
CHARLTON OPEN SPACE AND RECREATION PLAN

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SECTION ONE: PLAN SUMMARY

TO BE COMPLETED

SECTION TWO: INTRODUCTION

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SECTION THREE: COMMUNITY CONTEXT

REGIONAL CONTEXT

Charlton is a land rich community of 43.95 square miles located in southern Worcester County. Charlton is the third largest town in Worcester County in terms of land area. It is located in what is locally referred to as the tri-community area, which includes Charlton, Southbridge and Sturbridge. Historically, Southbridge served the service and industrial needs of the tri-community area, Sturbridge had a tourist-based economy and Charlton was more of the agricultural based community. But these distinctions have blurred over the last two decades.

The 2014 Town Census placed Charlton's population at 12,462 residents. Since the 1980's, Charlton has been one of the fastest growing communities in the greater Worcester region for population, housing and commercial/industrial growth. In general, the Southwest sub-region (Auburn, Oxford, Webster, Dudley, Southbridge, Sturbridge and Charlton) has been one of the fastest growing areas in Central Massachusetts for new residential and industrial development.

Charlton's primary transportation link is via Route 20, which runs through the town in an east/west orientation. This main artery provides quick access to major interstate highways. A ten-minute drive to the east provides access to the Mass Turnpike, Route 290 and Route 395 in Auburn. A ten-minute drive to the west provides access to the Mass Turnpike and Route 84 in Sturbridge. This access, along with an abundance of land, is the main reason why Charlton has evolved into more of a bedroom community in recent years.

The town's public services and facilities have tried to keep pace with the demands of its rapidly growing population but financial constraints have often delayed needed projects. Despite these challenges, the town completed important facilities and services.

- An expansion and renovation of the library in 2007.
- A new animal shelter in 2010
- A new highway department building in 2011
- Town Hall was made fully ADA compliant and accessible, including a renovated senior center on the basement level.
- The Charlton playground as well as the pathway from the parking lot to the playground was made 100% ADA compliant.
- Fay Mountain Farm is fully leased out and the Farm hosts seasonal events and activities.

The town is currently focusing on a new fire station as well as an expansion of the Charlton Housing Authority's Meadowbrook development. In an effort to boost its tax base, Charlton continues to attract new industry, commercial development, and tourism into the area.

In spite of this growth, Charlton continues to retain its rural character. A drive through many of Charlton's back roads reveals an abundance of forestland, farmland and pastures. However, proactive planning through processes such as this Open Space Plan and the 2008 Master Plan are

necessary for the town to continue its traditional pattern of denser development in and around vibrant villages and along Route 20, separated by open landscapes of natural resource areas and rural scale development. Zoning regulations such as the new Village District and flexible development zoning have encouraged this type of desired growth.

Politically, Charlton is located in the 2nd Massachusetts Congressional District and the 6th Worcester State Representative District. Charlton operates under the Home Rule Charter, with a Board of Selectmen, Town Administrator and Open Town Meeting. Elected officials include the Board of Selectmen, Town Clerk, Town Moderator, Planning Board, Recreation Commission, Board of Health, Housing Authority, Library Trustees and School Committee. The Board of Selectmen or Town Moderator appoints all other town positions and commission members.

HISTORY OF THE COMMUNITY

In 1755, the district of Charlton was established from what was previously the western two-thirds of Oxford. Charlton became a "town" by a law making all districts towns in 1775. By 1907, Charlton's boundaries were finalized with Oxford and Southbridge. The main reason for forming Charlton from Oxford was the difficulty of traveling up to ten miles from one's home to the church and school buildings in Oxford center. Therefore, within 3 months after Charlton was established, the inhabitants voted to construct a new school and a new meetinghouse in a more convenient location which would eventually become Charlton Center.

Early in its development, Charlton was located on the old "turnpike" between Boston, Worcester and Hartford, which was an advantageous location for those industries needing transportation for movement of goods. In the early history of Charlton, the "Northside" of town contained tanneries, manufacturers of hoes and scythes, a gin distillery, a malt house and brewery, and a pot and pearl ash works. All were located within reach of the Worcester and Stafford Turnpike, which opened in 1806, bringing more business into this area. From 1750 and 1840, this area was the predominant economic, social and religious center in Charlton. However, the coming of the railroad through Charlton in 1837 marked the beginning of Northside's decline as a business center. In 1977, the Northside Historic District was established to protect the historic resources in this area. It is a local historic district, which means development activity is regulated by the Charlton Historic District Commission (CHDC).¹ Northside Village is also a National Register Historic District. Northside contains sites of the original stores, schools, a tannery, blacksmith shop, distillery, a shoe shop, a hat shop, a whip shop and a military training ground. The Rider Tavern is the largest remaining domestic-type building, and the best known historic structure remaining in this area. The Rider Tavern and Northside School are protected by preservation restrictions, which are one of the strongest preservation strategies available.²

¹ The Northside local historic district is composed of three segments – (1) Northside Historic District Central, (2) Northside Historic District East, and (3) Northside Historic District South – which are regulated by the Charlton Historic District Commission (CHDC). Additionally, the Northside School is a contributing element to the Northside Village Historic District.

² A preservation restriction (PR) runs with the deed in perpetuity. See MGL Chapter 184, Sections 31-33 for more information.

In the early 1800's, Charlton Center, including the Dresser Hill area, was another principal business area in Charlton. Industry here included the manufacturing of furniture, wagons, carriages and farming equipment. The "Center" also included the seat of town government, two churches, schoolhouses, the post office, a public house and general store. Charlton Center is the second of Charlton's two National Register Historic Districts.

The villages of Charlton City, Charlton Depot, Lelandville, Millward, Morseville and Putnamville were also home to many small manufacturing operations in the 1800s. The railroad, which was completed through Charlton in 1838, serviced the Charlton Depot area and helped businesses prosper in that area. Industrial activity declined by the late 1800s and the town's economic base became more rooted in agricultural. Dairying, poultry farming, hog-raising, and fruit orcharding remained prominent agricultural industries into the 1970s. In the more recent years, the agricultural output has greatly diminished as the town has become more of a bedroom community.

Commercial and residential development began along Route 20 after its completion in 1930. The Route 20 regional highway corridor continues to be a major stimulus of residential, industrial and commercial development. The conversion of recreational cottages that date from the early to mid 1900s to year-round residences along ponds such as Glen Echo Lake, South Charlton Reservoir, and Cranberry Meadow Pond has been another important development that has facilitated population growth and affected the town's water resources. The shores of most ponds and lakes in town are now heavily built up.

In the late 1950's, Charlton was spared a natural disaster which could have changed Charlton's appearance and heritage. The Glen Echo flood would have wiped out much more of the Charlton City area than it did but the recently constructed Massachusetts Turnpike acted as a huge dam and saved much of Charlton City. The Masonic Home, Charlton's largest employer at that time, was immensely helpful in housing the displaced flood victims.

POPULATION CHARACTERISTICS

POPULATION AND HOUSEHOLD TRENDS AND DENSITY

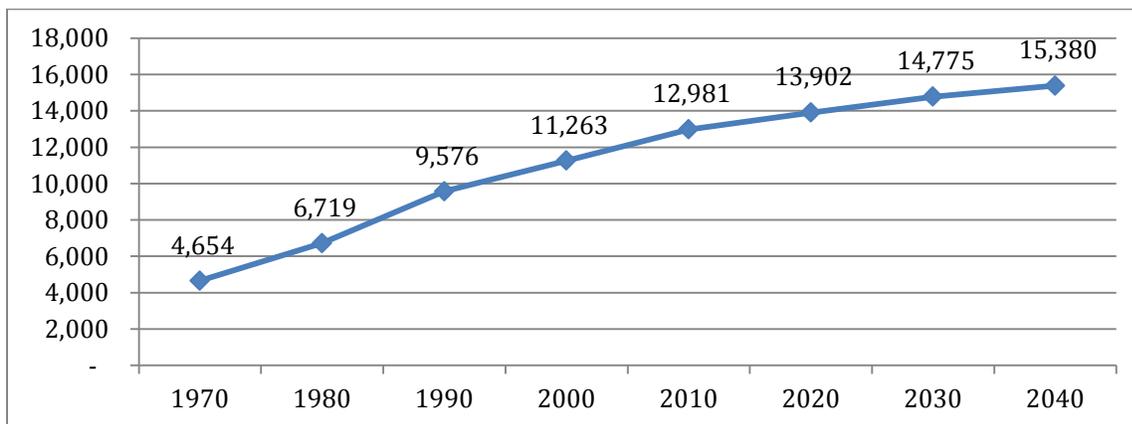
Charlton's location and topography has facilitated the town's population growth and subsequent increase in new homes. Charlton has experienced steady growth in the last century, with the most substantial growth being in the 1970's and 1980's (Figure 1). Charlton's population grew by over 1,700 persons between 2000 and 2010, an increase of 15 percent. Since the 2010 decennial census, the population has continued to increase and was placed at 13,126 residents by the U.S. Census Bureau.

The Central Massachusetts Regional Planning Commission (CMRPC) projections show continued growth for the town with an estimated 13,902 residents by 2020 and 14,775 residents by 2030. CMRPC regularly publishes population projections for its constituent communities based on Census estimates. The town level projections were vetted with the communities for transportation planning purposes as part of the 2016 Long Range Transportation Plan. The control totals for the CMRPC region are provided by the Massachusetts Department of Transportation. Town level

projections were developed based upon past growth trends, land use and infrastructure capacity, planned future projects, and stakeholder input, including that of the Central Massachusetts Metropolitan Planning Organization (CMMPO), CMMPO Advisory Committee and CMRPC Community Development and Planning staff. Along with Sturbridge, Charlton is expected to lead this subregion of Worcester County in terms of population growth (Table 1). This rate of growth will have a major impact on the community in terms of housing demand and spending on goods and services.

With a total landmass of 43.8 square miles, Charlton’s population density is 296 people per square mile. The most densely populated areas of Charlton are within its villages such as the Village Center, Charlton Depot, and Charlton City. By contrast, Worcester had a population density of 4,815.03 people per square mile in 2010 and Worcester County as a whole had a population density of 527.77 people per square mile.

FIGURE 1: CHARLTON POPULATION TRENDS AND PROJECTIONS, CMRPC



Source: U.S. Census Bureau and the Central Massachusetts Regional Planning Commission

Table 2 shows Charlton’s changing household dynamics. Household growth outpaced population growth in Charlton from 2000 to 2010. Charlton’s population grew by 15 percent from 2000 to 2010 while household growth was 22 percent. This is not surprising when one considers the national trend towards smaller household sizes. The number of people living in a housing unit (a household) has been declining for decades in the United States as more people choose to live alone, have no children or have fewer children. Charlton’s average household size went from 2.92 in 2000 to 2.78 in 2010 and its average family size similarly declined over this same period. There are fewer family households with children in Charlton now than there were in 2000. At the same time, single-person households went from 15 percent of all households in Charlton in the year 2000 to 17 percent in the year 2010.

TABLE 1: POPULATION AND EMPLOYMENT PROJECTIONS, CMRPC

Municipality	CMRPC Population Projections			CMRPC Employment Projections		
	2010	2030	Percent change	2010	2030	Percent change
Charlton	12,981	14,775	14%	3,740	4,157	11%
Dudley	11,390	12,294	8%	2,720	2,997	10%
East Brookfield	2,183	2,347	8%	420	401	-5%
Leicester	10,970	11,844	8%	2,290	2,339	2%
Oxford	13,709	15,170	11%	3,760	4,513	20%
Southbridge	16,719	17,682	6%	5,820	6,487	11%
Spencer	11,688	11,737	0.4%	3,090	3,233	5%
Sturbridge	9,268	11,502	24%	4,470	4,990	12%
Regional Total	556,698	615,363	11%	224,000	241,213	8%

Source: U.S. Census Bureau and the Central Massachusetts Regional Planning Commission

TABLE 2: CHARLTON HOUSEHOLD AND POPULATION SUMMARY

	2000 Number	2000 Percent	2010 Number	2010 Percent	Percent Change
Population	11,263	100	12,981	100	15%
Households	3,788	100	4,608	100	22%
Family households with children	1,716	45%	1,670	36%	-3%
Householder living alone	551	15%	780	17%	42%
Households with individuals under 18 years	1,830	48%	1,816	39%	-1%
Households with individuals 65 years and over	527	14%	998	22%	89%
Median Age	35.4		41.2		
Average household size	2.92		2.78		
Average family size	3.24		3.14		

Source: U.S. Census Bureau 2000 and 2010 Census and 2010-2014 American Community Survey

POPULATION BY AGE

Similar to regional and national trends, Charlton's population is aging. However, the significant increase in the median age of Charlton's population from the year 2000 to 2010 may owe a lot to the expansion that took place at Overlook, which is a continuing care retirement community. **This facility added ___ residences during this time period.** The median age in Charlton went from 35.4 in the year 2000 to 41.2 in the year 2010. Populations under the age of 40, including families with young children, continue to decrease. Different segments of the population have different recreation needs and desires. Growth or decline in the population of the various age groups has implications for recreation facilities and activities as well as municipal services. Younger and school aged residents have a need for more active recreation facilities such as soccer and baseball fields. For middle aged residents, active recreation areas for league sports may be needed as well as passive recreation facilities for activities like hiking and picnicking with the family. For the older generations, passive recreation facilities and special provisions like wheelchair accessibility may be needed. In sum, these age trends taken with the increase in the Town's total population will create additional pressures for the provision of open space and recreation facilities.

TABLE 3: CHARLTON RESIDENTS BY AGE

	2000		2010		2014	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Total population	11,263	100%	12,981	100%	13,126	100%
Under 5 years	810	7%	669	5%	630	5%
5 to 9 years	1,020	9%	889	7%	728	6%
10 to 14 years	979	9%	1,018	8%	1,149	9%
15 to 19 years	812	7%	985	8%	792	6%
20 to 24 years	412	4%	630	5%	826	6%
25 to 34 years	1,519	13%	1167	9%	1,187	9%
35 to 44 years	2,354	21%	2057	16%	1,857	14%
45 to 54 years	1,668	15%	2511	19%	2,469	19%
55 to 59 years	484	4%	871	7%	1,169	9%
60 to 64 years	338	3%	659	5%	798	6%
65 to 74 years	424	4%	727	6%	880	7%
75 to 84 years	266	2%	491	4%	341	3%
85 years and over	177	2%	307	2%	300	2%
Median age (years)	35.4		41.2		42.2	

Source: U.S. Census Bureau 2000 and 2010 Census and 2010-2014 American Community Survey

INCOME AND EDUCATION

In 2014, the median household income in Charlton was an estimated \$91,287 and the median family income was an estimated \$103,250. The median household and family incomes of Charlton remain much higher than the estimates for Worcester County and Massachusetts for this same period. Several attribute Charlton’s high median household and family income to the number of residents at Overlook with higher than average incomes. A slightly higher percentage of Charlton residents were high school graduates when compared to Worcester County and the state as a whole but Charlton had a smaller percentage of residents with a bachelor’s degree or higher.

TABLE 4: ESTIMATED INCOME OF CHARLTON HOUSEHOLDS AND FAMILIES

	Households	Families
Charlton	\$91,287	\$103,250
Worcester County	\$65,453	\$82,736
Massachusetts	\$67,846	\$86,132

Source: 2010-2014 American Community Survey

TABLE 5: EDUCATIONAL ATTAINMENT 2010-2014

	Percent high school graduate or higher	Percent bachelor's degree or higher
Charlton	94%	33%
Worcester County	90%	34%
State	90%	40%
<i>Source: 2010-2014 American Community Survey</i>		

ENVIRONMENTAL JUSTICE POPULATIONS

There are no Environmental Justice populations in Charlton. Charlton is primarily a middle class community of mixed ethnic groups of European descent. In 2014, Charlton was 97% white, non-Hispanic and less than one percent Hispanic. Of Charlton's population age five years and older, approximately 5 percent spoke a language other than English at home according to the ACS 2010-2014. Charlton's neighbor Southbridge has environmental justice populations that fall within the criteria categories of Minority, Minority and Income, and Minority, Income and English isolations. The Worcester region in general is continuing to become more diverse in race and ethnicity. Immigration and subsequent births to the new arrivals during the last few decades of the 21st century continue to play a major role in the changing the racial and ethnic composition of the Worcester region as well as the U.S. population as a whole. In 2014, Worcester County was 80 percent white, non-Hispanic and 10 percent Hispanic.

ECONOMIC CHARACTERISTICS

The American Community Survey (ACS) 2010-2014 estimated 74% of Charlton residents over the age of 16 were active in the labor force and estimated an unemployment rate of 6.6%. The mean travel time to work was almost thirty minutes and almost 90 percent of residents drove to work alone.

Charlton is home to approximately 320 businesses employing approximately 3,900 people, ranging from mom and pop type retail and service firms to large scale manufacturing companies. Key contributors to the economic base in Charlton include: Incom, Inc, Karl Storz Endovision, rEVO Biologics (formerly GTC Biotherapeutics) and Overlook/Masonic Home. Charlton has also become a hub for commercial solar energy over the last decade. Seventeen commercial solar generation array projects have been permitted to-date via Planning Board site plan approval, with at least 6 more in the pre-application design pipeline. The 2008 Master Plan noted that most of Charlton's businesses are small with fewer than ten employees. The 2008 Master Plan highlighted a growth in the number of private companies and workforce levels in Charlton and stated "The trend toward more businesses and the relatively stable workforce levels support the fact that Charlton is a small business community." Table 7 shows that the number of businesses has grown by 25 and employment by almost 500 people over the last ten years. Table 6 shows that CMRPC projects continued employment growth into the 2030s.

TABLE 6: CHARLTON EMPLOYMENT INFORMATION, 2015

Description	Number of Establishments	Total Wages	Average Monthly Employment	Average Weekly Wages
Total, All Industries	324	\$187,991,504	3,949	\$915
23 - Construction	63	\$15,098,363	276	\$1,052
31-33 - Manufacturing	15	\$48,442,449	802	\$1,162
42 - Wholesale Trade	16	\$20,720,999	303	\$1,315
44-45 - Retail Trade	31	\$8,501,995	268	\$610
48-49 - Transportation and Warehousing	11	\$4,230,912	105	\$775
51 - Information	8	\$6,315,526	102	\$1,191
52 - Finance and Insurance	11	\$2,064,186	43	\$923
53 - Real Estate and Rental and Leasing	4	\$199,786	7	\$549
54 - Professional and Technical Services	34	\$7,764,397	113	\$1,321
56 - Administrative and Waste Services	14	\$1,259,064	34	\$712
61 - Educational Services	7	\$24,278,670	467	\$1,000
62 - Health Care and Social Assistance	52	\$20,324,275	633	\$617
71 - Arts, Entertainment, and Recreation	4	\$718,556	61	\$227
72 - Accommodation and Food Services	18	\$6,770,127	397	\$328
81 - Other Services, Ex. Public Admin	19	\$2,250,327	75	\$577
92 - Public Administration	9	\$10,306,221	127	\$1,561

Source: Massachusetts Employment and Wages Report (ES-202). Totals by 2-Digit NAICS Code. Employment and Wage (ES-202) data are derived from reports filed by all employers subject to unemployment compensation laws, both state and federal. Industry employment

TABLE 7: CHARLTON EMPLOYER AND EMPLOYMENT GROWTH 2006-2015

Description	Number of Establishments		Numeric Change	Average Monthly Employment		Numeric Change
	2006	2015		2006	2015	
Total, All Industries	299	324	25	3,456	3,949	493
23 - Construction	68	63	-5	300	276	-24
31-33 - Manufacturing	17	15	-2	605	802	197
42 - Wholesale Trade	16	16	0	92	303	211
44-45 - Retail Trade	31	31	0	290	268	-22
48-49 - Transportation and Warehousing	10	11	1	157	105	-52
51 - Information	4	8	4	54	102	48
52 - Finance and Insurance	9	11	2	40	43	3
53 - Real Estate and Rental and Leasing	5	4	-1	12	7	-5
54 - Professional and Technical Services	26	34	8	204	113	-91
56 - Administrative and Waste Services	20	14	-6	94	34	-60
61 - Educational Services	6	7	1	435	467	32
62 - Health Care and Social Assistance	13	52	39	398	633	235
71 - Arts, Entertainment, and Recreation	Not reported	4	N/A	Not reported	61	N/A
72 - Accommodation and Food Services	29	18	-11	408	397	-11
81 - Other Services, Ex. Public Admin	26	19	-7	134	75	-59
92 - Public Administration	Not reported	9	N/A		127	N/A

Source: Massachusetts Employment and Wages Report (ES-202). Totals by 2-Digit NAICS Code. Employment and Wage (ES-202) data are derived from reports filed by all employers subject to unemployment compensation laws, both state and federal. Industry employment

Charlton's overall economic development strategy is to guide non-residential growth including a mix of commercial, office, research and development and service business to the village center and to the Route 20 corridor. The town has an active Economic Development Commission (EDC) that has worked closely with the Charlton Planning Board, the business community and other community partners to promote economic development opportunities. In addition, the Town is active participant in the Worcester Area Comprehensive Economic Development (CEDS) Strategy process. Charlton has four large, vacant parcels along the Route 20 corridor currently designated on the CEDS list priority development areas. One of Charlton's newest permitted businesses, Tree House Brewery, has opted to develop under the town's flexible business development bylaw and will result in nineteen acres of preserved space as well as trail connections to adjacent Capen Hill Nature Sanctuary.

GROWTH AND DEVELOPMENT PATTERNS

PATTERNS AND TRENDS

The evolution of land use within a community is the product of local economic conditions and topography. Growth and development is based on such factors as access to jobs and employment and the availability of affordable land for new housing or commercial development. Charlton's topography is predominantly gentle to rolling hills and valleys; elevations range from less than 500 feet to 1,070 feet above sea level. The flatter lands have been conducive for agriculture and, later, housing development. Charlton also contains over 700 acres of water, which consists of ponds, reservoirs and streams. Charlton's water resources also have attracted housing development.

Prior to 1950, Charlton was primarily a farming community, with a notable number of dairy farms. In addition, a limited amount of industry was located in and around one of Charlton's many villages. Residential development occurred adjacent to these employers or around Charlton's many lakes and ponds. Charlton's mills began to close in the 1960's and farming began a slow decline. From 1960 to 1970, American Optical in Southbridge became a major employer of Charlton as farming and local manufacturing decreased. In addition, the Cranston Print Works of Webster employed many of the former Charlton Woolen and Ashworth Mills employees.

The 1970s marked the beginning of Charlton's population boom. The population increased over 40 percent from 4,654 to 6,719 residents from 1970 to 1980. Many attribute the increased demand for new house lots and the subsequent population boom in Charlton to construction of the Massachusetts Turnpike in 1954/55 and the shift to employment outside of Charlton. Though Charlton does not have direct access to the Turnpike, it is located between the Auburn and Sturbridge exits which provide easy access to this east-west connector. The sale of farmland for new house lots began the transformation of Charlton's landscape from agricultural to more of a suburban appearance, with "ribbon" development along many of Charlton's existing roadways. Farmlands and forest gave way to 60,000 square foot lots, filling up the vacant areas along existing roads.

TABLE 8: CHARLTON HOUSING CHARACTERISTICS, 2010-2014

	Estimate	Percent
HOUSING OCCUPANCY		
Total housing units	4,800	100%
Occupied housing units	4,617	96%
Vacant housing units	183	4%
HOUSING TENURE		
Occupied housing units	4,617	100%
Owner-occupied	3,728	81%
Renter-occupied	889	19%
UNITS IN STRUCTURE		
Total housing units	4,800	100%
1-unit, detached	3,744	78%
1-unit, attached	199	4%
2 units	110	2%
3 or 4 units	287	6%
5 to 9 units	200	4%
10 to 19 units	40	1%
20 or more units	220	5%
YEAR STRUCTURE BUILT		
Total housing units	4,800	100%
Built 2010 or later	15	0%
Built 2000 to 2009	974	20%
Built 1990 to 1999	887	19%
Built 1980 to 1989	860	18%
Built 1970 to 1979	892	19%
Built 1960 to 1969	339	7%
Built 1950 to 1959	369	8%
Built 1940 to 1949	125	3%
Built 1939 or earlier	339	7%
<i>Source: 2010-2014 American Community Survey 5-Year Estimates</i>		

In the 1990's, a significant number of family farms, summer camps and recreational campgrounds were sold or auctioned off, opening up hundreds of acres of "internal land" to development. This type of sub-division development was new to Charlton, which previously experienced in-fill and "ribbon" development along existing roads

In 1987, the community fulfilled a major accomplishment by adopting Charlton's first Zoning Bylaws. This action did a lot to control and direct development within Charlton. Map #2 shows the existing zoning designations in Charlton.

New residential development has been the predominant land use in Charlton in recent years. The Southwest subregion (Auburn, Oxford, Webster, Dudley, Southbridge, Sturbridge and Charlton) continues to be one of the fastest growing areas in Central Massachusetts. Much of this new development has occurred on converted farmland. As noted earlier, population and housing unit

growth is anticipated to continue in the coming decade. The Town has a number of unbuilt homes in several subdivisions and significant amount of developable land.

Charlton has become a hub for commercial solar energy and solar has become one of the town's biggest economic drivers over the last decade. The town estimates annual tax revenues of \$600,000 from these businesses with no financial impact to the local schools. Seventeen solar projects have been permitted or built thus far and the town anticipates more. Many of the projects have been built on the fields of former farms, earning the solar projects the nickname of "solar farms."

Charlton has also continued to see commercial and industrial development interest along Route 20. Over the last decade, there has been a strong uptick in small retail and warehousing. The town has also seen much interest in self-storage. The community introduced the Business Enterprise Park (BEP) zoning district in the 2000s to encourage certain types of commercial and industrial uses to locate, in appropriate areas, along Route 20. Remaining commercial sites are primarily located along Route 20, with some isolated commercial sites on Carpenter Hill Road, Route 169, and Route 31.

Charlton's housing stock is currently, and has historically been, single-family homes, as shown on Table 8. Of the estimated 4,800 housing units in Charlton, approximately 80 percent of Charlton's housing units are attached and detached single-family units. Charlton has a higher percentage of single-family housing units when compared with most of its neighboring communities. Over 80 percent of Charlton homes are owner-occupied while less than 20 percent are renter-occupied. Corresponding with Charlton's population trends, most housing units were built after 1970.

INFRASTRUCTURE

ROADS

Charlton's residential and commercial growth can also be attributed to its highway access and road network. The major east-west roadways in Charlton are the Massachusetts Turnpike (Interstate 90) and Route 20. Interstate 90 provides access between Boston and New York State (via Interstate 84). The nearest access point to Interstate 90 is located approximately six miles west from the center of Charlton. Route 20 parallels Interstate 90 to the south and provides regional east-west access. The posted speed limit is 50 mph along various stretches of Route 20, and vehicular speed has been an ongoing safety concern. State of good repair and safety improvements to Route 20 are continually being made, by segment: 1) Richardson's Corner to .25 mile east of MA-169 (completed 2005); 2) MA-169 to MA-149, 3.2 miles (completed 2008), and 3) interim safety improvements (including selective widening, new barriers and signage) along the corridor in Oxford (January 2016). Reconstruction of a 3.2 mile segment between Richardson's Corner and MA-12 in Oxford is now in design, with an expected start date of Spring 2020. Each project is improving this roadway's safety by providing wider traffic lanes for trucks, wider shoulder lanes and a concrete median barrier to prevent future head-on collisions. This work will make travel easier for both cars and trucks, and, as expected, will further enhance Charlton's development and growth. However, safe pedestrian access across Route 20 continues to be of concern.

The major north-south roadways in Charlton are Route 169 located on the westerly side of town and Route 31 located in the center of town. Route 169 runs from Route 20 at the western end of Charlton southward to Southbridge. Wetlands limit additional development potential along this roadway. Route 31 runs through the center of Charlton providing access to Spencer to the north and Dudley to the south. Despite Charlton's regional accessibility, the majority of Charlton's developable land is not directly accessible from its major access routes, specifically Route 20 and Route 169, which limits development potential.

In addition to the aforementioned numbered routes, Stafford Street, Brookfield Road, Oxford Road, and Center Depot Road, are connector roads that link the neighboring towns and carry significant commuter traffic. All other roadways in the town principally serve local traffic. The 2008 Master Plan noted that the town struggles to keep up with local road improvements in the face of continued residential and commercial development.

The majority of roadways in Charlton are narrow, windy roads that provide limited sight lines to drivers. Additionally, vehicular speeds have been cited as an area of concern. These conditions create an unsafe environment for pedestrians and bicyclists. In order to address these issues, Charlton has adopted bylaws that require subdivision developers, site plan applicants and special permit applicants to include sidewalks in their respective projects.

The Midstate Trail is an off-street trail system that runs north-south through fourteen Worcester County communities. This trail passes through Charlton on its route from Ashby to Douglas and is maintained by the Worcester Chapter of the Appalachian Mountain Club. There are no existing statewide designated bicycle routes in Charlton, nor are any proposed.

Charlton is working with CMRPC staff on a Complete Streets Policy that would apply to the Village Center. A Complete Street is one that provides safe and accessible options for all travel modes: walking, bicycling, transit, and vehicles, for people of all ages and abilities. Improvements related to Complete Streets can take many forms, from corridor wide projects, to smaller-scale fixes that are focused on a single mode of travel. MassDOT has recently kicked-off a Complete Streets Funding Program to provide technical assistance and incentives for adoption of Complete Streets policies at the municipal level. The goal of the program is to encourage municipalities to adopt a strategic and comprehensive approach to Complete Streets, rather than simply seeking funding for a single project, through Complete Streets Prioritization Plans. The Planning Board expects to adopt the policy in September 2016.

The Worcester Regional Transit Authority (WRTA) began operating Route 29 weekday bus service through Charlton in 2013, and added Saturday trips in 2016. Route 29 originates at Union Station in downtown Worcester, stops at the Auburn Mall in Auburn and then makes "flag stops" along the remainder of the route, before terminating in downtown Southbridge. A flag stop means that the bus will stop for anyone flagging it down whenever it is safe to do so; however, the WRTA has determined a section of the route in Charlton along US Route 20 is not safe to stop. The route passes by Harrington Hospital Clinic on North Main Street in Charlton, Charlton Town Hall and Public Library, Overlook/Masonic Home on Masonic Home Road, and Charlton Family Practice and Incom

on Route 169. The total ridership on Fiscal Year 2016 for this route was 59,438 unlinked passenger trips, a 13% growth when compared to FY2015.

The WRTA offers paratransit service, through SCM Elderbus, to Charlton residents age 60 and over and Charlton residents with disabilities of all ages during normal service hours. Outside normal service hours of the Elder Bus, the WRTA provides van service. Venture Community Services (formerly RRI) offers paratransit service on a private basis to people with disabilities during limited service hours.

WATER

The town of Charlton does not have its own public water supply. Since the late 1980s, the Town has been actively searching for a solution to its water supply needs to support economic development along Route 20 and respond to groundwater contamination issues. Historically, most residents and businesses have relied on private wells for water needs. In addition, there are 11 community groundwater wells in Charlton as well as 52 non-community wells, 31 of which are transient. A community well means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. In the 1990s, water lines were brought up from Southbridge along 169 to serve the two heavily used rest areas along the Massachusetts Turnpike as well as some homes and businesses in these areas with contaminated groundwater. Through improvements to Charlton's water infrastructure that have been ongoing over the last several decades, which is detailed in the following paragraphs, about 300 homes and business have public water while the remaining residents have their water needs served by private wells.

Evidence of groundwater contamination in several areas of town has precipitated the need for a comprehensive water system and water supply. Road salt contamination has been found in wells along the Route 20 and Mass Turnpike corridors, and a vein of naturally occurring arsenic runs through the subsurface soils in the center of town from north to south. Several wells in the Charlton City area have shown levels of trichloroethylene (an industrial solvent) in excess of regulatory levels. The source of this contamination is not known. Benzene, and MBTE, both gasoline additives, have been detected in some wells in the vicinities of the Mass Turnpike 6W and 5E service facilities. The underground plume of contamination has migrated a substantial distance from the turnpike and Charlton City areas to a large part of Charlton, polluting dozens of private wells. The Mass Turnpike Authority and several oil companies were identified by the Department of Environmental Protection (DEP) as potentially responsible parties. Exxon Mobil was identified by Mass DEP as responsible party for the release of gasoline at LaMountain's Exxon on Worcester Road. The Town and Mass DEP reached an agreement with Exxon in April 2016 (detailed below). Other known releases causing groundwater contamination in Charlton include releases of gasoline at the Honey Farms on Worcester Road and releases of petroleum products from the Charlton Highway Department on North Main Street. In all these petroleum releases, bedrock has been a problem because the oil spreads in unexpected ways due to fissures. Finally, DEP named Casella Waste Systems, operator of the nearby Southbridge landfill, the potential responsible party for the residential water contamination by 1-4 dioxin of 21 Charlton residences in area of H. Foote Road and Berry Corner Road in the western part of Town, and the Town is still in discussions with DEP

and Casella regarding this issue. More on information on contamination can be found on page__ of this report.

In the late 1990s, a water line was brought from Southbridge along 169 to supply the two rest areas on the Mass Pike and to service an area of Charlton City with contaminated wells (Stafford Street, Route 20, Brookfield Road area). This section was owned and operated by the Town of Southbridge. In the 2000s, Charlton and Southbridge cooperated to bring the line along North Main Street and Main Street to service the center of the Town. In addition Charlton installed water lines along Route 20 from the Oxford town line, including a pump station and a 750,000 gallon water storage tank. The plan was to utilize public water from Oxford (owned and operated by the private water supply company Aquarian) to service homes and businesses in this area of town. Prior to the water system being activated, the Massachusetts Department of Environmental Protection determined that the transfer of water from Oxford to Charlton would be an inter-water basin transfer, and that the search for local supplies, required before an inter-basin transfer would be granted, had not been sufficiently completed. The pipe and tank, therefore, was never activated. The waterline infrastructure remained in place and inactivate until an agreement was reached with the Town of Southbridge to interconnect the existing Southbridge operated water system in the Town of Charlton to parts of the inactive Town of Charlton water system to a point on Stafford Street (however, much of the pipe installed to bring water from Oxford and the tank, remain dry. The Inter-Municipal Agreement (IMA) between Southbridge and Charlton agreed to provide up to 100,000 gallons of water to the Town of Charlton, in April 2009. In 2010, a water line was installed on North Main Street, to provide water to the multiple properties with natural and petroleum contamination.

Activation of the Charlton water system is still ongoing. Currently to date, upper Stafford Street area, Northside Road, Route 20 from Northside Road to North Main Street have all been activated. In April of 2015, the Towns of Charlton and Southbridge completed an Inter-municipal Agreement (IMA) for 200,000 gpd and another 300,000 gpd, upon completion of certain system improvements detailed in the IMA for a total of 500,000 gpd available to Charlton. This amount was a prerequisite for building new infrastructure in and near the town center known as the “school loop”. Once that agreement was complete, Charlton officials along with the Department of Environmental Protection met with ExxonMobil representatives to develop an agreement that would provide water to a suspected migrating gasoline plume.

The Town entered into an agreement with ExxonMobil in April of 2016, estimated to be worth \$30,000,000, regarding releases at various sites including the LaMountain Gas Station. The agreement will fund new water infrastructure to bring public water to sites contaminated by MtBE including the Charlton Middle School, Charlton Heritage Elementary School and Bay Path Regional High School. The Masonic Home will also be hooked up to the new water line. In addition, the agreement provides funds for a water master plan as well as a water superintendent.

At the end of the most recent planned improvements, **an estimated __lots** will be eligible to tie into the system. The water infrastructure east of Northside Road on Route 20 and to the Oxford town line will remain inactive. The cost to provide water to this area, as well as the source of that water, have not been included in the calculations of the ExxonMobil settlement. These costs will be

considered with activation of that section of waterline at a later time. In general, residents and businesses have been reluctant to pay for a water system as the contamination was not their fault.

The Water-Sewer Commission has hired an interim water controller to build the new water system resulting from the Exxon settlement and to oversee other planned water infrastructure. The 2015 IMA with Southbridge stipulated that Charlton would own all water infrastructure that had previously been owned by Southbridge but Southbridge would continue to operate the water system. The goal is for the town to eventually operate its own water system and Charlton is working with DEP on these steps. The town is still looking for a source of water to supply its water infrastructure. The Water and Sewer Commission did a study around 10 years ago that showed the availability of a public well in the Buffumville fold control Dam area, and the Town petitioned DEP for a permit to conduct a long-term draw-down test on that well site. However, DEP denied the request because: the well would be wholly located in the flood area, there would be a potential for infiltration of surface water into the well water, and DEP requires a redundant water supply in case of flood emergency. At that time, the agreement and connection to Southbridge was not extant. The Town is also working with Oxford to potentially supply areas of town not covered by water supply from Southbridge and/or to potentially develop groundwater supplies in that area. The full extent of ground water contamination is unknown. The Town is actively pursuing several grants to further study this issue. In addition, the town has expressed interest in developing a Water Resources Management Plan.

SEWER

The Town completed the first and second phases of a sewer system and treatment plant project. The first phase was installed along the western section of Route 20 and portions of Stafford Street. The primary impetus for the first phase was to provide sewer service to the Massachusetts Turnpike service areas. The Phase 1 sewer system also included three pumping stations, one on J. Hammond Road, one on Route 20 and one off of Route 20. The second phase provided service to the Glen Echo Lake area, the center of Town and the schools and included 8 pumping stations. The Water and Sewer Commission is responsible for the oversight of the operation and maintenance of Charlton's wastewater facilities. There are no current plans to expand the collection system but extensions are occasionally permitted by the WS Commission to facilitate connection by private developers at their own expense.

The Massachusetts Turnpike Authority paid to extend the sewers to their services areas, while the Town paid for replacing the sewers in Charlton City. After evaluating Town-operated versus contract-operated wastewater treatment plant, the Town decided it was more cost effective to provide operations and maintenance of the collection system/treatment plant with a private contractor, and does so to this day. The treatment facility has a design capacity of 450,000 GPD with discharge to Cady Brook. Daily average use is around 250,000 gpd leaving a substantial unused capacity. The expense of the new facility was also shared by the Town (40 percent) and the MTA (60 percent). Completed in March 1997, the wastewater treatment plant (WWTP) began operating in September 1997.

LONG-TERM DEVELOPMENT PATTERNS

Charlton has three important documents that guide land use in town: the Zoning Bylaw, Subdivision Regulations and Master Plan. Charlton’s zoning bylaw was adopted in 1987 (and subsequently amended) and it regulates land use by:

- Specifying and distinguishing different land use types;
- Creating development standards for the size and shape of lots and the buildings erected on those lots;
- Addressing lots, buildings and uses that pre-dated the adoption of the zoning bylaw (non-conformities);
- Establishing criteria for the evaluation of permit applications for new buildings;
- Establishing procedures for permitting uses not specifically allowed by right;
- Defining terms that have specific meanings under the bylaw; and,
- Creating a map that displays the geographic extent of each zoning district

Charlton contains a total of seven zoning districts and three overlay districts (Flood Plain, Wireless Telecommunication Facilities and Adult Entertainment). The majority of land in town is zoned for Agriculture, which primarily allows the lowest density residential uses. All non-residential uses require Site Plan Review.

Permitted uses within each of the zoning districts, as well as dimensional and density regulations for building sizes and yard areas are set forth within the Zoning Bylaw. The bylaw includes three residential districts (A, R-40 and R-SE), two commercial districts (NB and CB), and two industrial districts (I-G and BEP). The Residential Small Enterprise (R-SE) district also allows certain commercial uses, in keeping with a traditional “Mill Village.”

TABLE 9: CHARLTON ZONING DISTRICTS

Zoning District	Acres	Percent of Town
Agricultural (A)	23,141	83%
Business Enterprise Park (BEP)	645	2.3%
Community Business (CB)	463	1.7%
Industrial General (IG)	658	2.3%
Neighborhood Business (NB)	33	0.1%
Low Density Residential (R-40)	2,096	7.5%
Residential-Small Enterprise (R-SE)	241	0.9%
Village (V)	747	2.7%
<i>Source: MassGIS</i>		

All residential districts allow Flexible Development on parcels of 10 acres or more, by Special Permit from the Planning Board. Such subdivisions are allowed a greater density of housing and waivers from typical subdivisions standards in exchange for the permanently restricted open space equal to at least 25 percent of the total land area of the subdivision. For example, in Agricultural districts, the minimum lot size is reduced from 60,000 to 45,000 square feet. Landscaped buffers of 20 feet in width are required along the lot frontage in both BEP and IG districts. In addition, any use in these districts abutting an R-40, an Agricultural, or a Historic District must have a landscaped strip of 100 feet in width along the site boundary. Residential development, particularly subdivisions, is regulated through Charlton’s Rules and Regulations Governing the Subdivision of Land in Charlton, Massachusetts (the Subdivision Regulations).

The current Subdivision Regulations were adopted in December of 1989 and are reviewed annually by the Planning Board and its engineering consultant for considered revisions and updates. As is typical, the main purpose of Subdivision Regulations is to protect the “health, safety, convenience and welfare of the inhabitants of Charlton” by specifying construction standards for new roads that ensure safe roads, adequate access to all lots, and provision of utilities within subdivisions. For example, the Subdivision Regulations require streetlights, sidewalks, street trees and specify pavement widths for each type of subdivision road. These regulations are significant in determining what new residential subdivisions will look like.

The Charlton Master Plan was adopted in 2008 to guide future growth and development. The Master Plan is a policy document that reviews existing conditions and recommends actions for guiding future growth and development in Charlton in a way that maintains Charlton’s desired community character. Ideally, the Master Plan is the blueprint for the Town and the zoning bylaw is the regulation that implements the plan. The Town Planning Department and Planning Board have been tasked with implementing its recommendations and many have been implemented since its adoption. One of the major initiatives to come out of the Master Planning process was the adoption of Village Center Zoning in 2008, which promotes mixed use, mobility and open space. Boundaries of the district have expanded two additional times since its adoption and it now includes the Overlook property holdings.

TABLE 10: CHARLTON ANR’S 2010-2015

Year	Number of ANR’s	Lots Created
2010	12	21
2011	14	12
2012	11	11
2013	20	13
2014	15	17
2015	16	22
<i>Total</i>	<i>88</i>	<i>96</i>
<i>Source: Charlton Department of Planning</i>		

Housing development has occurred both in the form of “Approval Not Required” (ANR) lots and subdivisions. Development of individual house lots along existing public ways requires only the submittal of an ANR plan to the Planning Board. Over the last six years 96 lots have been created through the ANR process. It’s important to note that less than half of the lots approved in permitted subdivisions since 1999 have been built upon.

TABLE 11

Subdivisions Approved Since 1999 Subdivision Name	Year Approved	Approved Lots	Acres	Houses Built	Status
Angalie Estates	2005	5	35.87	5	Completed
Buffum Estates	2003	5	11.9	5	Completed
Cranberry Shores	2007	7	32	7	Completed
Dresser Hill	2005	10	23.5	4	Active
Elly Pond Estates	2002	21	45.7	17	Active
Gunter Estates	2013	59	192	0	Active
Haggerty Landing	2004	6	17	0	Active
Hammond Woods	2003	23	69	18	Active
Heritage Oaks	2003	4	15.5	4	Completed
Jennings Road Extension	2010	55	87	17	Active
Lambs Farm Estates	2005	30	66.73	3	Active
Lambs Pond Estates	2010	10	15	10	Completed
Manor Ridge	2003	9	14.5	9	Completed
Ponnakin Hill Estates	2004	57	93.7	21	Active
Preservation Estates	2003	12	19	12	Completed
Reindeer Estates	1999	20	35.98	20	Completed
Scott Drive Extension	2001	9	39.67	9	Completed
Stevens Estates	2003	2	3.11	2	Completed
Stonegate Estates (Phase II)	1999	10	16.27	10	Completed
St. Mary’s Way	2011	4	11	1	Active
The Reserve At Barton Hill - East	2007	46	99	0	Active
The Reserve At Barton Hill - West	2007	84	165	0	Active
Tucker Farm Estates	2004	25	97.25	0	Active
Turner Woods	1999	13	26.4	13	Completed
Water’s Edge	2000	18	52.59	18	Completed
Willow Tree Estates	2007	10	23.25	8	Active
Totals		544	1,284.6 7	213	
<i>Source: Charlton Department of Planning</i>					

The town’s flexible development bylaw has generated a significant amount of preserved open space in the Community. Table 11 shows that over 500 acres have been permanently preserved since the bylaw’s passage.

TABLE 12: FLEXIBLE SUBDIVISION OPEN SPACE INVENTORY

Name	Preserved Open Space	% Of Subdivision	Designated Open Space Owner
Angalie Estates	21.75 Acres	61.0%	Town of Charlton
Applewood	46.25 Acres	32.70%	Town of Charlton
Cranberry Meadows	57 Acres	84%	Charlton Heritage Preservation Trust
Dresser Hills Subdivision	5.96 Acres	39.1%	Charlton Heritage Preservation Trust
Gunter Estates	103.12 Acres	53 %	Greater Worcester Land Trust
Hammond Woods	27.44 Acres	39.87%	Charlton Heritage Preservation Trust
Henry Richard Circle	6.38 Acres	30%	Town of Charlton
Jennings Road Extension	22 Acres	25%	To be determined
Lambs Pond Estates	3.72 Acres	24.8%	Charlton Heritage Preservation Trust
Learned Hill Farm	4.58 Acres	18.7%	National Heritage Foundation
McKinstry Drive Extension	9 Acres	35%	Homeowners Association
Pike's Pond	15.7 Acres	28%	National Heritage Foundation
Ponnakin Hill Estates	27.68 Acres	29.5%	Greater Worcester Land Trust
Potter Village Estates	13.88 Acres	44%	Homeowners Association
Preservation Estates	6.2 Acres	30%	Charlton Heritage Preservation Trust
Reindeer Estates	10.72 Acres	50%	Charlton Heritage Preservation Trust
St. Mary's Way	2.66 Acres	24.18%	To be determined
Scott Drive Extension	18.66 Acres	47%	Town of Charlton
Stonegate Estates	4.4 Acres	22.49%	Town of Charlton
The Reserve At Barton Hill-East	32.5 Acres	32.8%	To be determined
The Reserve At Barton Hill-West	51 Acres	30.9%	To be determined
Tucker Farm	17.9 Acres	18.0%	Division Of Fisheries & Wildlife
Water's Edge	6.63 Acres	18.25%	Charlton Heritage Preservation Trust
Willow Tree Estates	5.29 Acres	22.75%	Charlton Heritage Preservation Trust

Source: Charlton Planning Department, August 2016

As previously mentioned, Charlton is projected to grow by 2,000 residents by 2030. The Charlton Planning Director expects the pattern of residential development will “fill in the blanks” between the existing roads which currently reach most of the areas around town. The Planning Board anticipates that Blair Builders will eventually apply for a definitive subdivision plan approval to develop a single-family home residential subdivision at the former Kastigian Farm located westerly off of Route 31 toward the Charlton-Spencer townline. Blair Builders, Inc. purchased the site in 2005. To date, a portion of the former farm has been leased for a commercial solar energy generation array. In regards to commercial development, the Town expects that it is likely to continue along Route 20, which has been zoned for this use.

Currently there are a number of areas that could be saved as open space corridors within town and corridors with adjacent communities. These corridors, be they for wildlife or for people, are the natural links that are most vulnerable to development in Charlton, and they need to be protected to help conserve the integrity of the bioregion, to conserve biological diversity and to provide natural pathways for quality recreation experiences. As development in Charlton occurs, these potential corridors will quickly decrease in both size and length.

SECTION FOUR: ENVIRONMENTAL INVENTORY AND ANALYSIS

GEOLOGY AND SOILS

Central Massachusetts lies within the Appalachian structural province, a long zone of disturbed and altered bedrock that stretches from Alabama to Newfoundland. Generally, there is a north-south alignment of rock units, structural lines and major ridges and valleys. The types of bedrock in the area represent the early formed parts of a thick sequence of deformed sediments that became the Appalachian Mountain belt. They fall into either the metamorphic or igneous rock families.

This topography is predominantly gently rolling hills and valleys with slopes varying from 0 to slightly over 25 percent. Elevations within town vary from less than 500 feet above mean sea level to over 1,700 feet above at Little Muggert Hill. The high clay content in the high lands often precludes intense domestic development because of the lack of on-site sewage possibilities. They, however, are optimum sites for passive recreational, scenic overlooks and non-intensive sports.

The soil characteristics within Charlton can be placed into seven categories for development purposes based on a combination of their soil and slope characteristics. This information is presented in Table __ and is also shown on the Soils and Geologic Features Map. The majority of town has well drained soils, which historically have supported agriculture and more recently facilitated housing development. Areas with less than ideal soil characteristics are spread throughout town; although, there is a swath of very poorly drained land on either side of Bond Road as well as south of Route 20 at the Oxford Town line. In areas of town with public water and sewer, soil constraints play a relatively minor role in development. It is important to note that even though new public wastewater and water infrastructure will diminish the importance of specific soil characteristics, they still impact development on a location-specific basis. Shallow soils may cause the need for blasting and thus add to expense. Other types that are relatively unstable may necessitate special berms or embankments.

Table 13: Charlton Soil Survey by Dominant Drainage Class

Dominant Drainage Class	Acres	Percent of Town
Not Classified	1,245	4%
Excessively drained	212	1%
Moderately well drained	3,501	12%
Poorly drained	1,583	6%
Somewhat excessively drained	249	1%
Very poorly drained	3,200	11%
Well drained	18,036	64%

Source: United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and MassGIS

Presently, most of the underdeveloped land lies within the transitional land between the hilltops and valleys where there are steep slopes and high possibilities of erosion. On the western portion of

Charlton, many of these steep slopes break out into ledge terraces. Suitable intensive recreational use can be assigned to specific optimum areas mainly in the southeast portion of Charlton and other smaller areas in the area of Town near Buffumville.

Charlton's remaining farms and fields are still located throughout town and are not concentrated in any one area. Over 4,200 acres of land in Charlton has been categorized as prime farm land, which is defined as "land that has the best combination of physical and chemical characteristics for economically producing sustained high yields of food, feed, forage, fiber, and oilseed crops, when treated and managed according to acceptable farming methods." The Soils and Geologic Features Map also shows the locations of prime farmland soils, which can be found throughout Charlton although there is a concentration along and north of Stafford Street.

TOPOGRAPHY AND LANDSCAPE CHARACTER

Charlton is situated in the southwesterly portion of the county, about thirteen miles from Worcester. The town contains some of the highest ground in southern Worcester County. A hill town with uneven ground formed by a concentration of drumlins, elevations range from about 600 feet above sea level in the river valleys in the southeastern corner of the town to more than 1,000 feet above sea level in the north-central portion of the town. Most hills range between 800 and 1,000 feet above sea level. This high, uneven topography initially deterred settlement during the early 18th century. When the area was finally occupied and the land brought under cultivation, the soils were found to be very productive and rich. They consist largely of Charlton loams which take their name from the town and extend in a narrow band from the Connecticut border near Southbridge and Dudley north to Lunenburg, Winchester, and Winchendon. This is one of three major north-south soil zones in Worcester County, bounded on the west by Brookfield soils and on the east by Gloucester soils. Except for the band of Brookfield loam and stony loam found along the western border of the town, Charlton's surface is covered by Charlton and some Paxton loams on the ridge and drumlin tops, and Charlton fine sandy loam and stony fine sandy loam on the hillsides and the few level areas. Except for the stony fine sandy loam, most of the soil types are free from stone and well suited to mowing, pasture, and cultivated crops of grains and potatoes.

Numerous streams flow among the hills in a north-south direction and provided many small water power sites utilized during the 18th and 19th centuries. The drainage of the town's streams is divided by the central north-south ridge. The waters to the west drain into Cady Brook and the Quinebaug River, and into the French River on the east.

The landscape character of Charlton is dominated by vistas consisting of distant views over hilly fields and wooded valleys for distances up to 80 miles. The view from Dresser Hill (Route 31) is one of the most outstanding in Central Massachusetts and includes vistas to neighboring towns with the church spires piercing the panorama. Brilliant fall foliage is reflected in the numerous ponds strung along a necklace of streams which abound in Charlton. Actions which can be taken to preserve these vistas include zoning regulations, the purchase of scenic easements and the purchase of open space.

There are currently 10 designated scenic roads in town. After a road has been designated as a scenic road, any cutting or removal of trees of more than four (4) inches in diameter, measured two (2) feet above the ground, is prohibited except with the prior written consent of the Planning Board and after a public hearing has been held. These roads are:

- Buteau Road
- Cemetery Road
- Gould Road
- Horne Homestead Road
- Jones Road
- McIntyre Road
- North Sturbridge Road
- Smith Road
- Tucker Road
- Wheelock Road

WATER RESOURCES

Charlton contains over 1,000 acres of water consisting of ponds, reservoirs and streams including the Buffumville flood control reservoir. This abundance of water bodies and streams add to its rural charm. These numerous water bodies provide the town with water-oriented recreation areas, attractive residential sites and conservation areas. Many of these are man-made and are the result of old industrial operations or farms. This section describes the water resources found in Charlton and provides a brief description of their character. Their locations are shown on Map #4.

WATERSHED AND DRAINAGE

Charlton's surface drainage network of streams, ponds and wetlands is the direct result of its topography and soils. These surface waters are important to consider in open space planning. They connect ponds, wetlands, wildlife habitats, rich flood plain soils, historic sites and other important community resources. Roadways have followed stream and river valleys or hill ridge ways.

The drainage network can be divided into drainage basins. Often called watersheds, drainage basins are land areas which collect the water from precipitation and replenish waterways. Streams and brooks are, in turn, fed by smaller sub-watersheds that comprise a large drainage basin. Three of the state-defined 27 major river basins receive water draining from Charlton's over 100 miles of rivers and streams. Most of the town lies within the Quinebaug (14,861 acres) and French River (13,164 acres) Watersheds. A very small 255 acre portion in the upper northwestern section of Charlton lies in the Chicopee River Watershed.

- Cady Brook is a moderately flowing stream with an average width of 15 feet. It runs from the outlet structure of Glen Echo dam to the confluence with Quinebaug River in Southbridge approximately parallel to Route 169 for a distance of 6.6 miles
- Little River is a gradual flowing stream with an average width of 15 feet running for approximately 3.5 miles starting at the discharge of Pikes Pond to the confluence of Buffums Reservoir. This stream has open access for fishing with occasional large open pools.
- McKinstry Brook is a shallow low flowing stream which originates east of Brookfield Road flowing toward Southbridge to the confluence with the Quinebaug River. It averages 10 feet in width, runs for 7.3 miles with large pools and riffle areas. The Brook is a DFW cold water fishery.

- Potter Brook is a 1.6 mile stream with an average width of 6 feet. It contains several small rock dams causing the creation of large deep pools. It has easy access for fishing. Originating at the outfall of Granite Reservoir flowing southerly reaching the confluence with Buffum Reservoir. The Brook is a DFW cold water fishery.

SURFACE WATER

Charlton has several ponds and lakes of conservation and recreation interest as well as private enjoyment. Much progress has been made in the last 15 years to minimize water quality degradation, However, old, on-site waste disposal systems, runoff from roads, and runoff from farming operations, continue to threaten water quality. As a requirement of the MS4 Stormwater Permit, the Town of Charlton, through the Conservation Commission, annually conducts dry and wet weather water quality monitoring. In addition, the Last Green Valley organization conducts water quality monitoring within the Quinebaug and French River watersheds and the Army Corps of Engineers within Buffumville. In total, lakes and ponds comprise over 1,000 acres in Charlton.

- Baker (Gore) Pond is an enhanced Great Pond of approximately 169 acres. It was created by the construction of a dam for water power in the 1830's. Its shoreline is populated with approximately 40 homes and an additional 30 plus homes are situated within 500 feet of the shoreline. A diagnostic feasibility study was completed in 1987 resulting in a winter drawdown for weed control. In addition, the pond was treated for blue-green algae. The pond continues to exhibit a serious phosphate loading problem that should be addressed before the problem spreads downstream.
- Granite Reservoir is a 198 acre great pond with a maximum depth of 14 feet and an average depth of 8 feet. It is privately owned and used for swimming and boating.
- Buffumville Lake is a 488 acre man made lake which was constructed for flood control purposes. It is used for swimming, boating and fishing. Public access is allowed. The site is owned and managed by the Army Corps of Engineers.
- Pikes Pond is 32 acres in size and without great pond status. It is a man made body of water which is privately owned and used for passive recreation and fishing.
- Little Nugget Lake is man made with public access provided.
- Glen Echo Lake is a 112 acre man-made lake without great pond status. Its maximum depth is 25 feet with an average depth of 12 feet. It is heavily built-up on all shorelines. It previously exhibited various water quality problems, but this was addressed with the construction of town sewer. The lake is used for fishing, boating, swimming and other recreational water activities. Public access is provided.
- Prindle Lake is a 71 acre lake without great pond status. It is man made and public access is provided.
- Pierpoint Meadow Pond is a 90 acre great pond with a maximum depth of 14 feet.

The following ponds are privately owned and little data is available on them at this time.

- Putnam Pond
- Snow Pond
- Cranberry Meadow Pond
- Lambs Pond
- Jones Pond
- Wee Laddie Pond
- Hultered Pond
- Sibley Pond
- Blood Pond
- McIntyre Pond
- Ashworth Pond
- Dodge Pond
- Flowing Water

Charlton has several water bodies that were identified as impaired or polluted by MassDEP and a listing of these water bodies can be found in the Environmental Challenges subsection of this report.

Charlton does not have any “Outstanding Resource Waters” within its boundary, which are waters given special protection under the Massachusetts Surface Water Quality Standards, 314 CMR 4.00 (WQS) based on their outstanding socio-economic, recreational, ecological and/or aesthetic values.³

AQUIFER RECHARGE AREAS, GROUNDWATER RESOURCES, AND SOURCE PROTECTION AREAS

The town of Charlton currently does not have its own municipal water supply and continues to search for a potential source within its boundary. There are no high-yield aquifers. The town has one medium yield aquifer that covers 62 acres of land at the end of Potter Village Road, and partially within land owned by the Army Corps of Engineers. There are a few low-yield aquifer recharge areas in town. The largest stretch coincides with lands at Buffumville Lake. The second area exists at Sibley Pond. The town should consider working with the state to develop guidelines for their protection. Charlton has 11 community groundwater wells which are encircled by Interim Wellhead Protection Areas. Charlton does not contain any Zone II Wellhead Protection Areas within its boundary.

Charlton signed an agreement in 2015 with its neighbor Southbridge to supply water to Charlton residents and businesses for up to 500,000 gallons per day along existing and planned infrastructure in the center and western areas of town. The Town is also working with Oxford to potentially supply areas of town not covered by water supply from Southbridge and/or to potentially develop groundwater supplies in that area. The town is still looking for a source of water to supply its water infrastructure..

³ According to 314 CMR 4.04(3): "Certain waters are designated for protection under this provision in 314 CMR 4.06. These waters include Class A Public Water Supplies (314 CMR 4.06(1)(d)1.) and their tributaries, certain wetlands as specified in 314 CMR 4.06(2) and other waters as determined by the Department based on their outstanding socio-economic, recreational, ecological and/or aesthetic values. The quality of these waters shall be protected and maintained."

WETLANDS

There are over 2,000 acres of wetlands in Charlton, covering approximately seven percent of its land area. The location of these wetlands is shown on the Water Resources 1 Map as well as the Habitat Features Map. A wetland is an area of land whose soil is saturated with moisture either permanently or seasonally. Such areas may also be covered partially or completely by shallow pools of water. Wetlands include swamps, marshes, and bogs, among others and tend to occur in areas where, because of underlying geology, the water table intersects with the ground surface or where slowly permeating soils prevent drainage. Wetlands are important places for resource protection because they provide many benefits to the Town including: flood control by slowing floodwaters, recharge of the groundwater supply, protection of public water supply, prevention of pollution, and protection of wildlife habitat.

Wetlands are located throughout town with significant concentrations around or between:

- H Foote Road in the western part of town
- North Sturbridge Road and Fitzgerald Roads in the northwestern corner of town
- Near King Road in the southwestern corner of town
- South of Route 20 at the Oxford-Charlton town line
- Bond Road, north of Colburn Road
- Haggerty and Baker Pond Roads
- Gould Road and Smith Road in the northeastern part of town

FLOOD HAZARD AREAS

The flood hazard areas within Charlton are limited due to the hilly topography which limits flood zones to those areas immediately surrounding Charlton's streams, rivers, ponds and lakes. The location of the 100 year Flood Areas are shown on the Water Resources 2 Map. Approximately, 2,200 acres lie within the 100 year flood zone and 1,500 acres within the 500 year flood zone. The term "100-year flood" is used in an attempt to simplify the definition of a flood that statistically has a 1-percent chance of occurring in any given year. While the Federal Emergency Management Agency (FEMA) now uses "1% Annual Chance Flood Boundary", the 100-year flood plain (previously used) is still a great indicator of the area potentially affected by rising flood waters.

VEGETATION

Charlton is dominated by open fields of former farmland, forests and vegetated wetlands. Only two commercial farms remain in Charlton—Signal Rock Farm and Fay Mountain Farm. Trees and other forms of vegetation provide important resources for a community. Open space planning should protect the volume and diversity of vegetation.

The forested areas are scattered throughout Charlton, though the predominance of uninterrupted forested areas are found on the outskirts of Town in all four quadrants. As of 1985, approximately 70% of Charlton was covered by forest. The forest type is Northern Mixed Hardwood characterized

by beech, sugar maple, birch, oaks and other associated hardwoods. White pine is also a significant species, occurring on its own or mixed with hemlock in wetter areas.

Wetland vegetated areas are interspersed throughout the Town associated with the numerous water bodies and streams. Wetland species native to the Town include trees such as Red Maple, Speckled Alder, Canadian Serviceberry, Silky Dogwood, and Eastern Hemlock. Other vegetation includes jack-in-the pulpit, sedge, sweet pepper, winterberry, arrowwood, spice bush, sensitive fern, cinnamon fern, swamp honeysuckle, pussy willow and highbush blueberry. These indicators are taken from the National List of Plant Species that Occur in Wetlands: Northeast, distributed by the Fish and Wildlife Service, U. S. Department of the Interior. The national indicators reflect the range on possibility of a species occurring in a wetland versus a non-wetland.

It should be noted that Charlton has been listed in the Champion Trees of New England, through the Department of Environmental Management’s Urban Forestry program, as home of largest Black Cherry (*Prunus serotina*) tree in Massachusetts. Charlton does not have a public shade tree program. However, developers of new subdivision roads are required to plant shade trees within the right-of-way. Trees, of a size and species approved by the Tree Warden and the Planning Board, shall be installed at an average spacing of fifty (50) feet on both sides of the proposed roadway. All trees shall be subject to a one (1) year guarantee for one (1) year or, if less, for one full growing season.

Many different vegetative species live throughout Charlton. The Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife identifies three rare vascular plants that have been observed in Charlton and these are shown in Table 13. None of these species have federal status. Since the 2000s, American Bittersweet was added as a “Threatened” plant in Charlton, and the Appalachian Bulrush went from “Watch List” to no longer appearing on NESA’s list. Charlton does not have any “Areas of Critical Environmental Concern” within its boundary.⁴

Table 14: Rare Vascular Plants Observed in Charlton

Scientific Name	Common Name	MESA Status	Most Recent Observation
<i>Celastrus scandens</i>	American Bittersweet	T	2013
<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	T	1933
<i>Viola adunca</i>	Sand Violet	SC	2009

Source: Natural Heritage and Endangered Species Program, accessed summer of 2016
Notes: T=Threatened, SC=Special Concern

⁴ Areas of Critical Environmental Concern (ACECs) are places in Massachusetts that receive special recognition because of the quality, uniqueness and significance of their natural and cultural resources. These areas are identified and nominated at the community level and are reviewed and designated by the state’s Secretary of Energy and Environmental Affairs.

FISHERIES AND WILDLIFE

FISHERIES

The town of Charlton has diverse and abundant aquatic habitats consisting of cold water and warm water streams and ponds. These habitats are home to many fish species: native, introduced, and stocked. Angling opportunities are excellent due to ample public land access.

Warm water: Buffumville reservoir has good public access. Granite Reservoir, Prindle Lake, Glen Echo Lake and Gore Pond have limited access. There are a number of other small warm water ponds. These ponds have similar fish species such as Bass, Pickerel, Perch, Sunfishes, Bullhead, various minnows, dace and shiners. Water depth, chemistry and aquatic vegetation varies from pond to pond. This results in different quality and quantity of fish species composition. Some shallow smaller ponds are subject to oxygen depletion during winter months and breeding stress in spring/summer resulting in some fish mortality. Generally, Charlton ponds have good fish production capability. Northern Pike have been stocked in Buffumville reservoir in 1984, 1988 and 1994.

Cold water: Trout fisheries are primarily confined to streams and brooks. There is one (1) designated Coldwater Fishery Resources in Charlton, Mckinstry Brook having excellent native trout species. Eastern Brook Trout is the prime species.

Stocked Trout: DFW stocks trout in Snow's Pond, Little River, South Fork of the Little River, Potter and McKinstry Brooks. Species stocked are Rainbow and Brown Trout.

WILDLIFE

TYPES OF WILDLIFE

The wildlife species found in Charlton are common to all of central Massachusetts. There are occasional uncommon animals seen in Charlton. Moose, Turkey Vulture and American Bald Eagle have large home ranges and expanding populations. A complete listing of wildlife species including mammals, birds, fishes, reptiles and amphibians is too extensive to be noted here. There are many excellent field guides available for reference. The Division of Fisheries and Wildlife stocks about 140 Ring Necked Pheasants annually on open covers and suitable habitat in Charlton. These birds are hunted during the fall upland game season.

The Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife identifies three rare species that have been observed in Charlton. NESAs has delisted the four-toed salamander, spotted turtle, and triangle floater with its latest list update. Estimated habitats of rare wildlife are located in northeast Charlton along the Little River corridor down to Buffumville, as well as in southern Charlton near East Baylies Road and another area in northwest Charlton. Prime habitat areas for wood turtles in Charlton are located along river corridors, predominantly the Little River Basin. In addition, marbled salamanders have been sighted numerous times in Charlton associated with vernal pools.

Table 15: Rare Species in Charlton

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Amphibian	Ambystoma opacum	Marbled Salamander	T	2010
Reptile	Glyptemys insculpta	Wood Turtle	SC	2013
Dragonfly/Damselfly	Neurocordulia obsoleta	Umber Shadowdragon	SC	2007
<i>Source: Natural Heritage and Endangered Species Program, accessed summer of 2016</i> <i>Notes: T=Threatened, SC=Special Concern</i>				

AREAS WITH WILDLIFE

Diversity and variety of wildlife are the strong points of the environment of Charlton. Wildlife habitat includes upland forested areas, many different wetland types, early successional brushy fields, active agricultural fields and suburban backyards. All these habitats are high quality and wildlife production reflects this. Several large more or less unbroken tracts of land can still be found in the western part of Charlton as well as in the northwestern area of town where Bennett Wildlife Management Area and Powers Memorial Forest are located.

Private lands: Most of the wildlife habitats on private land consist of suburban backyards and farmland. Raccoon, whitetail deer, cottontail rabbit, gray squirrel, red fox, New England coyote and various species of songbirds are found in this diverse environment. The abundant wildlife species are ones that can adapt to this changing habitat. The adaptability to humans can present problems at times. Crop damage, livestock predation, property damage and health and safety concerns result from the interaction of people and wildlife. This is a small price to pay for the enjoyment, recreation and adventures associated with living near wild animals.

Public lands: The Division of Fisheries and Wildlife and the U. S. Army Corps of Engineers are major land stewards. Bennett Wildlife Management Area is open to the public for wildlife related recreation. It consists of 281 acres of old fields and forest. Wildlife species such as Whitetail Deer, Ruffed Grouse, Gray Fox, Coyote and Turkey benefit from forest habitat management conducted on state and private lands. Hunting is popular on state lands for Whitetail Deer and stocked pheasant.

Wildlife Corridors: Charlton has three primary wildlife corridors, each following one of the rivers in Town. A wildlife corridor is an area of habitat connecting wildlife populations separated by human activities (such as roads, development, or logging). This allows an exchange of individuals between populations, which may help prevent the negative effects of inbreeding and reduced genetic diversity (via genetic drift) that often occur within isolated populations. Corridors may also help facilitate the reestablishment of populations that have been reduced or eliminated due to random events (such as fires or disease). This may potentially moderate some of the worst effects of habitat fragmentation.

Cady Brook corridor, located in the westerly portion of town, is a riparian corridor running the length of Cady Brook this corridor is conducive to fluvial fish passage, amphibian, reptile, mammal,

and avian usage. Cady Brook is also listed as a core habitat area, estimated habitat area, and priority habitat by NHESP.

Little River is a wildlife corridor located on the easterly portion of town. This riparian corridor shadows the Little River from Pikes Pond to Buffumville Reservoir. This area is conducive to wood turtle usage and fluvial fish passage. This area is also noted as estimated and priority habitat by NHESP. Bennett Wildlife Management Area is located in the northernmost section of this corridor.

Mckinstry Brook, located on the northwesterly portion of town, is the final corridor. This area is a cold water fishery with a naturally reproducing population of brook trout. Mckinstry Brook is listed as a core habitat area, estimated habitat area, and priority habitat by NHESP.

Vernal Pools: NHESP has identified twelve (12) certified vernal pools and two hundred twenty four (224) potential vernal pools in Town. Certified vernal pools are located in the above noted McKinstry Brook, Little River and Cady Brook wild life corridors as well as one on the west side of Bond Road on currently designated Chapter Land and one on Baker Road near South Charlton Reservoir.

SCENIC RESOURCES AND UNIQUE ENVIRONMENTS

Charlton has an abundance of scenic resources and unique environments. These include scenic landscapes, unique geological features, and cultural, archaeological and historic areas. These features are described in more detail below and are outlined on Map___**(forthcoming)**.

SCENIC LANDSCAPES

Scenic landscapes have been defined to include designated scenic roads, agricultural landscapes, open meadows/fields and stream corridors.

Designated **Scenic Roads** can be described as follows:

1. North Sturbridge Road - retains original stone walls and ancient maple trees
2. Gould Road/Cemetery Road/Wheelock Road/Buteau Road - form a network of well-preserved rural character
3. Smith Road/Tucker Road/McIntyre Road - have large granite boulder walls that are distinctive in shape
4. Horne Homestead Road - ancient way ending at a 360 degree vista of neighboring countryside

Agricultural landscapes include:

5. Signal Rock /H. K. Davis/Little Mugget Hill - combination of highest hills in Charlton with surrounding fields provides a remnant of once common country side.
6. Tucker - this high hill now returning to woodland gives views to the east and south.
7. Putnam/Partridge Hill - intensely maintained remnant of an early farm is maintained by one of the land descendants.

8. Dresser Hill - view awarded from this high drumland cannot be exceeded by anywhere in southern Worcester County, a series of farms are located on this hill. The most intensely developed agricultural land in town.
9. Carpenter Hill/McIntyre Road - series of former farms here show possibilities of agricultural uses on stony ledge land.

Charlton contains numerous *open meadows and fields*. These sites are existing open fields maintained to supply their adjacent farms with hay crops. In addition, two sites are institutional establishments which provide produce and supplies to their facilities.

Charlton has two primary *stream corridors*. The eastern slope of Charlton is drained by a series of streams into the Little River upper tributary of the Thames River watershed. McKinstry Brook drains the western section of town. Along its course are numerous waterfalls and rapids, a boon to the fisherman and a delight to the hiker.

UNIQUE GEOLOGIC FEATURES

Charlton's unusual geological features can be described as follows:

1. Brookfield Road/Bond Sawmill Road - erratic boulder with a large concave area used as a rock shelter.
2. McKinstry Farm/Capen Hill - wolf den, jumbled mass of boulders containing many small cavities. The site of the last wolf sighting in Charlton.
3. Upper/Lower Gorge of Little River - streams cut deeply through ledges forming waterfalls and rapids.
4. Beech Falls - small stream with a spectacular fall in the midst of a deep beech grove off of Northside Road.

Charlton contains many open hilltops which highlight these land forms and create some of the most scenic views to and around town. These open hilltops include:

- | | |
|-------------------|-----------------------|
| 1. Stedman's Hill | 9. Eastman Hill |
| 2. Doane Hill | 10. Mugget Hill |
| 3. Osgood Hill | 11. Horne Hill |
| 4. Curtis Hill | 12. Conlin Hill |
| 5. William's Hill | 13. Wolfe Hill |
| 6. Little Muggett | 14. Dresser Hill |
| 7. Tavern Hill | 15. Masonic Home Hill |
| 8. Hammond Hill | 16. Carpenter Hill |

CULTURAL, ARCHAEOLOGICAL AND HISTORIC FEATURES

Charlton's **cultural features** include a collection of cemeteries, schoolhouses, sites of cultural events.

1. Barefoot cemetery
2. Masonic Home / Overlook
3. Webster Ridge
4. Bay Path
5. Indian Hill Burial Ground
6. Dr. Morton
7. Old District 4 School
8. New District 4 School
9. Morris
10. Martin
11. Samuel Fitts
12. Schoolhouse #6
13. Chase
14. McIntire Cemetery
15. X Mixer
16. Caleb Fitts (Fitts Burial Ground)
17. City Hotel
18. Major Daniel Williams Lot
19. Schoolhouse #9
20. Charlton City Union Yard
21. Schoolhouse # 12
22. Towne
23. Jesse Smith
24. Tucker (Captain Jonathan Tucker Yard)
25. Northside
26. Cranberry Meadow
27. District #2 Schoolhouse
28. Rider Tavern
29. Harvey Dresser Yard

In addition to these cultural areas, Charlton does contain a few known **archaeological sites**. These are include:

1. Lelandville, South Charlton - the remains of an old mill and foundations mark the site of a once prosperous manufacturing village.
2. North Charlton - Adjacent to the Rider tavern on Stafford Street are the contents of a tannery, saw and grist mill, distillery, and scythe shop and militia field.
3. Bay Path - ancient aboriginal trail from the bay to the Connecticut Valley, still undeveloped.
4. Midsection - prehistoric Indian site on the Little River, Old Worcester Road, for the Mashamugget and Algonquin Indians.
5. Fulling Mill on Little River- made wool fluffy at this "fulling mill."

Historic features can be found throughout Charlton many of which are located in a National Register Historic District or local historic district (See Section Three—History of the Community). Areas with a concentration of historic buildings include:

1. Northside Village-An agriculturally based village community with a period of significance from 1750-1840 that retains its rural character.
2. Charlton Center - typifies an 18-19th early century lineal village. The ecclesiastical and governmental center of the town.
3. Charlton City - this is a concentrated area of industrial development containing mills, mill housing, stores and businesses in a densely built area.

4. Charlton Depot - the Village of Charlton Depot resulted from the building of a railroad line in 1838 and the establishment of the depot on this site in town. Now mainly residential, it once was the center of business activity in town.

ENVIRONMENTAL CHALLENGES

Charlton's industrial and agricultural activity has left a legacy of environmental problems, particularly with regard to the abundant water resources in town. Many of the sources of point pollution have been identified and contained, but potential problems may continue to exist from new development, hazardous waste sites, erosion, and sedimentation that threaten ground and surface water. Charlton's historical legacy also has an impact on environmental quality. The soil's retention of toxic materials from numerous processes at many locations will pose a threat well into the future.

Roadway construction, maintenance, and typical highway use are all potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are sometimes sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals, and other debris on roads are picked up by storm water and washed into catch basins; impervious surfaces concentrate runoff and contaminants.

HAZARDOUS WASTE AND BROWNFIELD SITES

The Massachusetts Department of Environmental Protection currently lists 238 "21E" sites (also known as "brownfields") in Charlton. Four of these sites are TIER 1 disposal sites.⁵ Nine of these sites are Tier 1D disposal sites.⁶ These sites have contributed to the town's groundwater contamination issues as discussed previously in the section on Water and in the sections below on surface water pollution and ground water pollution. The town of Charlton and its partners are currently working with many of the property owners at the identified sites to ensure compliance.

Several wells in the Charlton City area have shown levels of trichloroethylene (an industrial solvent) in excess of regulatory levels. The source of this contamination is not known. Benzene, and MBTE, both gasoline additives, have been detected in some wells in the vicinities of the Mass Turnpike 6W and 5E service facilities. The underground plume of contamination has migrated a substantial distance from the turnpike and Charlton City areas to a large part of Charlton, polluting dozens of private wells. The Mass Turnpike Authority and several oil companies were identified by

⁵ Disposal sites are classified as Tier 1 if (a) there is evidence of groundwater contamination with oil and/or hazardous material at concentrations equal to or exceeding the applicable RCGW-1 Reportable Concentration set forth in 310 CMR 40.0360, and such groundwater is located within an Interim Wellhead Protection Area, Zone II, or within 500 feet of a Private Water Supply Well; (b) an Imminent Hazard is present; (c) one or more remedial actions are required as part of an Immediate Response Action pursuant to 310 CMR 40.0414(2); or (d) one or more response actions are required as part of an Immediate Response Action to eliminate or mitigate a Critical Exposure Pathway pursuant to 310 CMR 40.0414(3).

⁶ Mass DEP deems sites as Tier 1D disposal sites if any of the following apply: (a) an Responsible Party (RP), Potentially Responsible Party (PRP) or Other Person for such disposal site fails to submit to MassDEP one of the following by the applicable deadline in 310 CMR 40.0501: 1. a Permanent Solution Statement; or 2. a Tier Classification Submittal; or (b) the person undertaking response actions is in noncompliance with M.G.L. c. 21E, 310 CMR 40.0000 or any other applicable requirement, and MassDEP reclassifies the disposal site as a Tier 1D disposal site pursuant to 310 CMR 40.0583.

the Department of Environmental Protection (DEP) as potentially responsible parties. Exxon Mobil was identified by Mass DEP as responsible party for the release of gasoline at LaMountain's Exxon on Worcester Road. The Town and Mass DEP reached an agreement with Exxon in April 2016 (detailed below). Other known releases causing groundwater contamination in Charlton include releases of gasoline at the Honey Farms on Worcester Road and releases of petroleum products from the Charlton Highway Department on North Main Street. In all these petroleum releases, bedrock has been a problem because the oil spreads in unexpected ways due to fissures. Mass DOT has also been faulted for salt contamination at its salt shed on Route 20.

Finally, DEP named Casella Waste Systems, operator of the nearby Southbridge landfill, the potential responsible party for the residential water contamination by 1-4 dioxin of 21 Charlton residences in the area of H. Foote Road and Berry Corner Road in the western part of Town, and the Town is still in discussions with DEP and Casella regarding this issue.

SURFACE WATER POLLUTION AND GROUND WATER POLLUTION

Charlton's primary environmental challenge is improving the water quality of its lakes, ponds, rivers and streams. Both state and local water quality monitoring efforts highlight the town's water quality issues. Past development has negatively affected Charlton's water resources, including failing septic systems, excessive shoreline development, poor erosion control, hazardous waste spills or non-point pollution such as salt from roadway maintenance efforts, manure seepage from agricultural uses, fertilizers from lawn maintenance, or pesticide applications. In addition, there is a naturally occurring vein of arsenic that runs through the center of town.

Since the 1996 OSRP and 2008 Town Master Plan, Charlton has made important strides in improving water quality through its illicit discharge bylaw, erosion bylaw and water testing quality testing through the Board of Health at new construction sites. The Sewage Treatment Plant has also reduced pharmaceutical load and discharge into Cady Brook. Such efforts have been further strengthened with the mandates of the EPA storm water permit. As discussed in the subsection on infrastructure in Section Three, evidence of groundwater contamination continues to draw attention to the need for a comprehensive water system and water supply.

In addition, the town and its partners continue to work with the Massachusetts Department of Environmental Protection (DEP) to address water that the state has identified as polluted or impaired. If a water body is identified as impaired, a plan is developed to bring it back into compliance with the Massachusetts Water Quality Standards. Waters exhibiting impairment for one or more uses are placed in either Category 4 (impaired, but not requiring a total maximum daily load calculation (TMDL) or Category 5 (impaired, and requiring one or more TMDLs) according to the EPA guidance.⁷ Category 4 is further divided into three sub-categories - 4a, 4b and 4c -

⁷ Once a water body is identified as a Category 5, DEP is required by the Federal Clean Water Act to essentially develop a "pollution budget" designed to restore the health of the impaired body of water. The process of developing this budget, generally referred to as a Total Maximum Daily Load (TMDL), includes identifying the source(s) of the pollutant from direct discharges (point sources) and indirect discharges (non-point sources), determining the maximum amount of the pollutant that can be discharged to a specific water body to meet water quality standards, and developing a plan to meet that goal.

depending upon the reason that TMDLs are not needed. Category 4a includes waters for which the required TMDL(s) have already been completed and approved by the EPA. However, since MassDEP chooses to list each segment in only one category, waters that have an approved TMDL for some pollutants, but not others, remain in Category 5 until TMDLs are approved for all of the pollutants impairing those waters. Water bodies in Charlton that were a Category 4 or 5 on the 2014 integrated list are shown in the table below:

Table 16: Category 4a “TMDL is completed” Water Bodies in Charlton, 2014

Name	Description	Size	Pollutants Addressed by TMDL
Buffumville Lake	Charlton/Oxford	199 acres	Non-native aquatic plants Excess algal growth Mercury in fish Tissue
Dresser Hill Pond	Charlton	8 acres	Turbidity
Gore Pond	Dudley/Charlton	169 acres	Non-native aquatic plants Excess algal growth Oxygen, dissolved Turbidity
Granite Reservoir	Charlton	207 acres	Non-native aquatic plants Aquatic plants (macrophytes)
Jones Pond	Charlton/Spencer	30 acres	Aquatic plants (macrophytes)
Pierpont Meadow Pond	Dudley/Charlton	95 acres	Non-native aquatic plants Aquatic plants (macrophytes)
Pike Pond	Charlton	28 acres	Turbidity

Source: Massachusetts DEP, Massachusetts Year 2014 Integrated List of Waters: Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act

Table 17: Category 4C “Impairment not caused by a pollutant—TMDL not required” Water Bodies in Charlton, 2014

Name	Description	Size	Impairment Cause
Buffum Pond	Charlton/Oxford	23 acres	Non-native aquatic plants
Railroad Pond	Charlton	7 acres	Non-native aquatic plants

Source: Massachusetts DEP, Massachusetts Year 2014 Integrated List of Waters: Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act

Table 18: Category 5 “Waters requiring a TMDL” Water Bodies in Charlton, 2014

Name	Description	Size	Impairment Cause
Little River	Headwaters, outlet Pikes Pond, Charlton to inlet Buffumville Lake, Charlton	3.5 miles	Aquatic Macroinvertebrate Bioassessments Oxygen, Dissolved
Cady Brook	Headwaters, outlet of Glen Echo Lake, Charlton to Charlton City WWTP outfall, Charlton.	1.5 miles	(Low flow alterations*) Ambient Bioassays -- Chronic Aquatic Toxicity Fecal Coliform
Cady Brook	Charlton City WWTP outfall, Charlton to confluence with Quinebaug River, Southbridge	5.1 miles	(Low flow alterations*)

			Nutrient/Eutrophication Biological Indicators
Glen Echo Lake	Charlton	115 acres	Oxygen, Dissolved
McKinstry Brook	Headwaters, east of Brookfield Road, Charlton (excluding intermittent portion) to the confluence with the Quinebaug River, Southbridge.	7.3 miles	(Debris/Floatables/Trash*)
			Escherichia coli
Sibley Pond	North Basin, Charlton	22 acres	Aquatic Plants (Macrophytes)
			Oxygen, Dissolved
			Turbidity
Sibley Pond	South Basin, Charlton	19 acres	Aquatic Plants (Macrophytes)
			Oxygen, Dissolved
			Turbidity
<i>Source: Massachusetts DEP, Massachusetts Year 2014 Integrated List of Waters: Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act</i>			

LANDFILLS

Charlton does not operate a landfill facility. The town has two decommissioned landfills on Flint Road by the DPW facility. The topic of landfills though is of importance to Charlton residents. Massachusetts DEP named Casella Waste Systems, operator of the nearby Southbridge landfill, the potential responsible party for the residential well water contamination by 1-4 dioxin of 21 Charlton residences in area of H. Foote Road and Berry Corner Road in the western part of town, with eight exceeding the state drinking water regulation. Casella has asserted that the landfill is not the source of the contamination in the nearby Charlton wells, and the town is still in discussions with DEP and Casella regarding this issue. Casella, doing business as Southbridge Recycling & Disposal Park, assumed operation of the Southbridge landfill at 165 Barefoot Road in 2004. The landfill has been in operation since 1980. As of June 2016, Casella is providing bottled water to 10 homes with valid contaminate detections. Two homes have received water filtration systems. Another 19 homes, in a defined area, are receiving courtesy, or voluntary, bottled water from Casella. Casella is to submit a status report on its immediate response action plan to the Charlton BOH every 60 days.

EROSION AND SEDIMENTATION

Presently, no area in Town has severe erosion or sedimentation problems. Erosion and sedimentation can become serious issues when developers build on steep terrain without taking proper precautions. Bylaws have been adopted in regards to storm water management, erosion control, and illicit discharges to address existing problem areas and aid in the future developments in Town. MA has introduced storm water management regulations that Charlton is required to follow to mitigate storm water run-off. The Charlton Lakes and Ponds Committee was reestablished and reorganized in 2012. One of its areas of focus is storm water management, and the committee continues to work with Charlton's Conservation Agent to address storm water issues that affect Charlton's lakes and ponds. In addition, the Committee is also investigating weed control and water drawdown options to improve water flow, water level regulation, address new storm water management requirements, and maximize the success of weed control programs. In addition, Charlton is a member of the Central Massachusetts Regional Storm Water Coalition (CMRSWC).

CHRONIC FLOODING

The sub regional Hazard Mitigation plan noted that Charlton has a limited number of isolated areas that are subject to flooding due to the influence of beavers and the existing topography, such as the frequent beaver-related flooding on Guelphwood Road that can be severe enough to close the road. This situation is presently being evaluated and an action plan is being formulated to address these situations. The Army Corps of Engineers flood control system protects the area from severe flooding associated with the Little River. The Town contains three High Hazard dams and all three are in good condition. The town now owns one of these dams, Prindle Dam. Glen Echo Lake and South Charlton Reservoir each have dam monitors assigned to them and these monitors are responsible for directing drawdowns and ensuring the integrity of the dams.

INVASIVE SPECIES

Charlton's trees and forests have suffered defoliation from the gypsy moth, hemlock wooly adelgid, fall webworm, and eastern tent caterpillar. The subsection above on impaired and polluted water bodies in town noted the presence of non-native aquatic plants in some of Charlton's water bodies. This issue is being actively addressed through an aggressive weed control and drawdown program by the various lakes and ponds groups as well as the town conservation agent. The most problematic vegetative invasive species is the Japanese Knotweed.

FORESTRY

Charlton Conservation Commission takes an active role in forest management on both private and public lands. The challenge with forestry in Charlton is that managed forestry can be misunderstood by the public. All forest management plans and timber harvest plans are reviewed by Charlton Conservation and sites are physically inspected. Charlton has a high amount of forest lands; cutting and management plans are kept on file and reviewed on as needed and annual basis. The town of Charlton does not have a forest warden although the town does have a tree warden whose primary concern is dangerous trees on town-owned property. The town Conservation Commission relies heavily on the expertise of the state forester for forestry related issues.

NEW DEVELOPMENT

Although past development has resulted in a host of negative impacts to Charlton's water resources, Charlton has taken steps to greatly reduce these issues over the last decade. Town adopted an illicit discharge bylaw and storm water bylaw in the early 2010's. Charlton's subdivision regulations require all storm water produced by the new development to be handled on site, decreasing the risk of erosion, sedimentation and groundwater pollution. The Planning Board conducts an annual review of its Subdivision Control Regulations with a peer review engineering consultant to consider any potential needed revisions to the regulations. These reviews have resulted a few times in upgrading design requirements pertaining to storm water management and erosion/sedimentation control infrastructure design. The Conservation Commission works with the Planning Board's consultants to address construction and post construction storm water on sites across town, which is a dynamic process that changes from site to site.

SECTION FIVE: INVENTORY OF LANDS

More than just an open field or an area of cleared land, “open space” in the context of the open space and recreation planning includes conservation land, recreation and park land, agricultural land, cemeteries, and any undeveloped land with conservation or recreation interests. Open space can serve a variety of purposes, including passive recreation, active recreation, wildlife habitat, protection of wetlands or water resources. Lands or areas with scenic or historic value are also essential components of a community's public spaces.

This Section describes ownership, management agency, current use, condition, recreation potential, public access, and degree of protection for lands of conservation and recreation interest. This information is summarized and also depicted graphically on the Open Space Inventory Map. This Map was compiled principally from data reported to CMRPC by the Town of Charlton. The map also relies on data from the Commonwealth of Massachusetts' Office of Geographic Information (MassGIS). See Appendix __for a more detailed explanation on mapping.

INSERT PHOTOS HERE

PERMANENT PROTECTION OR PROTECTION IN PERPETUITY

These lands are legally protected in perpetuity and recorded as such in a deed or other official document. Land is considered protected in perpetuity if it is owned by the Town's conservation commission or, sometimes, by the water department; if a town has a conservation restriction on the property in perpetuity; if it is owned by one of the state's conservation agencies (thereby covered by article 97); if it is owned by a non-profit land trust; or if the Town received federal or state assistance for the purchase or improvement of the property. Private land is considered protected if it has a deed restriction in perpetuity, if an Agriculture Preservation Restriction has been placed on it, or a Conservation Restriction has been placed on it.

Many permanently protected lands are protected by Article 97 of the State Constitution, which provides permanent protection for certain lands acquired for natural resources purposes. Removing the permanent protection status of such lands is extremely difficult, as is evidenced by the following steps:

- The municipal Conservation Commission or Parks and Recreation Committee must vote that the land in question is surplus to its needs.
- The removal of permanent protection status must be approved at a Town Meeting/City Council vote and pass by a two-thirds (2/3) vote.
- The municipality must file an Environmental Notification Form with the EOEEA's Massachusetts Environmental Policy Act (MEPA).
- The removal of permanent protection status must be approved by both the State House of Representatives and the State Senate and pass by a two-thirds (2/3) vote.
- In the case of land either acquired or developed with grant assistance from the EOEEA's Division of Conservation Services, the converted land must be replaced with land of equal monetary value and recreational or conservation utility.

LIMITED AND TEMPORARY PROTECTION

These lands include those legally protected for less than perpetuity (e.g. short term conservation restriction or Chapter 61 lands), or temporarily protected through an existing functional use. For example, some water district lands are only temporarily protected while water resource protection is their primary use. These lands could be developed for other uses at the end of their temporary protection or when their functional use is no longer necessary. These lands will revert to unprotected status at a given date unless protection status is extended. Properties with Limited protection are protected by legal mechanisms other than those above, or protected through functional or traditional use. These lands might be protected by a requirement of a majority municipal vote for any change in status. This designation also includes lands that are likely to remain open space for other reasons (e.g. cemeteries and municipal golf courses).

NO PROTECTION

Lands that are privately owned and that could be sold without legal restriction at any time for another use (e.g. scout camps, private golf course, and private woodland) are considered to be totally unprotected.

PRIVATE PARCELS

Privately-owned parcels described in this subsection include land with agricultural preservation restrictions or conservation restrictions, Chapter 61, 61A, and 61B land, and lands with no protections but of open space or conservation interest. For each parcel, the location, ownership, zoning, land use, land use description, size, grade or condition, management agency, recreation potential, public access, funding, and degree of protection are indicated. The condition of the privately owned properties is unknown except where the assessor has provided a grade or condition. The management agency is assumed to be the owner or their agent. The future recreational potential on the limited protection parcels is passive such as fishing, hunting, hiking, or natural resource appreciation.

Most of the trails that exist in Charlton are on private land. The Midstate Trail runs through the southeastern corner of Charlton, and is maintained by the Worcester Chapter of the Appalachian Mountain Club; this is the primary trail in Charlton and it connects to subsidiaries via side trails. These subsidiary trails include: Fay Mountain Farm, Charlton Orchard, the former Bement Camp, and the Engineers trails at Buffumville Lake among others. Much of the Midstate Trail in Charlton consists of off-road trails, although several local roads are also used. Most property owners have historically accepted the use of their property to access a trail or open space parcel; however, increasing population and development has caused more strain between the user and the owner. With the instruction of groups like the AMC, cross country skiers and hikers have earned the respect of property owners by minimizing their impact on trails. However, these are typically low impact uses; other higher impact uses have faced more stringent restrictions in recent years, among these are: mountain biking, hunting, horse riding, fishing, and four wheeling.

PERMANENT PROTECTION

AGRICULTURAL PRESERVATION RESTRICTION (APR)

Charlton has over 855 acres of land under the APR program. A complete list of APRs in Charlton can be found at Table _ below. The Agricultural Preservation Restriction program is a voluntary program that offers a non-development alternative to farmland owners for their agricultural lands who are faced with a decision regarding future use and disposition of their farms. The program offers farmers a payment up to the difference between the “fair market value” and the “fair market agricultural value” of their farmland in exchange for a permanent deed restriction, which precludes any use of the property that will have a negative impact on its agricultural viability. (MA DAR, 2013)

TABLE 19: AGRICULTURAL PRESERVATION RESTRICTION LANDS

PARCEL ID	ACRES	LOCATION	OWNER
11-C-7	7.00	H K DAVIS	MCCARTHY KEVIN P (1)
11-C-8	15.91	H K DAVIS	MCCARTHY KEVIN P
10-C-1	89.73	62 H K DAVIS	MCCARTHY KEVIN P
10-A-5	2.10		MCCARTHY KEVIN P
11-B-5	30.54		MCCARTHY KEVIN P

18-A-8.3	1.62		MCCARTHY KEVIN P
18-A-19	7.50		MCCARTHY KEVIN P
18-B-4	70.56		MCCARTHY KEVIN P
19-A-4	18.33		MCCARTHY KEVIN P
<i>Subtotal</i>	243.29		
33-A-2	35.00	SOUTHBRIDGE RD	KASZOWSKI FAMILY TRUST
33-B-19	88.00	CARPENTER HILL RD	KASZOWSKI FAMILY TRUST
34-A-13	42.75	CARPENTER HILL RD	KASZOWSKI FAMILY TRUST
<i>Subtotal</i>	165.75		
75-B-7	66.08	292 NO.6 SCHOOLHOUSE	BIGELOW NURSERY(2)
76-A-5	159.00	16 SANDERSDALE RD	BIGELOW NURSERY
INCL:75-A-2			
76-B-1			
76-B-2			
76-D-1	66.13	NO 6 SCHOOLHOUSE	BIGELOW NURSERY
INCL;81-A-1,2,3			
79-D-1	30.00	NO 6 SCHOOLHOUSE	BIGELOW NURSERY
76-C-1	126.82	Sandersdale Rd	
<i>Subtotal</i>	448.03		
<i>TOTAL APR LANDS</i>	<i>857.07</i>	<i>(1) McCarthy lands are currently associated with the "Signal Rock Farm."</i>	<i>(2) Lands Owned by Bigelow Nursery are historically associated with the dairying operations in Dresser Hill area.</i>

CONSERVATION RESTRICTIONS

There is one property at 9.91 acres, at 231 Stafford Street, with a conservation restriction in Charlton. The land, owned by John Cook, has a Wetland Reserve Program Conservation Easement, which was a voluntary program through the federal Natural Resources Conservation Service that offered landowners the opportunity to protect, restore, and enhance wetlands on their property.

TABLE 20: CONSERVATION RESTRICTIONS

Parcel ID	Acreage	Location	Property Owner	Conservation Restriction Owner
19-E-2	9.91	231 Stafford Street	John Cook	Charlton
Total	9.91			

LIMITED PROTECTION

CHAPTER 61, 61A, AND 61B LANDS

185 properties, almost 6,000 acres, in Charlton participate in the state's Chapter 61, 61A, and 61B programs. The Open Space Map shows their location. Chapter 61, 61A, and 61B is a voluntary program designed by the Massachusetts Legislature to tax real property in the Commonwealth at its timber resources, agricultural, or recreational value rather than its highest and best use (development) value. Owners of ten or more acres who manage their land for forestry uses can enroll in Chapter 61. Owners of five or more acres can enroll in Chapter 61A if they use their land for agriculture, or they can enroll in Chapter 61B if their land is used for open space/recreation purposes. Stewardship of privately-owned lands preserves open fields and hilltops, productive forests and scenic stream valleys throughout the Town.

TABLE 21: CHAPTER 61, 61A AND 61B LAND IN CHARLTON

Chapter Lands Summary	Parcels	Acres
Mixed Use	86	3,927
Chapter 61 (Forestry Use)	28	724
Chapter 61A (Agricultural /Horticultural Use)	61	1,236
Chapter 61B (Recreation Use)	10	100
Total Chapter Lands	185	5,987

Source: Charlton Assessor's Office. Note: Mixed Use refers to the parcel having part of land (at least 5 acres) designated Chapter 61, 61A OR 61B as well as having a residential, commercial or industrial use. Acreage on the table reflects the parcel's actual acreage of Chapter lands and does not include non-Chapter lands.

Landowners who enroll their land in the program receive property tax reductions in exchange for a lien on their property. The terms of the lien require that enrolled land remain in an undeveloped state and be managed for forest production, agricultural production, or recreation. Furthermore, the lien provides the municipal government of the city/town in which the enrolled property is located a right of first refusal should the landowner put the land up for sale while it is enrolled in the program. Towns may assign their right of first refusal to a state agency or a non-profit land trust. Landowners who develop their land while enrolled in the program, or for a period of time after withdrawing from the program, may be required to pay penalties. On the Open Space Inventory Map, these lands are considered to have limited or temporary protection because the owner can sell the property or choose to unenroll his property in the special taxation program and thus the open space public benefit goes away.

An example of a property enrolled in the Chapter 61A program is the Charlton Orchards Farm, which offers pick-your-own fruit and sells other seasonal fruits and vegetables. The Farm operated a winery until August 2015 when winery operations were all lost in a fire. An example of a property enrolled in the Chapter 61B program is Heritage Golf Course (An 18 hole public golf course located on Sampson Road off of Route 20).

The Town’s right of first refusal on Chapter 61 properties is an important conservation and recreation opportunity. Often, Chapter 61 lands have been owned by families for generations and are important places in Charlton’s history. The Town has a policy and a well-defined process for working with a Chapter 61 landowner who decides to divest the property. The Right-of-First Refusal process in Charlton is handled by the Board of Selectmen who consult with other town boards per the policy.

NO PROTECTION

Charlton has a few privately owned parcels of open space or recreation interest that have no protections. These include the following facilities:

- Dresser Hill (A vista which offers unparalleled views of the region. The vista is closely associated with Dresser Hill’s Clam box, a seasonal restaurant, that offers outdoor seating.
- Kid Power gymnastics (a 5,000 square foot gymnastics facility along Route 20)
- Not Your Father’s Gold Course
- Practice Makes Perfect
- Ye Olde Commons

508 International (formerly known as Sunset City) is a motocross facility that is being developed on 23 acres of land off Brookfield Road (formerly Sunset Hill Farm). The company expects to open in the Spring of 2017.

The Town of Charlton has many parcels of land characterized in the Town Assessor’s Database as vacant based on its land use code. Each vacant parcel is described as residential, commercial, or industrial and then also described as developable, potentially developable or undevelopable. These parcels are possibly accessory lots, possibly storage lots, or simply undeveloped or undevelopable land. The table below summarizes the privately-owned vacant parcels. These parcels might represent opportunities to add on to protected open space or provide habitat for unique species.

TABLE 22: SUMMARY OF PRIVATE UNPROTECTED VACANT PARCELS

Category	Number of Parcels	Total Acreage	Smallest Parcel (acres)	Largest Parcel (acres)
Vacant land in a residential zone, developable	33	522	0.03	86
Vacant land in a residential zone, potentially developable	513	3,225	0.1	78
Vacant land in a residential zone, Undevelopable	681	2,227	0.0	83
Vacant land in a commercial zone, Developable	3	47	4.0	38
Vacant land in a commercial zone, Potentially developable	16	86	0.2	30
Vacant land in a commercial zone, Undevelopable	9	19	0.0	9
Vacant land in an industrial zone, Potentially Developable	5	242	1.5	210
Vacant land in an industrial zone, Undevelopable	5	13	0.5	8

Source: Charlton Assessor Department

PUBLIC AND NON-PROFIT PARCELS

This section provides information on public and non-profit owned lands of open space or recreation significance and identifies the location, ownership, managing agency, land use description, level of protection, public access, and acreage. And in the case of town-owned conservation and recreation properties, information is provided regarding managing agency, condition, recreation potential and type of grant (if any) used to purchase and/or renovate the property. For many parcels the condition is unknown. A more thorough assessment of condition is suggested as an action step for inclusion in future plans.

PERMANENTLY PROTECTED

FEDERAL AND STATE LANDS

Often the state or federal government will own land within a municipality as a State Park or State Forest or as a means to protect valuable or unique water supplies or habitat. The United States of America is the second largest public land owner in Charlton with 450 acres as part of the Buffumville dam area, which is managed by the Army Corps of Engineers. This is a unique recreation and conservation resource for the town, offering swimming, fishing, boating, hiking and hunting opportunities. The Commonwealth of Massachusetts owns over 350 acres of land in Charlton. The largest of these holdings is Bennett Meadows Wildlife Management Area, which is a little over 280 acres in the northern part of town.

TOWN LANDS

In terms of permanently protected land, the Town of Charlton owns 108 acres in 9 parcels ranging in size from 0.36 acres to 39 acres. Two of these parcels comprise Fay Mountain Farm, which is a 65 acre farm off Cemetery Road. This farm consists of 32 acres of orchard, 28 acres of conservation land, a pond, woods, open fields for passive recreation and a historic barn. The Farm was purchased by the town in 2002 with a grant provided by DCR and funding from the Masonic Home. The town has preserved this property as an active farm and leases space for continued apple production as well as the growing and sale of other crops. The site also hosts events throughout the year such as apple picking in the fall. Passive recreation also exists on site through the Mid-State Trail and on other fields and wooded areas.

The town also owns three parcels of conservation land for a total of almost 68 acres.

The Last Green Valley Quinebaug-Shetucket Heritage Corridor awarded the Town of Charlton and the Charlton Heritage Preservation Trust the 2008 “Green Neighbor Award” for coming together to build a strong working relationship that has resulted in the recent preservation of 142 acres of open space set aside in flexible subdivisions; and for forging other partnerships for trail creation, maintenance, and stewardship, and for helping to keep the Last Green Valley green.”

NON-PROFIT LANDS

Charlton is fortunate to have a non-profit entity whose purpose is to protect the natural beauties and rural character within the town of Charlton. The Charlton Heritage Preservation Trust (Trust), formed in 1999, stewards 19 parcels totaling over 200 acres in Charlton. All of these properties are

open to the public for passive, non-motorized, recreation and information on each property is readily available on the Trust’s website. In addition, Opacum Land Trust and the Greater Worcester Land Trust are also active in land conservation efforts in Charlton and serve as resources to town staff. Regional organizations such as Massachusetts Audubon and New England Forestry Foundation, and national organizations such as the Trust for Public Land, could all potentially lend assistance to the Town in helping preserve open space.

Powers Memorial Forest is a 62 acre property that is managed by the New England Forestry Foundation. In 1980, the Episcopal Diocese of western Massachusetts gave NEFF this forest land within the 400-acre woodland facility known as the Bement Camp and Conference Center. Old stone walls crisscross the property, attesting to its past use as a farm likely up until the late 1940s. Today the property is primarily woodland, with an extensive red maple swamp lying at the base of a high ridge.

PROTECTED LANDS IN FLEXIBLE DEVELOPMENT SUBDIVISIONS

As reported in Section Three, the town’s flexible development bylaw has generated a significant amount of preserved open space in the Community. Table __shows that over 500 acres have been permanently preserved since the bylaw’s passage.

TABLE 23: FEDERAL PROTECTED LANDS

Parcel ID	Parcel Size	Location	Name	Owner (Manager)
56-A-6	191.69	GALE RD	Buffumville	Army Corps of Engineers / United States of America
72-B-7	258.7	GALE RD	Buffumville	Army Corps of Engineers / United States of America
Total	450.39			

TABLE 24: STATE PROTECTED LANDS

Parcel ID	Parcel Size	Location	Name	Owner (Manager)
18-B-3	0.5	Little Mugget Road		State
17A-G-14.1	0.85	City Depot Road		Division of Fisheries and Wildlife
5-B-3	281.2	Cemetery Road	Bennett Meadows WMA	Division of Fisheries and Game
6-A-7	5	Smith Road		Division of Fisheries and Game
Total	349.55			

TABLE 25: TOWN OWNED LANDS

Parcel ID	LUC	Parcel Size	Location	Name	Use
14-B-18	931	10.98	FITZGERALD R D	Old Ice Cellar	Open space with Ice House
19-E-6.2	931	19.20	CEMETERY RD	Fay Mountain Farm	Snow's Pond. Part of Fay Mountain Farm
20-A-1	931	39.14	CEMETERY RD	Fay Mountain Farm	Fay Mountain Farm
20-B-4	930	2.20	STAFFORD ST	Historic Militia Lot	Historic Militia Lot
48-B-8.1	903	25.00	H FOOTE RD	Rear land from Millennium power	Undeveloped
57-B-18	930	6.38	HENRY RICHAR DS CR	Green space from a subdivision	Green space from a subdivision
72A-C-3.11	930	3.81	BURNS LN	Green space from a subdivision	Green space from a subdivision
72A-C-3.12	930	0.36	BURNS LN	Green space from a subdivision	Green space from a subdivision
77-C-2	953	1.10	E BAYLIES RD	Dresser Hill Cemetery	Cemetery
Total		108.16			

TABLE 26: NON-PROFIT OWNED PROTECTED LANDS

Parcel ID	Parcel Size	Location	Name	Owner (Manager)
5-A-3	62.00	GOULD RD	Powers Memorial Forest	New England Forestry Foundation
13-A-2.8	1.45	FITZGERALD R D		Charlton Heritage Preservation Trust
2-A-6	57.00	N STURBRIDGE RD		Charlton Heritage Preservation Trust
21-A-32	3.29	MEADOW LN		Charlton Heritage Preservation Trust
21-A-5.55	8.10	PHEASANT LN		Charlton Heritage Preservation Trust
21-A-6A	7.13	A YOUNG RD		Charlton Heritage Preservation Trust
73-A-1	18.98	DANIELS RD		Charlton Heritage Preservation Trust
81-A-7	4.50	HAGGERTY RD		Charlton Heritage Preservation Trust
85-A-1	14.00	LELANDVILLE RD		Charlton Heritage Preservation Trust
55-B-11.19	6.70	FULLING MILL DR		Charlton Heritage Preservation Trust
55-B-11.21	7.44	FULLING MILL DR		Charlton Heritage Preservation Trust
55-B-11.22	1.03	MANOR FOREST CR		Charlton Heritage Preservation Trust
7-B-2.18	4.21	MARRISSAS CR		Charlton Heritage Preservation Trust
7-B-2.19	1.58	STAFFORD ST		Charlton Heritage Preservation Trust
15-B-9.17	4.41	SYDNEY CR		Charlton Heritage Preservation Trust
37-A-5.4	27.44	HYDE RD		Charlton Heritage Preservation Trust
70-A-7.13	5.37	WILLOW TREE LANE		Charlton Heritage Preservation Trust
15-A-15.23	8.89	JENNINGS RD		Charlton Heritage Preservation Trust
3-B-5.16	3.72	LAMBS POND C IRCLE		Charlton Heritage Preservation Trust
15-A-12.2	12.92	BROOKFIELD R D		Charlton Heritage Preservation Trust

TABLE 27: FLEXIBLE SUBDIVISION OPEN SPACE INVENTORY

Name	Preserved Open Space	% Of Subdivision	Designated Open Space Owner
Angalie Estates	21.75 Acres	61.0%	Town of Charlton
Applewood	46.25 Acres	32.70%	Town of Charlton
Cranberry Meadows	57 Acres	84%	Charlton Heritage Preservation Trust
Dresser Hills Subdivision	5.96 Acres	39.1%	Charlton Heritage Preservation Trust
Gunter Estates	103.12 Acres	53 %	Greater Worcester Land Trust
Hammond Woods	27.44 Acres	39.87%	Charlton Heritage Preservation Trust
Henry Richard Circle	6.38 Acres	30%	Town of Charlton
Jennings Road Extension	22 Acres	25%	To be determined
Lambs Pond Estates	3.72 Acres	24.8%	Charlton Heritage Preservation Trust
Learned Hill Farm	4.58 Acres	18.7%	National Heritage Foundation
McKinstry Drive Extension	9 Acres	35%	Homeowners Association
Pike's Pond	15.7 Acres	28%	National Heritage Foundation
Ponnakin Hill Estates	27.68 Acres	29.5%	Greater Worcester Land Trust
Potter Village Estates	13.88 Acres	44%	Homeowners Association
Preservation Estates	6.2 Acres	30%	Charlton Heritage Preservation Trust
Reindeer Estates	10.72 Acres	50%	Charlton Heritage Preservation Trust
St. Mary's Way	2.66 Acres	24.18%	To be determined
Scott Drive Extension	18.66 Acres	47%	Town of Charlton
Stonegate Estates	4.4 Acres	22.49%	Town of Charlton
The Reserve At Barton Hill-East	32.5 Acres	32.8%	To be determined
The Reserve At Barton Hill-West	51 Acres	30.9%	To be determined
Tucker Farm	17.9 Acres	18.0%	Division Of Fisheries & Wildlife
Water's Edge	6.63 Acres	18.25%	Charlton Heritage Preservation Trust
Willow Tree Estates	5.29 Acres	22.75%	Charlton Heritage Preservation Trust
<i>Source: Charlton Planning Department, August 2016</i>			

LIMITED OR TEMPORARY PROTECTION

Not all publicly owned land is permanently protected. Town lands that are managed for conservation and water supply purposes and town parks are classified as protected, but school sites and land owned for general municipal purposes are listed as having limited protection because any sale of the property would require a public process.

The town owns 31 parcels of recreation or conservation interest that are not considered protected lands or are part of the school district (See Table __). These properties consist of cemeteries; various lakes; lands managed by the Board of Selectmen, and town library. The Recreation Department manages seven properties of almost 39 acres for recreation purposes. All Town-owned property, especially conservation and recreation lands, should be reviewed to evaluate the actual level of protection, so recommendations can be made to address these management issues. In addition, all Town-owned lands should be reviewed to determine potential suitability for future low-impact recreation activities.

Additionally, there are municipal affiliated organizations and agencies that own property in town such as the Charlton Historical Society and Glen Echo Improvement Association. Their holdings are shown on the Municipal Affiliated Lands table __.

The Charlton-Dudley Regional School District owns and manages 135 acres of property housing classroom buildings, administration offices, utility buildings, recreation fields, playgrounds, and accessory open space at the Charlton Middle School and Heritage School off of Muggett Hill Road. The Town of Charlton owns the seven acre parcel where Charlton Elementary School is located along Burlingame Road.

In addition, Bay Path Regional Vocational High School owns approximately 180 acres of land housing classroom buildings, administration offices, utility buildings, recreation fields, playgrounds, and accessory open space. Unrestricted public access, such as on its athletic fields, is not allowed at the high school at this time. However, Bay Path offers numerous after-hours adult classes that are recreation and leisure- oriented such as programs on cooking, language, genealogy, art, music, nutrition, and golf.

The Massachusetts Highway Department owns 4 parcels of land along Route 20 amounting to a little over 5 acres. Interstate 90 cuts directly through Charlton and, for this reason, the Massachusetts Turnpike Authority owns over 35 acres of land in Charlton.

The Nature's Classroom owns land located off Prindle Road at Prindle Pond and has enrolled some of this property in the Chapter 61 program. The Natures Classroom has 14 educational sites in New York and New England, but it is headquartered in Charlton. The group works with elementary and nursery school age students to foster an appreciation for the natural environment. The summer camp offers both residential and day programs and serves children from Charlton and beyond.

TABLE 28: TOWN OWNED LANDS OF CONSERVATION AND RECREATION INTEREST WITH UNKNOWN PROTECTION STATUS

Parcel Id	Parcel Size	Owner (Manager)	Number	Street	Use
42A-A-16	3.90	TOWN OF CHARLTON - RECREATION		MAIN ST	Recreation
42A-B-11	3.25	TOWN OF CHARLTON - RECREATION		MAIN ST	Recreation
51-B-2	2.00	TOWN OF CHARLTON - DUMP		FLINT RD	dump
61A-C-4	2.75	TOWN OF CHARLTON - RECREATION		PRINDLE BEAC H	Recreation
61B-C-17	32.00	TOWN OF CHARLTON		PUMPKIN LN	Prindle Pond
61C-A-28.2	1.20	TOWN OF CHARLTON (PRINDLE DAM)	50	PUMPKIN LN	Prindle Dam
62-A-2.1	0.13	TOWN OF CHARLTON		SOUTHBRIDGE RD	Residential
70-A-8.15	3.48	TOWN OF CHARLTON - RECREATION	LOT6A	A F PUTNAM R D	Recreation
73-A-2	275.50	TOWN OF CHARLTON - LAKES		SOUTH CHARLT ON RESEVOIR	Lakes
17A-G-36	1.06	TOWN OF CHARLTON - LAKES		GLEN ECHO DAM	Lakes/Dam
19-C-15	0.50	TOWN OF CHARLTON - DISTRICT #2 SCHOOLHOUSE	145	NORTHSIDE RD	District #2 School House
42A-A-11	75.50	TOWN OF CHARLTON-Library	40	MAIN ST	Library
42A-A-8	2.23	TOWN OF CHARLTON - RECREATION		MAIN ST	Recreation
42A-B-10	0.50	TOWN OF CHARLTON - ANNEX	37	MAIN ST	Annex
42-B-1	20.04	TOWN OF CHARLTON - RECREATION		BURLINGAME R D	Recreation
42-B-1.1	3.42	TOWN OF CHARLTON COMMUNITY CEN	4	DRESSER HILL RD	Community Center
42-B-1.2	3.15	TOWN OF CHARLTON - RECREATION	12	DRESSER HILL RD	Recreation
59-A-1	10.00	TOWN OF CHARLTON - SALT SHED - Conservation Committee	15	OLD TOWN RD	Conservation
85A-B-27	40.00	TOWN OF CHARLTON - LAKES		PIERPONT POND	Lake / Pierpont Pond
12-A-3	117.69	TOWN OF CHARLTON - LAKES		GLEN ECHO LA KE	lake
60-E-3	10.00	TOWN OF CHARLTON - CONSERV		BLOOD RD	Conservation
8-A-6.12	18.36	TOWN OF CHARLTON - CONSERV OPE		WHITBY RD	Conservation
9-B-1	39.50	TOWN OF CHARLTON - CONSERV		STAFFORD ST	Conservation
10-D-2	13.30	TOWN OF CHARLTON - CEMETERY		NORTHSIDE CE METERY	Cemetery
27-D-8	3.00	TOWN OF CHARLTON - CEMETERY		SOUTHBRIDGE RD	Cemetery
2-A-1	1.00	TOWN OF CHARLTON - CEMETERY		CRANBERRY ME ADOW RD	Cemetery
42A-A-19	8.75	TOWN OF CHARLTON CEMETERY		WESTRIDGE CE METERY	Cemetery

42-C-1	4.00	TOWN OF CHARLTON - CEMETERY		BAY PATH CEM ETERY	Cemetery
45-A-15	1.00	TOWN OF CHARLTON - CEMETERY		WEST CEMETER Y	Cemetery
76-A-3	0.02	TOWN OF CHARLTON DRESSER HILL		SANDERSDALE RD	Cemetery
Total Acres	696	Total Parcels	31		

TABLE 29: MUNICIPAL AFFILIATED LANDS

Parcel ID	LUC	Parcel Size		Location	Owner (Manager)
19-C-13.1	931	1.02		STAFFORD ST	CHARLTON HISTORICAL SOCIETY
20-A-1.1	931	0.97		STAFFORD ST	CHARLTON HISTORICAL SOCIETY
20-A-4	931	1.97	255	STAFFORD ST	CHARLTON HISTORICAL SOCIETY
7-A-5.16	931	1.43		SMITH RD	CHARLTON HISTORICAL SOCIETY IN
12B-B-16	932	0.31		GLEN ECHO SH ORE DR	GLEN ECHO IMPROV. ASSC. (10/95

NO PROTECTION

Several non-profit organizations own property in Charlton. These are identified in Table __ below. Though these properties may have open space or recreation value, they are not protected. Of particular note are the following:

- The Tri-Community YMCA's Camp Foscett is located on the beautiful South Charlton Reservoir (189 Daniels Road). Situated on 114 acres of woodlands and wide open fields, Camp Foscett provides an opportunity for children ages 3-15 to learn and appreciate the great outdoors. This day camp has modern facilities, a sanded beach area for daily aquatic activities, offers numerous programs throughout the summer.
- Capen Hill Nature Sanctuary consists of an 86 acre nature sanctuary located on Capen Road, directly off of Route 20 in Charlton. This free sanctuary is open to the public. Capen Hill maintains trails and staffs a visitor center that houses a library, mineral collection, live animals, and gift shop. It hosts many environmental programs as well as runs nature and science camps in the summer. This property is not protected by a permanent open space or conservation restriction although it is not perceived as threatened.
- Masonic Hill / Overlook Communities is a massive continuing care retirement community on approximately 450 acres along Masonic Home Road. The facility includes cross-country ski trails, walking paths, fishing, tennis courts, horseshoe pits, dog park and beautiful gardens. The facility is supported by the Masonic Health System of Massachusetts. Charlton residents are permitted to use the Overlook campus for fitness programs and for event rentals. The walking trails on the property are in the process of being mapped.
- Charlton Little League and the Charlton Youth Soccer organization have property on Bond Street. The Soccer organization owns the largest of these properties with 27 acres.

In addition several non-profit organizations, churches, or social service agencies own property in Charlton. The town may want to consider exploring these holdings to determine if any partnerships would result in additional open space or recreation opportunities to town residents.

TABLE 30: UNPROTECTED NON-PROFIT LANDS OF CONSERVATION OR RECREATION INTEREST OR USE

Parcel ID	Parcel Size	Name	Owner	Location	
33-A-1	71.85	Capen Hill Nature Sanctuary	Capen Hill Nature Association		CAPEN RD
44-A-15	14.00	Capen Hill Nature Sanctuary	Capen Hill Nature Association		BERRY CORNER RD
82-B-2	58.95	Camp Foskett	YOUNG MEN'S CHRISTIAN ASSN	189	DANIELS RD
82-C-1	53.04	Camp Fosket	YOUNG MEN'S CHRISTIAN ASSN	189	DANIELS RD
42A-A-2	0.50	Grange	GRANGE ASSOCIATION	10	MAIN ST
58-A-7.3	2.84	Charlton Little League Fields	CHARLTON LITTLE LEAGUE (8/99)	90	BOND RD
58-A-7	27.30	Charlton Youth Soccer Fields	CHARLTON YOUTH SOCCER INC.	106	BOND RD
27-A-1	33.49	Unknown	SAVE ONE LIFE INC		BROOKFIELD R D
54-A-11	29.90	Camp Joslin	BARTON CENTER FOR DIABETES	150	RICHARDSON C ORNER RD
54-A-4	47.70	Camp Joslin	BARTON CENTER FOR DIABETES	150	RICHARDSON C ORNER RD
54-A-7	12.10	Camp Joslin	BARTON CENTER FOR DIABETES		OXFORD RD
54-A-9	0.25	Camp Joslin	BARTON CENTER FOR DIABETES		OXFORD RD
54-A-11.1	27.87	Camp Joslin	BARTON CENTER FOR DIABETES		RICHARDSON C ORNER RD
34-A-15.1	0.15	Overlook / Masonic Home	OVERLOOK MASONIC HEALTH CENTER		GILLESPIE RD
34-A-14	50.00	Overlook / Masonic Home	MASONIC NURSING HOME INC		GILLESPIE RD
34B-A-37.2	17.68	Overlook / Masonic Home	OVERLOOK COMMUNITIES INC	2	CORINTHIAN W AY
34B-A-37.3	4.33	Overlook / Masonic Home	MASONIC HOME INC		MASONIC HOME RD
34B-A-37.4	1.57	Overlook / Masonic Home	OVERLOOK COMMUNITIES INC	2	DORIC CR
34B-A-37.5	1.72	Overlook / Masonic Home	OVERLOOK COMMUNITIES INC		CORINTHIAN W AY
34B-A-37.6	2.62	Overlook / Masonic Home	OVERLOOK COMMUNITIES INC		ATHENS ARCH WAY
34B-A-37.7A	347.24	Overlook / Masonic Home	OVERLOOK COMMUNITIES INC	1	DORIC CR
34B-A-37.7B	7.25	Overlook / Masonic	MASONIC HOME INC		COMPOSITE CR

		Home			
Religious Organizations					
10-D-1	112.59		ST MARK COPTIC ORTHODOX CHURCH	74	GOULD RD
22-A-1.2	2.83		CHARLTON BAPTIST CHURCH	50	HAMMOND HILL RD
23-B-8	0.50		CHURCH OF CHRIST	81	HAMMOND HILL RD
26-C-2	5.47		CHARLTON CITY UNITED METHODIST	72	STAFFORD ST
31-D-1	6.20		ASSEMBLIES OF GOD	307	STURBRIDGE R D
35-A-1	32.51		ROMAN CATHOLIC BISHOP OF WORC	10	H PUTNAM RD
73B-L-13	3.90		FIRST SWEDISH EVANGELICAL	30	PINELAND DR
74-A-4	7.15		CHARLTON BIBLE FELLOWSHIP		NO 6 SCHOOLHOUSE RD
74-A-5	1.50		THE EASTERN REGIONAL ASSOC	6	HAGGERTY RD
74-A-6	0.50		THE EASTERN REGIONAL ASSOC	6	HAGGERTY RD
35-D-27.3	7.24		CARMELITE SISTERS	188	OLD WORCESTER RD
42A-C-3	1.50		FEDERATED CHURCH OF CHARLTON	62	MAIN ST

SECTION SIX: COMMUNITY VISION

TO BE COMPLETED

DESCRIPTION OF PROCESS

STATEMENT OF OPEN SPACE AND RECREATION GOALS

SECTION SEVEN: ANALYSIS OF NEEDS

To Be Completed

SUMMARY OF RESOURCE PROTECTION NEEDS

SUMMARY OF COMMUNITY NEEDS

MANAGEMENT NEEDS, POTENTIAL CHANGE OF USE

SECTION EIGHT: GOALS AND OBJECTIVES

TO BE COMPLETED

SECTION 9: SEVEN YEAR ACTION PLAN

TO BE COMPLETED