while commercial and industrial development can provide jobs and additional property tax revenue, it can also cause a more rapid rate of population growth, while protected undeveloped land can provide both a nominal amount of taxes while helping to reduce the total number of houses that could be constructed at build-out.

In all the towns studied by AFT, residential development was found to cost more in town service expenditures than it generated in property tax revenues, and commercial and industrial development and open space were found to generate more tax revenues than they cost in terms of municipal services. The surplus revenues for commercial and industrial uses and open space are used to offset a town's fiscal losses from residential development. 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. The results of COCS analyses for four Western Massachusetts towns are shown in Table 6-14. Each set of results shows that the costs generated by residential land uses are supported by the revenues generated by commercial, industrial, farmland and open space land. In every town included in these COCS analyses around the country, undeveloped forest and farmland provides a buffer for town budgets.

Table 6-14: Results of Community Service Analyses for Western Massachusetts Towns

Town	2000 Population	Cost of Community Service Ratio (Revenues/Costs)			Study
		Residential	Commercial/ Industrial	Farmland/ Open Space	
Agawam	28,144	1 : 1.05	1 : 0.44	1 : 0.31	AFT, 1992
Becket	1,755	1 : 1.02	1 : 0.83	1 : 0.72	SNEFC, 1996
Deerfield	4,750	1 : 1.16	1 : 0.38	1 : 0.29	AFT, 1992
Gill	1,363	1 : 1.15	1 : 0.43	1 : 0.38	AFT, 1992
Leverett	1,663	1 : 1.15	1 : 0.29	1 : 0.25	SNEFC, 1996

Sources: COCS data: American Farmland Trust, Cost of Community Service Studies, 1999; population: U.S. Census Bureau, 2000 Census of Population and Housing, Summary File 1.

The SNEFC study also found that there is a correlation between a town's population trends and municipal service costs. Towns with larger or growing populations were found to experience greater net financial losses from their residential development than towns with smaller or stable populations. Thus towns that pursue growth as a guiding policy will transfer the high costs of the residential development on to commercial and industrial land as well as to open space. It follows then, that a town with unplanned development as their growth strategy, could see higher taxes on open space. As the property taxes rise on undeveloped land, the town would run the risk of triggering a premature sell-off of open space for conversion to development.

Land Use and Zoning Recommendations

The following recommendations represent concrete steps that the Town can take to implement their growth management policy as defined by the goals and objectives of this chapter.

Zoning Recommendations

- **Mandate Open Space Development in Zone D, or modify the Open Space Development Bylaw to make it easier for developers to choose conservation development as compared to a conventional subdivision plan for Zone D.** Two options for encouraging the use of the Town's existing Open Space Development Plan (OSD) bylaw include: (1) Allowing OSD by -right under Site Plan Review throughout town but mandating its use where it will have the greatest impact, in Zone D; and (2) Making OSD the logical, most economical, choice for developers and landowners in Zone D by making conventional subdivisions more costly to pursue.

  The Town of Amherst, Massachusetts, for example, allows cluster development by-right with site plan review in one of its more rural zoning district. By substituting site plan review for the existing special permit process for use with OSD, Orange could still impact the design and benefits of these types of development without providing a burden to developers. Revising zoning to create a simplified version of the OSD

would make it easier to apply and review in other districts and less burdensome in Zone D, where it could be mandated.

In Northampton, Massachusetts, developers interested in building a conventional subdivision must submit three plans for special permit approval: a large-lot subdivision plan; a flag-lot plan; and a cluster or Open Space Development Plan (OSD). However, developers who want to develop an cluster subdivision need only submit an OSD plan. In addition, Northampton has maximum lengths for subdivision roads that also encourage OSD over conventional subdivision designs. The Town of Orange could adopt similar methods for subdivision development in the Rural Residential District (Zone D). An OSD could still require a special permit but involve a much less burdensome process for approval than that of a conventional subdivision plan. In addition, Orange might offer developers other incentives, such as a 20 percent increase in the number of units allowed if they meet certain performance standards. With the unit bonus, a modified OSD would allow more units overall than what would be found in a conventional plan.

Several of Orange's growth management policy initiatives could be implemented by encouraging the use of the OSD bylaw in the Rural Residential District. With increased use of the OSD bylaw, public access to future recreation areas and water supplies could be maintained, and important natural resource land could be protected from development. An improved OSD bylaw would also help to minimize the impacts of development on the quantity of remaining open space, on the fiscal stability of town, on the natural and recreational resources, and on the rural character of Orange as a whole.

- **Increase the minimum lot requirements in the Zone D Rural Residential District from one acre to two acres.** This would help to ensure that remaining undeveloped areas of town would become built-out with fewer houses overall. It has been shown earlier in this chapter that an increase in lot size in Zone D would result in stronger incentives for use of the Orange's Open Space Development bylaw, and would also lead to fewer future dwelling units and more protected open space over the long-term.

- **Develop a set of performance zoning measures that provide density bonuses in the Village Residential and the Village Residential/Commercial Districts in exchange for the rehabilitation and reuse of downtown buildings and vacant lots and the creation of adjoining green spaces and parks.** The Town of Hopedale, Massachusetts employs a performance-based residential bylaw that specifies density as the maximum living area (sq. ft.) per developable acre. The dual purpose of the bylaw is to ensure that new development within an existing neighborhood shares similar densities and to encourage values that the town feels are appropriate. Hopedale's performance zoning includes standards for maximum density, percentage distribution of living area within the village center and surrounding neighborhoods, impervious surface area, pervious surface area, buffer-yards, and transportation impacts such as traffic volume, design speed, and parking.

- **Consider allowing flag lots in Zoning District A.** Presently, the Town of Orange does not allow flag lots in Zone A(r) (Village Residential) or in A(c) (Village Residential/Commercial). Flag lots are back lots that can be developed if they already abut a lot with frontage on an existing public way and meet other conditions. Access to the back or flag lot is gained via a strip of land, or the "pole" of the "flag." By allowing flag lots in Zone A, more dwelling units could be developed in the area of town where the infrastructure to support a higher level of density already exists.

- **Develop performance standards to help regulate the location of commercial businesses to areas identified as being most suitable for these uses.** The Town of Orange could include a set of performance zoning measures to encourage industrial, large commercial, and small commercial businesses to develop in the areas determined by the town to be ideal for these uses.

    - For large commercial/industrial uses: encourage businesses to locate in the following areas: west of the airport and near the existing Randall Pond Industrial Park; abutting the old landfill; and north of Route 2A in East Orange;

    - For small commercial uses- encourage businesses to locate in Orange Center.

  The performance standards could include allowances for reduced parking requirements, and other standards in exchange for locating within a target overlay district and within underutilized buildings to be refurbished by the developers.

- **Consider adopting a bylaw to allow accessory apartments by-right in the existing Village Residential and the Village Residential/Commercial Districts.** Another option would be to allow accessory apartments within a future overlay district defined by the ½-mile public sewer and water boundary. Either way, accessory apartments could serve Orange residents in several ways. An accessory apartments bylaw could:

  (1) Encourage the creation of additional, attached dwelling units in the areas of town most suitable for higher density development;

  (2) Provide for affordable housing for low and moderate-income families and residents;

  (3) Provide low and moderate income households access to additional streams of money from developing and renting out accessory apartments; and

  (4) Allow for older or younger members of a family to reside in an attached unit, which can help strengthen the whole community overall.

Non-Zoning Recommendations

- **Adopt a right-to-farm bylaw.** A right-to-farm bylaw seeks to alleviate farmers of the burden of nuisance cases initiated by abutters taking issue with normal farm operations. A model right-to-farm bylaw on the State's website includes that "farming" or "agriculture" or their derivatives include farming; dairying; production, cultivation, growing, and harvesting of any agricultural; aquacultural, floricultural, viticultural, or horticultural commodities; growing and harvesting of forest products upon forest land, and any other forestry or lumbering operations; raising of livestock including horses; keeping of horses as a commercial enterprise; and keeping and raising of poultry, swine, cattle, ratites (such as emus, ostriches and rheas) and camelids (such as llamas and camels), and other domesticated animals for food and other agricultural purposes, including bees and fur-bearing animals.

  The farming activities included in the model bylaw are: operation and transportation of slow-moving farm equipment over roads within the Town; control of pests, including, but not limited to, insects, weeds, predators and disease organism of plants and animals; application of manure, fertilizers and pesticides; conducting agriculture-related educational and farm-based recreational activities, including agri-tourism, provided that the activities are related to marketing the agricultural output or services of the farm; processing and packaging of the agricultural output of the farm and the operation of a farmer's market or farm stand including signage thereto; maintenance, repair, or storage of seasonal equipment, or apparatus owned or leased by the farm owner or manager used expressly for the purpose of propagation, processing, management, or sale of the agricultural products; and on-farm relocation of earth and the clearing of ground for farming operations.

- **Direct the Select Board to establish a growth boundary for future water and sewer line extensions consistent with the areas where Orange wishes to direct development**. As the population of Orange increases, the Orange Water Department will work to increase the capacity of the community water system to provide for adequate fire control and drinking water needs. In addition, as newcomers move to Orange from more urban locales, especially to areas near sensitive natural resources, an increase in demand for sewer and water service is likely. It has been already well established that the collection system of the Orange wastewater treatment facility is in dire need of refurbishment to fix infiltration and inflow problems. The Town needs to plan future extensions of its sewer and water lines in collaboration with the Planning Board, Board of Health, Water Department, and Wastewater Treatment Facility to ensure that expansion of the water system via new sources, is consistent, wherever possible, with areas identified as being most suitable for new development.

- **The Select Board should consider appointing a committee to focus on the tasks associated with increasing the capacity of the wastewater treatment facility through all means possible, focusing on the most cost-effective measures first.** Clearly, the infiltration and inflow problems associated with Orange's sewer collection system are critical. The inflow portion of the problem could be addressed with more effective outreach to residents and businesses to stop using the sewer system to get rid of their excess storm water. In addition, the town could invest in promoting use of water-saving domestic appliances, which would result both in water conservation and an increase in the capacity of the wastewater treatment facility.

- **Continue revitalization and redevelopment efforts in the downtown area, promoting infill development and pursuing the creation of new spaces for businesses, recreation, and housing, as appropriate.** Consider providing incentives for businesses and developers to renovate and develop spaces within the downtown area along with use of performance zoning measures similar to those described earlier.

- **Reach out to successful non-profits in the region to help Orange promote heritage and recreational tourism, and tourism-related businesses, and to help protect and preserve important natural, historic, and scenic resources.** There are several non-governmental, non-profit organizations in Western Massachusetts that could be of assistance to the Town in this area: Community Involved in Sustaining Agriculture, The Farm School, Seeds of Solidarity, Millers River Environmental Center, Mount Grace Land Conservation Trust and New England Forestry Foundation. All of these organizations work in the shared arena of conserving the region's forest and farm-based heritage. Three of the six are located in Orange and the others have pursued projects in town. The Orange Revitalization Partnership and the Town of Orange could meet with these groups to explore events to collaborate on that would benefit everyone including Orange farmers and other land-based small businesses.

- **With permission from landowners, consider working with UMass geologists to investigate the characteristics of estimated aquifers that are shown to exist beneath privately owned protected and unprotected land to determine their potential for future drinking water supplies.** The State Geologists Office may be able to assist the Orange Water Department in exploring the potential of aquifers, which could potentially support future water supplies, in a relatively non-invasive manner.

- **The Board of Health could work with the Select and Planning Boards in the identification and acquisition of land for future parks and playgrounds in dense village neighborhoods.** During the open space planning process, the Board of Health expressed a deep concern for the outdoor recreation needs of residents in the neighborhoods north of the Millers River. Town boards could seek out and collaborate with any neighborhood resident-based groups as well as work with real estate professionals working in the area to identify potential future parks.

- Seek to protect land within the Zones I, II, and III of the three drinking water supplies in town to ensure a high quality of drinking water now and in the future. Ample clean drinking water is highly valued by residents and businesses in Orange. A lack of water or issues with existing supplies could stifle the types of growth Orange requires. It is therefore imperative that the town protects its drinking water supplies in any way possible. Acquiring land within wellhead protection areas ensures town control of the areas where the wells are most vulnerable to contamination. Land in the Zone II and III recharge areas absorbs water that ultimately flows into the aquifers feeding the town's wells. By protecting forests in these recharge areas, the town will be minimizing the risk of well contamination and ensuring continued water supplies in the future. The Commonwealth of Massachusetts has offered grants to purchase land for protection within water supply protection areas.

1999 Land Use and Land Use Change Map

Current Zoning Map