



BOXBOROUGH ECONOMIC DEVELOPMENT STUDY

Phase 1 Technical Memo

December 2019



Acknowledgments

Town of Boxborough

Ryan Ferrara, Town Administrator

Elizabeth Markiewicz, Town Clerk

Sanders Genna, Town Assessor

Cheryl Mahoney, Department Assistant

Karen Guzzardi, Department Assistant

Simon Corson, Town Planner

Rich Guzzardi, Chair of the Economic Development Committee

Becky Neville, Finance Committee

Cindy Markowitz, Chair of the Planning Board

University of Massachusetts, Amherst

Camille Barchers, Ph.D, AICP, Assistant Professor of Regional Planning

Prepared by:

Regional Planning Studio Graduate Students

Daniel Beckley, Keith Benoit, Benjamin Breger, Stephen Cary,

John Carolan, Ian Cyr, Dave Dreyer, Tamsin Flanders, Jiaqi Guo,

Nathalie Irmer, Emily Lange, Marissa Mackson, Christian Nielsen,

Joshua Nolan, Malcolm Ragan, Mary Richards, Jessica Schottanes,

Monika Sharma, and Desirae Valentin

Table of Contents

Acknowledgments.....	i
Graphics Table of Contents.....	vi
Figures.....	vi
Tables.....	vii
Maps	vii
Abbreviations	viii
Executive Summary.....	1
Project Introduction & Timeline.....	3
Project Timeline	4
Part A: Existing Conditions.....	5
Community Profile.....	6
Regional Context.....	6
Demographics & Character	7
Land Use Patterns.....	7
Housing Trends.....	8
Local Housing.....	8
Regional Housing.....	9
Business Trends, Employment, & Taxes	11
Business & Employment Trends.....	11
Resident Occupation Profile.....	14
Taxes	15
Natural Resources, Utilities, Land Use & Zoning.....	19
Natural Resources and Utilities.....	20
Sewer & Septic.....	20
Surface & Drinking Water.....	20
Land Uses & Zoning.....	21
Agriculture, Open Space & Recreation.....	21
Historic Resources.....	21
Zoning Districts.....	22

Buildout & Development Constraints	22
Economic Development Planning & Zoning Analysis.....	23
SWOT Analysis	23
Zoning Analysis of Specific Economic Environments.....	24
Summary of Findings.....	32
Regional Case Studies	34
Harvard	35
Groton.....	35
Littleton.....	35
Bolton.....	35
Marlborough	36
Public Engagement Strategy	37
Trash Talk	38
Economic Development Survey	38
Summary of Survey Results	39
Business Breakfast	41
Economic Development Committee Meeting	42
Merrie Christmas Fair	43
Special Town Meeting.....	43
Existing Conditions Process Outcome.....	44
Part B: Preliminary Scenario Development.....	45
Indicators	46
Scenario I – Baseline & Current Course.....	47
Assumptions & Future Trends.....	48
Focus Areas	49
Business Constraints.....	49
Existing Assets.....	49
Municipal Services.....	49
Implementation Process	49
Indicators	51
Scenario II – Rural/Agricultural Heritage	52

Master Plan Goals.....	53
Focus Areas	54
Heritage.....	54
Connect.....	55
Protect.....	56
Revitalize.....	57
Implementation Process	57
Challenges to Implementation.....	58
Indicators	59
Scenario III – Village Style.....	61
Master Plan Goals.....	62
Focus Areas	62
Town Center District.....	63
Village Green.....	63
Implementation Process	63
Challenges to Implementation.....	64
Indicators	65
Scenario IV – Comprehensive Approach.....	66
Master Plan Goals.....	67
Focus Areas	67
Route 111 Mixed-Use Corridor.....	67
Corporate Mixed-Use Campus	68
Flex-Industrial Districts.....	68
Implementation Process	69
District-Specific Implementation Strategies.....	70
Rt. 111 Mixed-Use Corridor.....	70
Corporate Mixed-Use Campus	71
Flex-Industrial Districts.....	72
Indicators	72
Scenario Development Survey.....	74
Survey Format.....	74

Scenario Development Survey: Key Themes and Findings	74
Conclusion.....	76
Appendix	77
Appendix A: Maps	77
Appendix B: Zoning SWOT Analysis	77
Appendix C: Land Use Tools & Innovative Strategies.....	77
Appendix D: Regional Context & Case Studies	77
Appendix E: References.....	77
Appendix A: Maps	78
Appendix B: Zoning SWOT Analysis.....	83
Appendix C: Land Use Tools & Innovative Strategies	94
Zoning.....	94
Village Design, Rural Placemaking & Smart Growth Resources.....	94
Financial Tools	96
Potential Grant Funding Sources	98
Transportation Programs.....	98
Appendix D: Regional Context & Case Studies	100
Regional Organizations.....	100
Transportation Master Plans.....	100
Regional Commuting Patterns.....	102
Complete Case Study Analysis	102
Appendix E: Works Cited	106

Graphics Table of Contents

Figures

Figure 1. Project Timeline.....	4
Figure 2. Boxborough Annual Population Estimates 2010 – 2018.....	8
Figure 3. Age Distribution: Boxborough and Peer Communities.....	8
Figure 4. Number of Establishments by Industry .Sector within Boxborough in 2018.....	11
Figure 5. Number of Establishments by Industry Sector within Boxborough since 2001.....	12
Figure 6. Number of Employees by Industry Sector within Boxborough since 2001.....	13
Figure 7. CIP Percent of Tax Levy in I-495 Region.....	16
Figure 8. Commercial Tax Rates in the I-495 Region.....	16
Figure 9. Boxborough Property Values by Class.....	17
Figure 10. Rural Land Uses.....	25
Figure 11. Town Center Land Uses.....	26
Figure 12. Comparison of Town Center Dimensional Requirements.....	28
Figure 13. Business Corridor Land Uses.....	29
Figure 14. Comparison of Business Corridor Dimensional Requirements.....	30
Figure 15. Office Park Land Uses.....	31
Figure 16. Comparison of Office Park Dimensional Requirements.....	32
Figure 17. Survey Result 1: Preferred Types of New Businesses in Boxborough.....	39
Figure 18. Survey Result 2: Heatmap of Locations where Full-Service Restaurants are Accessed.....	40
Figure 19. Survey Result 3: Heatmap of Locations where Cafes/Bakeries are Accessed.....	40
Figure 20. Survey Result 4: Heatmap of Preferred Locations for Village Style Development.....	41
Figure 21. Comparison of Indicators.....	46
Figure 22. District Synergies Diagram.....	69
Figure 23. Preliminary Survey Result: Scenario Preference Questions.....	75
Figure 24. Input Costs as Share of Total Costs for Manufacturing.....	96

Tables

Table 1. Selected Housing Statistics Comparison: Boxborough, Peer Area, and Massachusetts.....	10
Table 2. Indicator Measurements.....	46
Table 3. Comparison of TIF and DIF Implementation.....	97
Table 4. Regional Commuting Patterns.....	102

Maps

Map 1. Regional Context: Employment Clusters.....	78
Map 2. Regional Context: Population Density.....	78
Map 3. Land Use Patterns.....	79
Map 4. Zoning Districts.....	79
Map 5. Water Constraints & Stormwater Catchment Drains.....	79
Map 6. Open Space, Recreation & Historic Resources.....	80
Map 7. Development Constraints.....	81
Map 8. Prime Farmlands.....	81
Map 9. Baseline/Current Course Scenario.....	48
Map 10. Agricultural/Rural Scenario.....	54
Map 11. Village Style Scenario.....	62
Map 12. Comprehensive Approach Scenario.....	67
Map 13. Boxborough Complete Streets Prioritization Plan.....	82

Abbreviations

ACS - American Community Survey

ADA - Americans with Disabilities Act

BAU - Business as Usual

CIP - Commercial, Industrial, and Personal Property

CPA - Community Preservation Act

DIF - District Improvement Financing

EDC - Economic Development Committee

EOLWD - Executive Office of Labor and Workforce Development

FAR - Floor Area Ratio

GIS - Geographic Information System

I-495 - Interstate 495

IWPA - Interim Wellhead Protection Areas

LEED - Leadership in Energy and Environmental Design

MAGIC - Minuteman Advisory Group on Interlocal Coordination

MAPC - Metropolitan Area Planning Council

MassDEP - Massachusetts Dept. of Environmental Protection

MassDOT - Massachusetts Dept. of Transportation

MBTA - Massachusetts Bay Transportation Authority

MGL - Massachusetts General Laws

MHC - Massachusetts Historical Commission

NAICS - North American Industry Classification System

NECTA - New England City and Town Area

SVT - Sudbury Valley Trustees

SWOT - Strengths, Weaknesses, Opportunities, Threats

TIF - Tax Increment Financing

Executive Summary

The Town of Boxborough's Economic Development Committee (EDC) contracted with the Center for Economic Development at the University of Massachusetts Amherst to produce an economic development study. Phase 1 of the study, conducted from September through December 2019 by Regional Planning Studio master's students, began with an investigation of existing conditions and public opinion on economic development and concluded with four plausible future economic development scenarios designed to support the eventual creation of the Town's long-term economic development plan.

This document summarizes the work done in Phase 1.

Part A: Existing Conditions details the documentation and analysis of existing conditions, public engagement strategy, and survey results from the 2019 Economic Development Survey.

This investigation demonstrated:

1. Residents have enthusiasm for small-scale commercial amenities, with a preference for the revitalization of existing properties over new development, and that village-style commercial development is something that these new amenities should emulate.
2. Boxborough's tax base is vulnerable due to loss of commercial tax revenue and limited land diversity, putting increasing pressure on the residential tax base
3. Current zoning is incompatible with the *Boxborough2030* Master Plan vision for village style development, office park revitalization, and preservation of rural heritage
4. Physical constraints (hydrological, geographic, and utility) limit new development, but existing capacity (Cisco and Regency) may provide an opportunity to develop the kinds of amenities outlined in the *Boxborough2030* Master Plan

Part B: Preliminary Scenario Development presents the four preliminary economic development scenarios. These scenarios were developed using the key findings from the existing conditions investigation and were developed across a spectrum of increasing intensity. The scenarios respond to the economic needs of the community (reversing declining commercial tax revenue and diversity) and to the desires outlined through *Boxborough2030* master planning process and feedback received from community engagement activities in fall of 2019. These scenarios are designed to be exploratory and educational in nature. The four scenarios are as follows: 1) Baseline and Current Course, 2) Rural/Agricultural Heritage, 3) Village Style, and 4) Comprehensive Approach.

A common set of indicators was used to assess the relative potential impact of each scenario. The five indicators were developed to reflect critical development constraints or community concerns impacts to the community. The scenario evaluation indicators are (1) Traffic, 2) Connectivity, 3) New construction, 4) Municipal water, and 5) Fiscal health.

The preliminary scenarios were released to the public through an informational resource (ESRI Story Map) and an online survey to solicit feedback. Initial feedback indicated that residents generally feel that the baseline or current course of action is not working and is not the preferred future course for Boxborough, however the feedback presented no general consensus on which of the remaining three scenarios is preferred.

Project Introduction & Timeline

Boxborough is a small community proud of its rural heritage. Like many of its neighbors along I-495 corridor, the town is characterized by low housing density with no clear town center or other compact neighborhoods. A variety of natural and cultural resources, including extensive conservation lands and historically significant buildings such as schoolhouses, mills, and homes, contribute to an overall rural character that is highly valued by residents.

Although, like much of New England, Boxborough once relied on subsistence farming, Boxborough shifted toward attracting technology and professional services companies and built large, auto-oriented office and industrial parks in the last decades of the twentieth century. These developments are anchored by Cisco Systems, Inc. campus along I-495 near the Harvard town line, although there are similar office parks in other corners of Boxborough as well. Following the economic downturn of 2008 and recent trends of technology and professional services firms moving back into urban centers, many of the office parks in town have been left vacant. While some have proven more resilient than others, the town-wide vacancy rate of these office parks is approaching 50%. This has led to recent upticks in abatements requested by property owners which threatens to undermine the commercial tax base of Boxborough and shifts a greater portion of the tax burden onto residences.

A master plan completed by the Town of Boxborough and the Metropolitan Area Planning Committee (MAPC) in 2015 (*Boxborough2030*) identified other important priorities to tackle in the near future. This includes addressing increasing vulnerabilities for septic contamination and saltwater intrusion on residential and commercial wellheads, the creation of a town center development near the Town Hall, and a lack of political consensus amongst residents and policy makers around the exact meaning of Boxborough's "rural character." The Master Plan also noted that Boxborough residents must travel to neighboring communities (Acton or Littleton) to conduct basic shopping or eat-out at a restaurant.

To begin formulating an economic development strategy which addresses pressing issues and establishes a clear framework for a robust local economy in the future, the Boxborough Economic Development Committee (EDC) contracted with the UMass Center for Economic Development and Department of Landscape Architecture and Regional Planning to create a detailed existing conditions analysis and four preliminary economic development scenarios.

Project Timeline

This document presents the findings of Phase 1 of the 2019 Boxborough Economic Development Study. Phase 1 of the study was conducted in two parts: the first (Part A) investigated and documented the existing conditions of Boxborough, and the second (Part B) used the findings of Part A to develop four preliminary economic development scenarios. The existing conditions analysis examined how present demographic trends, municipal finances, employment characteristics, and physical and land use constraints currently impact Boxborough's economic development environment. Both the existing conditions analysis and scenario development responded to the community goals outlined in the *Boxborough2030* Master Plan and ongoing feedback from Boxborough residents and business owners.

Phase 2 of this study will begin in January 2020. The existing conditions analysis and preliminary scenarios provided in this document will inform a community visioning process to identify priority economic development goals. Phase 2 facilitators will then conduct a regional market analysis to assess the viability of the community's priority goals. Figure 1 below presents the principal stages and public events that comprised Phase 1.

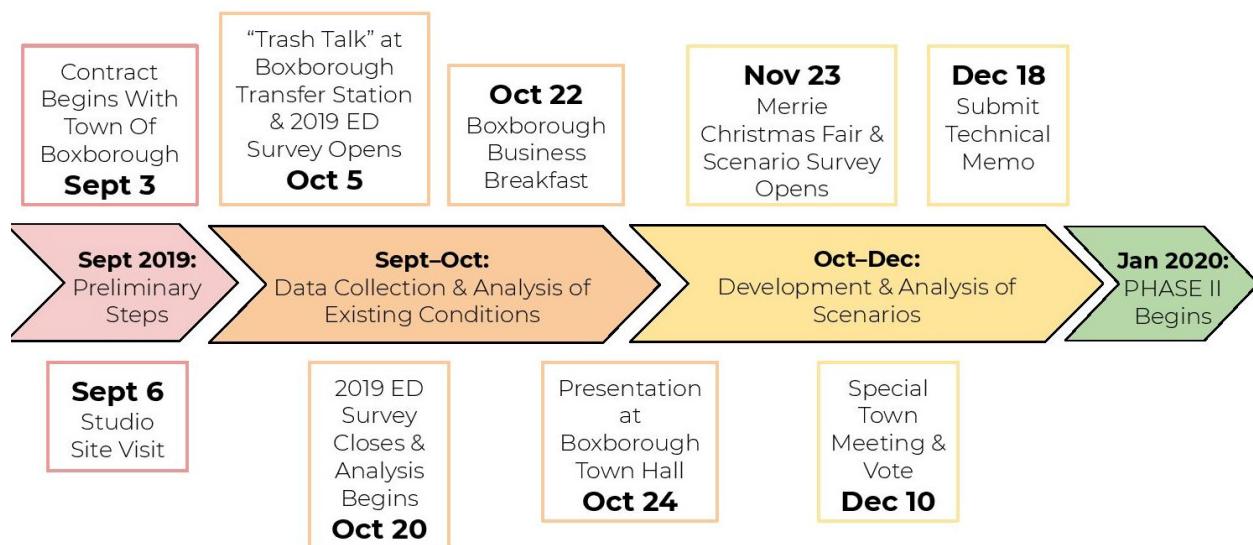


Figure 1. Project Timeline

Part A: Existing Conditions



Part A documents the existing conditions of Boxborough as they relate to the economic development and comprehensive vision for Boxborough. The analysis expands on the work previously done by the *Boxborough2030* Master Plan by gauging the community's current preferences for economic development through numerous public engagement events.

Additionally, it examines the current land use policies and development constraints, identifies regional and local business, housing, and employment trends, and explores case studies of peer and comparison communities that share similar conditions to Boxborough for innovative approaches to economic development. Peer communities consist of towns identified as peer communities in the *Boxborough Housing Production Plan* (Boxborough Housing Board, 2015) (Acton, Ayer, Groton, Littleton, Maynard, and Stow) or as comparison communities in a list provided by the Town. The extensive analysis outlined below created the framework for the scenario development outlined in Part B of the study.

Community Profile



Regional Context

The Town of Boxborough is situated approximately 30 miles northwest of Boston and 25 miles northeast of Worcester. Located along I-495 and Rt. 2 and bisected by Rt. 111, Boxborough is easily accessible to both regional and local traffic. Though not directly serviced by public transit, the town is equidistant between Massachusetts Bay Transportation Authority (MBTA) Commuter Rail stations in Littleton and South Acton, both only a few miles away from Boxborough's north and east boundary lines respectively.

Boxborough's regional connectedness provides residents with easy access to employment centers and smaller clusters throughout Greater Boston, particularly to the north and south along I-495 as well as Boston proper (see Map 1. Regional Context: Employment Clusters in Appendix A). Boxborough has seen less commercial and residential development than many neighboring communities, and therefore remains more sparsely populated and less densely settled (see Map 2. Regional Context: Population Density in Appendix A). This lower rate of development has caused fewer amenities to locate within Boxborough, though regional amenities are easily accessible via commercial districts of adjacent towns.

There are several state and regional planning and transportation agencies developing master plans for the Greater Boston Metro Region that will impact Boxborough. The Metropolitan Area Planning Council (MAPC) is the planning agency for the region and develops regional as well as local plans for each of the region's 101 municipalities. The Minuteman Advisory Group on Interlocal Coordination (MAGIC) is a subgroup of the MAPC that encompasses Boxborough and 13 neighboring communities. The state transportation agency is the Massachusetts Department of Transportation (MassDOT) which governs all Massachusetts transportation authorities. The Massachusetts Bay Transit Authority (MBTA) works under the MassDOT umbrella and operates the public transportation services of Greater Boston. Together with MassDOT, the MBTA develops regional transportation plans for all modes of transit. For summaries of each agency's master plans, please refer to Appendix D: Regional Context and Case Studies.

Demographics & Character

The town of Boxborough is rural and suburban in character with a population of approximately 6,300 people (U.S. Census Bureau, 2018a). The landscape is defined by rolling hills, historic properties, farmland and stonewalls, and low-density single-family housing. Similar to neighboring towns in the 495 corridor, Boxborough has no significant mixed-use town center and development is automobile oriented.

The residents of Boxborough are highly educated and the town is a member of the acclaimed Acton-Boxborough Regional School District that serves many families in the town. These educational assets are highly valued by those who live in Boxborough, making the town a desired residential location within the region. The median residential property value is 14% higher than the region's average, at \$506,700, and the median income is higher than the state's median income, but 16% lower than regional comparison communities (U.S. Census Bureau, 2017).

Boxborough's attractive landscapes and proximity to major roadways creates a strategic hub for modern business practices, regional connectivity, and economic growth. However, even with many rich community assets, there are office park campuses within Boxborough that have struggled to maintain occupancy and are facing a degree of obsolescence, contributing to stifled economic growth in the town. This trend poses a threat to the overall quality of life and must be thoroughly addressed to promote economic and community vitality.

Land Use Patterns

Land Use Patterns are defined by the primary use or purpose of the land, which are influenced by historic zoning, population growth, and economic development. Boxborough's zoning districts have been relatively consistent for the last few decades, meaning the land

use patterns are generally reflective of the Town's zoning (see Map 3. Land Use Patterns and Map 4. Zoning Districts in Appendix A). Most commercial activity remains concentrated along the Rt. 111 corridor, the I-495 interchange in western Boxborough, and the Rt. 2 exit in the northeastern corner of town. The Town Center district is home to most of the town's civic and public services, such as the Town Hall and the United Church of Christ Congregational, and has been identified as an area of interest for development in the *Boxborough2030* plan. One of the most notable differences between the zoning map and the land use map is that many areas that are zoned as office park and commercial districts are currently used as rural open space.

Housing Trends

Local Housing

Boxborough's housing stock has historically been comprised of single-family homes but has become more diverse in recent years. In 2017, housing options were more proportionately divided between single-family detached housing (54%) and small 'apartment' buildings (40%). Boxborough has experienced a growth in multifamily and senior housing development since 2015, which greatly exceeded projections for housing production (U.S. Census Bureau, 2018). The growth in population between 2015 and 2017 reflects this shift towards more multi-family and senior housing (see Figure 2. Boxborough Annual Population Estimates 2010 – 2018). The provision of more expansive housing options may have attracted new residents to

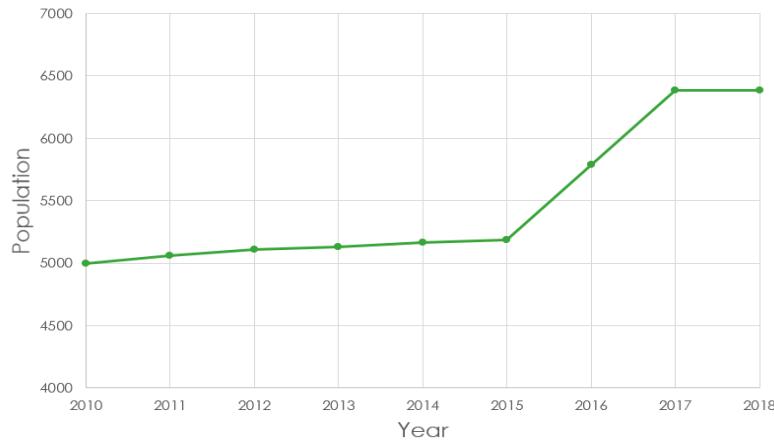


Figure 2. Boxborough Annual Population Estimates 2010 – 2018
(Source: U.S. Census Bureau, Annual Population Estimates)

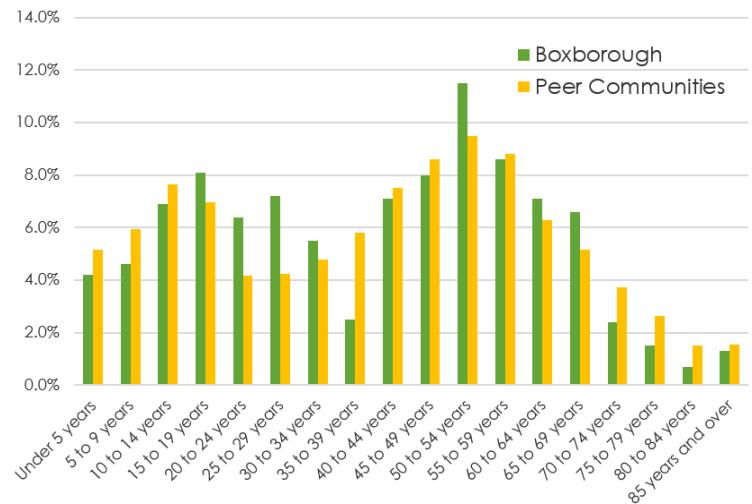


Figure 3. Age Distribution: Boxborough and Peer Communities
(Source: American Community Survey 2013 -2017)

the town and could stimulate future economic growth in Boxborough.

The Acton-Boxborough School District is ranked among the best in the state and has encouraged many residents to move to Boxborough and raise their children. Similarly, from 2000-2010, migration in Metro Boston showed suburban municipalities receiving school aged populations (greater than 9 years old) and younger professionals (23 to 40 years old), while the urban core has been losing these populations (see Figure 3. Age Distribution: Boxborough and Peer Communities) (MAPC, 2014d). Access to quality education has been a strong draw for regional migrants to the suburban communities in Metro Boston and these trends are evident in Boxborough as families with school-aged children and young professionals move into the town.

Regional Housing

By 2040, the region is projected to experience changes to its housing market and demographics which will have implications for Boxborough. The Metro Boston region is expected to experience a dramatic rise in older, single-person households (60-85+ yrs) over the next couple decades. This could be part of the larger national shift toward smaller households (≤ 3 people) seen between 1970 and 2014 (MAPC, 2014d). Boxborough is representative of this trend within both rental (1.9 people) and single-family homes (2.6 people) (U.S. Census Bureau, 2017); (see Table 1. Selected Housing Statistics Comparison: Boxborough, Peer Area, and Massachusetts). The tendency of older homeowners to be cost-burdened, combined with the trend towards smaller household sizes and high housing costs in Boxborough, are likely to present affordability challenges in Boxborough.

There has been a shift away from single-family housing in the Greater Boston Area. MAPC finds that all age cohorts are shifting away from single-family occupancy, especially the 25 to 34 (6.9% rate decrease from 2000 to 2010) and 65 to 69 (4%, decrease) cohorts (2014d). The increased drive for multifamily occupancy reflects multifarious trends, but the cost of single-family homeownership in the Greater Boston Area is a major contributing factor. Despite this, in 2017 there was an estimated 3.6% vacancy rate for non-rental units in Boxborough and 1.1% rate in the peer communities (U.S. Census Bureau, 2017).

	Boxborough		Peer Area		Massachusetts	
	2012 Estimate	2017 Estimate	2012 Estimate	2017 Estimate	2012 Estimate	2017 Estimate
Total housing units	2,088	2,351	34,763	35,897	2,804,206	2,864,989

Median rooms	6.8	6.6	6.653	6.611	5.6	5.5
Average household size of owner-occupied units	2.620	2.6	2.755	2.768	2.680	2.690
Average household size of renter-occupied unit	1.820	1.940	1.953	2.046	2.190	2.260
Median house value	\$ 504,800	\$ 506,700	\$ 412,855	\$ 432,600	\$ 335,500	\$ 352,600

Note: Peer area corresponds to a row standardized average of Acton, Stow, Acton, Ayer, Bolton, Groton, Harvard, Hudson, Littleton, Maynard, Stow, and Westford weighted by number of housing units.

Table 1. Selected Housing Statistics Comparison: Boxborough, Peer Area, and Massachusetts
(Source: American Community Survey 5 - Year Estimates 2008 - 12; 2013 - 17)

Business Trends, Employment, & Taxes



Business & Employment Trends

Boxborough had 189 business establishments across a variety of industries in 2018 according to Massachusetts Executive Office of Labor and Workforce Development (EOLWD, 2018). Industry types are classified according to North American Industry Classification System (NAICS) sector codes.

The most prevalent industry type is Professional and Technical Services, with 59 establishments, followed by Administrative and Waste Services (18) and Construction (16) (see Figure 4. Number of Establishments by Industry Sector within Boxborough in 2018; Figure 5. Number of Establishments by Industry Sector within Boxborough since 2001).

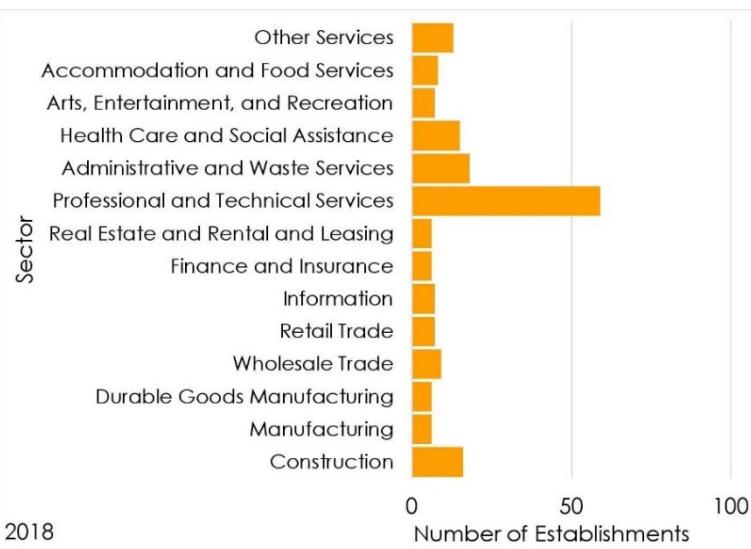


Figure 4. Number of Establishments by Sector within Boxborough in 2018 (Source: Employment and Wages Report (ES-202), Executive Office of Labor and Workforce Development (EOLWD))

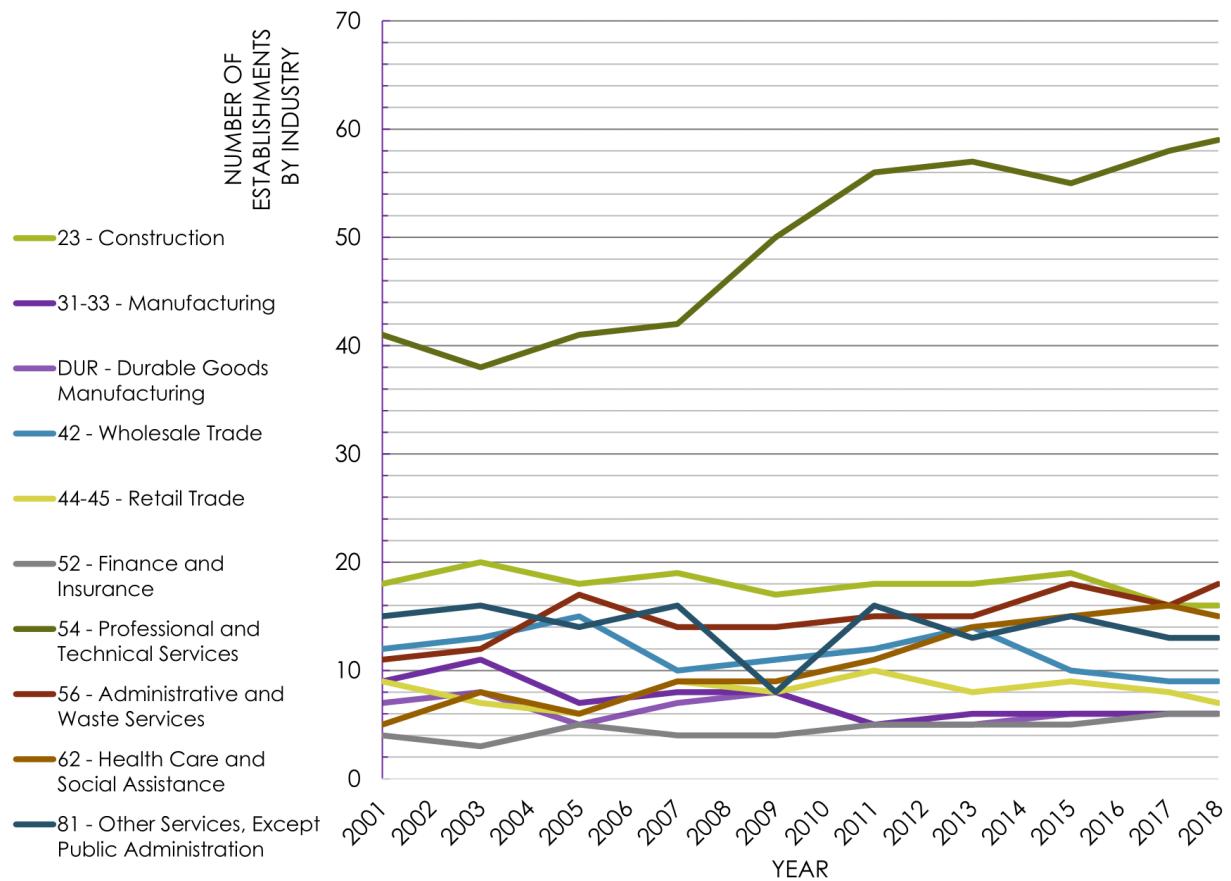


Figure 5. Number of Establishments by Industry Sector within Boxborough Since 2001
(Source: Employment and Wages Report (ES-202), Executive Office of Labor and Workforce Development)

The Boxborough2030 master planning process indicated a desire by residents for more amenities (arts, entertainment and dining) in town. Currently only 15 (8%) establishments fit this category. Despite a comparable percentage of arts, entertainment and dining amenities to the Boston-Cambridge-Nashua New England City and Town Area (NECTA) as a whole (EOLWD, 2018), Boxborough lacks many of the specific establishments desired by residents identified in the master planning process and corroborated through survey work within this study: cafes, full-service restaurants, and farm stands (MAPC, 2016). The lack of leisure and hospitality amenities impacts residents and businesses in town. Large employers would benefit from surrounding businesses to accommodate their employees, while those businesses could benefit from the patronage of the thousands of workers entering Boxborough each workday.

Many establishments in Boxborough are small businesses. Around 60% of businesses in Boxborough employ fewer than 10 people and about 80% had a payroll less than half a million dollars in 2018 (RefUSA, 2018). Boxborough's commercial tax base is dominated by a few large employers that each employ between 100 and 249 employees (see Figure 6. Number of Employees by Industry Sector within Boxborough since 2001). The largest employer in town in the first quarter of 2019 was the Boxboro Regency Hotel. In previous years the Cisco Systems campus was the largest employer (hosting \approx 1,400 workers), but beginning in 2014, Cisco began moving employees to other campuses (MAPC, 2016). In its period of peak employment Cisco was an anchor for the community that brought in revenue and had far reaching economic benefits to surrounding businesses. Cisco's significant reduction in its workforce is reflected in the town's greater-than-500-person decline in professional and technical services jobs since 2014 (EOLWD, 2018). While the number of small businesses in Boxborough that rely on leisure and hospitality spending is limited, the reduced workforce in town limits this spending and reduces the likelihood of growth in these industries. Cisco's retreat from Boxborough and the decline of other office park tenant presents a risk to Boxborough's fiscal health, the remaining workforce, and the social and economic benefits that residents may receive.

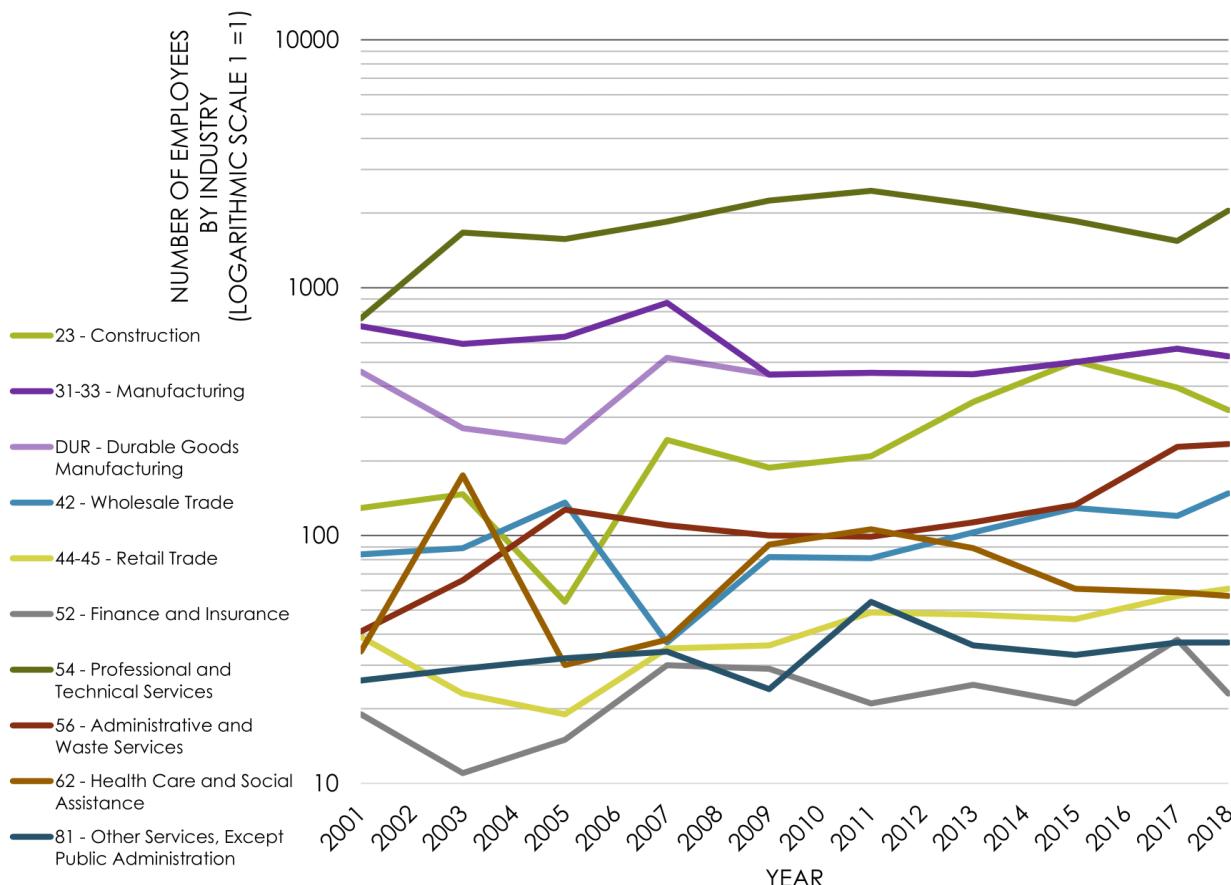


Figure 6. Number of Employees by Industry Sector within Boxborough since 2001
(Source: Employment and Wages Report (ES-202), Executive Office of Labor and Workforce Development)

In 2018, Boxborough had a monthly average of 3,709 jobs primarily represented by the major sectors professional and technical services (42%), manufacturing (15%), and construction (10%). Over the preceding two decades employment in Boxborough's key sector (professional and technical services) has mirrored broader economic trends and reached an apex in 2011 where nearly 60% of the town's 4,159 jobs were in professional and technical services. Since 2011, the sector has seen a decline, following a broader trend towards more urban campuses. The loss of office park occupancy has contributed to the declining commercial tax revenues (EOLWD, 2018).

According to the latest Bureau of Labor Statistics *Quarterly Census of Employment and Wages* (2nd Quarter 2019), suburban counties in America's largest metros have outperformed their urban counterparts in job and population growth (Kolko, 2019). According to EOLWD data, Boxborough has doubled its local employment since 2001, whereas neighboring Littleton lost employment over the same period. This occurred despite recent decline in total jobs and commercial property values, demonstrating that suburbs like Boxborough have continued strong economic potential.

The appeal for establishments to locate in suburbs of large metropolitan areas like Boxborough is the access to nearby cities and labor markets (such as Boston, Cambridge, Worcester, and Lowell) while benefiting from more affordable commercial space. Boxborough's existing office park infrastructure, commercially zoned developable land, and good regional access makes it well-positioned to attract large business, but the lack of urban amenities or urban infrastructure, such as municipal water and sewer, pose challenges for Boxborough. The lack of amenities and high cost of housing are major obstacles for talent attraction and retention in suburban areas, resulting in some business leaving Boxborough for urban Boston.

Resident Occupation Profile

In 2017 an estimated 3,127 residents of Boxborough were employed, largely in management, business and financial occupations (24%); education, legal, community service, arts, and media (11%); and computer, engineering and science occupations (28%) (U.S. Census Bureau, 2017). According to U.S. Census data, more residents of Boxborough work in Boston or Cambridge than in Boxborough (OnTheMap, 2018). Boxborough had 140 active business certificates at the beginning of 2019, many of which list residential property addresses. This suggests that in addition to those who telecommute, many Boxborough residents are running businesses directly from their homes.

Residents who work from home constitute, along with the retired community and non-working population, the daytime population of Boxborough. Recognizing this daytime population is critical to economic development strategies and the development of alternative

working environments or third spaces, which are locations that people spend time besides work or home. Hosting a significant daytime population indicates potential feasibility for third space environments (desired amenities in *Boxborough2030* and survey responses).

Having an active business environment is crucial to the Town's fiscal health, as a large portion of its tax base comes from commercial and industrial property. Large employers in Boxborough have struggled to attract younger workers to the town, anecdotally as a result of the lack of amenities and housing costs. The lack of diversity of the employing industries in town creates vulnerability in the Town's fiscal health, as shifts in those industries can deeply impact the municipality's tax revenue. As Boxborough has experienced and continues to see revenue impacts from office park vacancies and tax abatements, which are requests for reduction in property taxes based on reductions in value, the way the municipality manages its finances will be a critical element in planning for long-term sustainability.

Taxes

Boxborough has a flat tax rate, which means that the tax rate is the same for residential, commercial, industrial, and personal property. Twenty-three (or 65%) of the 35 towns in the I-495/MetroWest Corridor Partnership (a collaborative organization of governments in the I-495 region) also tax at a flat rate. The remaining towns in the region have a split-rate tax structure, where commercial, industrial, and personal properties are taxed at a higher rate than residential properties. This typically occurs when commercial and industrial properties have a larger presence in the municipality. In Fiscal Year 2019, 79% of Boxborough's tax levy was for residential property and 21% was for commercial, industrial, and personal property (CIP), which is high for the region, especially for a town of Boxborough's size. The CIP portion of the tax base has decreased from 25% to 21% between Fiscal Year 2014 and 2019 (see Figure 7. CIP Percent of Tax Levy in I-495 Region).

The median CIP percent of the tax base in the I-495 region is 16%. Of towns with over 20% CIP, approximately 64% have a split tax rate (Division of Local Services, 2019). While this could reflect an opportunity for Boxborough to create a split rate and generate more tax revenue, the decreasing size of the CIP portion of the tax base and existing issues with attracting businesses may make this option difficult under current conditions. Boxborough's tax rate is relatively low for the region at \$16 per \$1,000 for Fiscal Year 2019 (see Figure 8. Commercial Tax Rates in the I-495 Region) (Boxborough Town Assessor, 2018). The low tax rate can largely be attributed to high residential property values and large commercial and industrial taxpayers, which allow for sufficient revenue to be raised from a lower charge per each \$1,000 in value. As commercial and industrial property values have not been substantially increasing in recent years, tax bills for these properties should also be experiencing little change. Despite these low costs to commercial and industrial properties,

which conventional economic development knowledge would suggest are an attraction to businesses, Boxborough has struggled to retain and attract businesses.

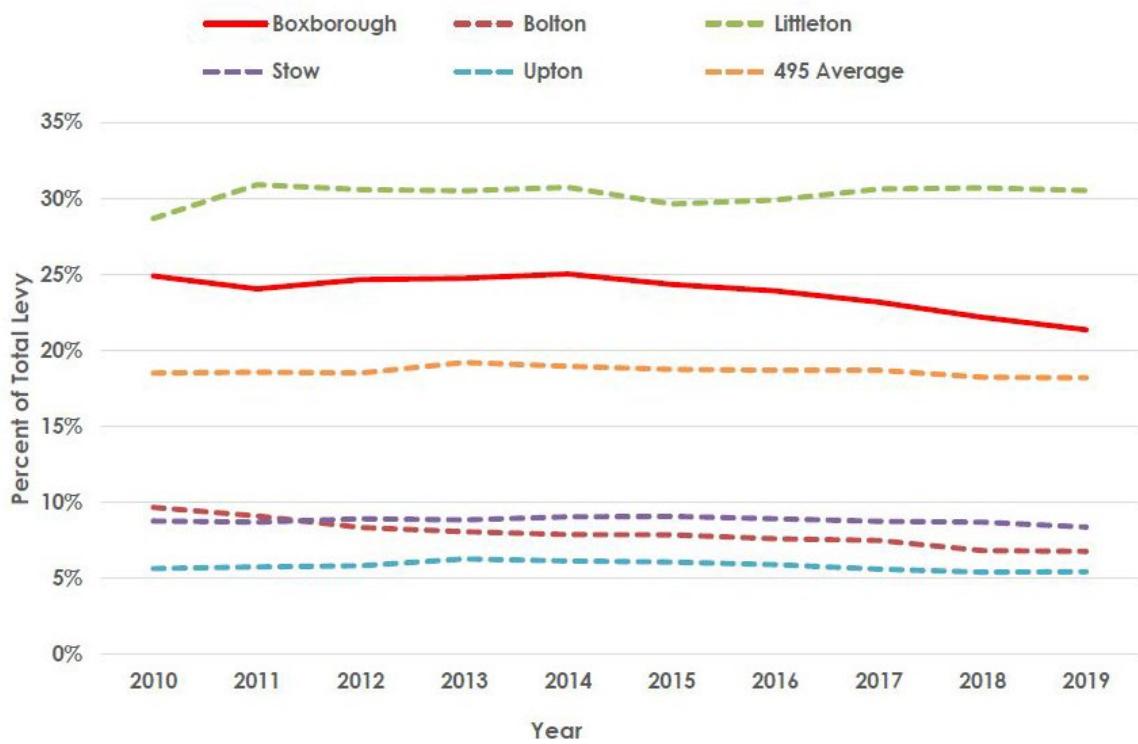


Figure 7. CIP Percent of Tax Levy in I-495 Region
(Source: Massachusetts Division of Local Services, "Municipal Databank")

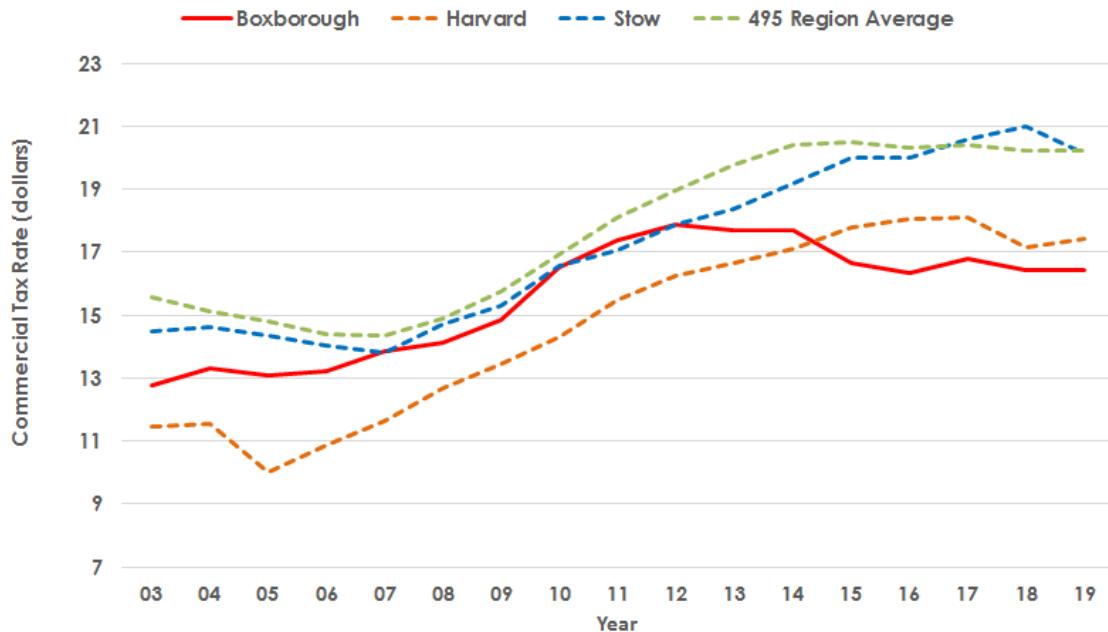


Figure 8. Commercial Tax Rates in the I-495 Region
(Source: Massachusetts Division of Local Services, "Municipal Databank")

Boxborough has multiple large office park properties that have recently approached a nearly 50% vacancy rate, as Cisco Systems gradually left their three properties in Boxborough and other properties have seen similar losses. The struggle of property owners to fill vacancies at the office park properties has led to declining value of these properties. Declining values and other economic stressors on businesses in town have led property owners to file abatements for their property. Persisting vacancies and stagnant CIP values pose a vulnerability to the tax base, as it shifts the tax burden to residential properties. Current abatements pose a risk of an annual loss of \$353,000 in tax revenue (Boxborough Town Assessor, 2019).

Residential property values in Boxborough have been increasing rapidly, with approximately 80% of the total value added between 2014 and 2019 coming from value increases on existing properties, not newly constructed ones. The average single-family tax bill increased \$1,056 over this time period demonstrating the shifting tax burden to residents. CIP values were virtually stagnant during this period compared to residential values. CIP values grew a net \$10 million since 2010 (4% of current total CIP value). However, approximately \$64 million (26% of current total CIP value) was added in new construction or renovations since 2010 and lost by 2019 due to decreasing property values (see Figure 9. Boxborough Property Values by Class).

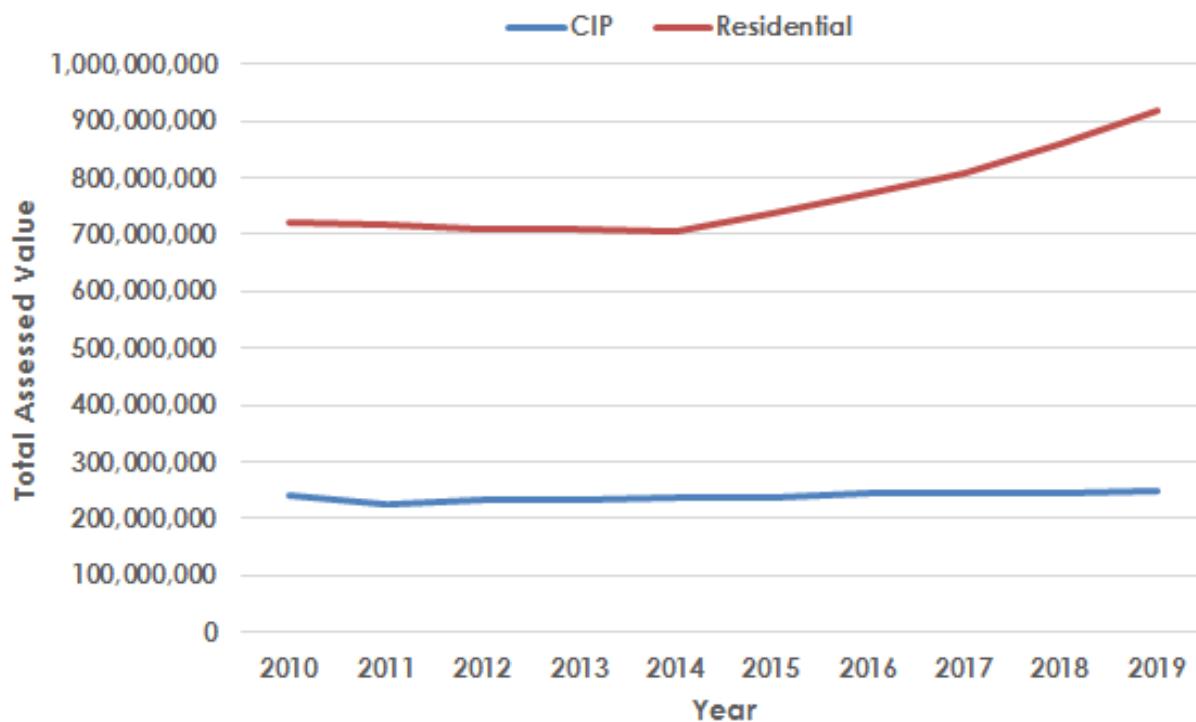


Figure 9. Boxborough Property Values by Class
(Source: Massachusetts Division of Local Services)

Reliance on growing residential property values for new revenue is unsustainable in the long-term, similar to the issue of much of the town's employment being in a few large sectors. The issues of Boxborough's fiscal health demonstrate the vulnerabilities presented by relying on a small number of support structures. The lack of diversity in the tax base is directly linked to restriction of land use, which may reflect community values, but can also hinder goals that align with these values. Property values and the tax base in Boxborough are directly related to its land use policies and the characteristics of its natural resources. Boxborough's desire for economic development and value of its natural resources may present some conflicts. However, Boxborough could use its zoning and other policies to inventory and leverage its existing natural assets, in order to strengthen its tax base. Identifying where natural resources, zoning, and utilities present limitations and opportunities is a key contribution of this existing conditions review.

Natural Resources, Utilities, Land Use & Zoning



Physical characteristics of Boxborough such as natural resources, protected land, land use, zoning, utilities, and infrastructure impact the economic environment. Analysis shows that availability of water and sewer is restricted by wellhead protection zones, aquifer protection zoning, and limited public utility infrastructure on developable land. These factors dramatically limit the potential location and intensity of new construction.

Some developed areas have the potential to be transitioned to new or additional uses that could meet the economic needs and quality-of-life desires of Boxborough, but achieving this vision may require changes to policy and development strategy. Existing assets and the opportunities they present are strongly associated with land use type.

An analysis into zoning bylaws explored the strengths and weaknesses of Boxborough's current zoning and permitting requirements in the context of economic development and the *Boxborough2030* Master Plan. Land uses were broken out into the following categories: Rural Residential, Town Center, Commercial/ Business Corridor, and Office Park.

Natural Resources and Utilities

Sewer & Septic

Boxborough has no municipal sewerage, a concern addressed in the *Boxborough 2030* Master Plan through Strategy 1.1.4 and frequently mentioned in the 2019 Economic Development Survey. All residences rely on septic systems for wastewater treatment and only a small handful of commercial properties (Cisco, Holiday Inn, 80/90 Central, and condominiums) utilize small sewage treatment package plants permitted by MassDEP (MAPC, 2015b). Their capacity was unknown at the time of writing, but there is anecdotal evidence that some existing package plants have additional capacity that could absorb more commercial activity on those sites they do currently. The lack of sewerage severely limits high-density residential development and many types of commercial development.

Surface & Drinking Water

Boxborough contains a few small ponds and streams and a large amount of protected wetland—17% of the total land area in Boxborough—distributed evenly throughout town (MAPC, 2015b). Wetlands are protected in Boxborough’s Zoning Bylaws by the Wetlands Bylaw, which grants the Conservation Commission the authority to regulate activities in or within 100 ft. of the wetland.

A number of properties in Boxborough source their drinking water from the town’s sand and gravel aquifers. However, most Boxborough households draw their water from private bedrock wells. The only public water system is a small system serving public buildings in the town center.

Some of the largest barriers to economic development in Boxborough are the permitting constraints required for the protection of water wells from septic contamination (see Map 5. Water Constraints & Stormwater Catchment Drains in Appendix A). Wellhead protection “Zone I” areas are prohibited for development, “Zone II” areas and Interim Wellhead Protection Areas (IWPA) significantly limit the size of septic systems permitted, limiting the intensity of land use and the types of material discharged in those septic systems (MA. Dept. of Environmental Protection [MassDEP] 310 CMR 22.21, 2016 citation).

An additional dimension to limited availability of water and sewerage in Boxborough is the abundance of sodium chloride (salt) in well water along I-495 (see Map 5. Water Constraints & Locations of Stormwater Catchment Drains in Appendix A) resulting from Massachusetts Department of Transportation (MassDOT) winter salting activities (Wisniewski, Vasconcelos, McGoff, & Vinson, 2019). This contamination forces businesses to treat their drinking water for salt contamination with expensive technologies like reverse osmosis; the

financial costs associated with these systems are considerable barriers for existing and future businesses.

Establishing some form of public water supply and sewer would alleviate the salinity and capacity issues currently deterring additional commercial and residential development. A study of options for improving water quality in western Boxborough conducted by students at Worcester Polytechnic Institute recommended supplying businesses in the Office Park area with municipal water sourced from Harvard and shared with the Town of Littleton (Wisniewski, Vasconcelos, McGoff, & Vinson, 2019). This recommendation is preliminary and would require a robust feasibility study.

Land Uses & Zoning

Agriculture, Open Space & Recreation

Boxborough is a relatively small (6,656 acre) community that values its rural character and aims to preserve its scenic landscapes through conservation restrictions on private property and town acquisition of open space. Roughly 23% of Boxborough's total land area consists of protected open space. The Town is the primary open space landowner, owning and managing 973 acres, followed by land trusts, private landowners, and the state (see Map 6. Open Space, Recreation & Historic Resources).

As of 2015, nearly 747 acres of land was enrolled in MGL Chapter 60, 61a, and 61b and taxed at a rate below the standard municipal tax rate (MAPC, 2015b). A total of 419 acres fall within the agricultural MGL Chapter 61a. A majority of the goods produced on this land are hay and animals, while some smaller production of Christmas trees, vegetables, and similar products are produced (MAGIC, 2014).

Boxborough has over 30 miles of trails. Residents and non-residents use these trails for dog walking, horseback riding, mountain biking, running, hiking, cross-country skiing, and snowshoeing. Although a majority of the trails remain noncompliant with American with Disabilities Act (ADA) accessibility requirements, the trails on the Cisco Beaver Brook campus include an ADA compliant trail (see Map 6. Open Space, Recreation & Historic Resources). Town-owned trails are managed by volunteer Trail Stewards.

Historic Resources

The Town of Boxborough has worked hard to preserve its many physical historic assets through inventory and dedicated bylaws. The Massachusetts Historical Commission (MHC) has inventoried 167 sites within Boxborough considered to be historic (MHC, 2019). In 2006, two sites in Boxborough were designated as Historic Places on the National Register: Old

Town Center encompassing over 1,000 acres and 32 buildings, and Levi Wetherbee Farm (Steele Farm), containing 36 acres and 3 buildings (see Map 6. Open Space, Recreation, and Historic Resources). Boxborough has also adopted a Historic Building Demolition Delay Bylaw, Stone Walls Bylaw, Historic Roads Bylaw, and participates in Community Preservation Act (CPA) taxes to fund preservation projects.

Zoning Districts

Boxborough is divided into seven zoning districts (see Map 4. Zoning Districts); however, no formal definitions are provided in the Zoning Bylaws. The majority of Boxborough is classified as Agricultural/Residential, which allows for single-family housing, agriculture, and conservation land. A significant portion of the west side of town adjacent to I-495 is zoned as office park, allowing for professional office building and light manufacturing uses. An Industrial/Commercial zone fills the southwest corner of town and small sections along Rt. 111. The Rt. 111 corridor is dominated by Agricultural/Residential zoning designation, but also includes two Businesses Districts that are primarily zoned for personal service-related businesses, athletic facilities, and light manufacturing. The Town Center district at the intersection of Rt. 111 and Stow Rd. permits professional offices and small-scale retail by right and single and two-family housing by special permit.

Buildout & Development Constraints

Boxborough has environmental and zoning restrictions that limit the development of new properties. In addition to the over 23% of town area protected as open space, analysis indicates that an additional 43% of the town's land area is composed of water resources that either prohibit or significantly constrain development (see Map 7. Development Constraints). The majority of remaining land has already been developed, primarily for residential use.

The MAPC *Boxborough Buildout and Alternative Futures Technical Report* found capacity for an additional 2.3 million sq. ft. of commercial space located south of Adam's place, and along Beaver Brook Rd., Codman Hill Rd., and Rt. 111. However, many of the areas of Boxborough most attractive for commercial development are heavily regulated by water protection requirements. This includes the existing town center, which is constrained by the wellhead protection zones.

The build-out analysis identified the potential for the town to add 110 new housing units by right under the zoning (MAPC, 2014). However, the addition of Paddock Estates, through special permit, more than doubled Boxborough's estimated capacity with an added 244 units (MAPC, 2016) and also became the second highest property taxpayer in town (Boxborough Town Assessor, 2019). Zoning is one of the most powerful tools a municipality has for

protection natural resources and safe drinking water, and for controlling the nature and form of economic development. The below analysis demonstrates the pros and cons of how Boxborough's zoning permits and constrains development and suggests opportunities for change. The zoning audit approved at the December 10th 2019 Special Town Meeting will continue this work.

Economic Development Planning & Zoning Analysis

To understand the town's economic development environment and planning strategies, we began by conducting a strengths, weaknesses, opportunities, and threats (SWOT) analysis. We reviewed the nearly 50 documents that guide and regulate the conditions of Boxborough's economic environment to inform this analysis, including bylaws, policies, and permitting applications. The *Boxborough2030* Master Plan and zoning bylaws received special attention.

The results of the SWOT analysis informed our decision to conduct a further in-depth analysis comparing Boxborough's zoning bylaws to a selection of six peer communities identified in the *Boxborough Housing Production Plan* (Boxborough, 2015): Acton, Ayer, Groton, Littleton, Maynard and Stow. For each community, we analyzed the permitted land uses and dimensional requirements, both of which are essential tools used to regulate the built form and influence the feel of a community.

We structured these analyses around four spatial regions that were identified in mapping Boxborough's land use patterns (see Map 3. Land Use Patterns): rural residential, Town Center, commercial/business corridor, and office park.

SWOT Analysis

Boxborough's land use tools and zoning include major factors shaping the town's economic climate, character, and sense of place. The most significant tools are authorized land uses, lot size requirements, building setbacks, and design guidelines. A thorough review of the zoning bylaws shows that some regulations conflict with community goals stated in the *Boxborough2030* Master Plan, and recent community surveys.

The Town Center, business corridor, and office park areas all have similar regulatory constraints. Authorized uses in zoning do not support businesses identified through public engagement strategies as desirable. Development constraints imposed by regulatory requirements for wells and septic systems significantly impair development opportunities in all three areas. Regulations affecting the form, size, and siting of structures on a lot also restrict opportunities for new development or businesses as well as redevelopment of some

existing properties. Visual screening of businesses from the public, excessive parking requirements, and large lot sizes create automobile-scaled environments contrary to the town center or village style development desired by many residents.

Strengths and opportunities identified include the newly adopted policy for complete streets throughout town, especially in the Town Center district. This approach will help to create a more pedestrian-scaled environment and encourage residents to spend more time in districts with business activity. The availability of robust fiber and communication infrastructure in the office park area is also a strength. This asset should be communicated broadly as an opportunity for potential investors. The complete SWOT analysis can be found in Appendix B: Zoning SWOT Analysis.

The permitting processes is also exceptionally important to the health of a town's economic growth. In addition to analysis of the economic environment, we identified strengths, weaknesses, opportunities, and threats for processes identified in zoning and bylaws related to permitting (see Appendix B: SWOT Analysis).

Zoning Analysis of Specific Economic Environments

The uses listed in Boxborough's zoning were compared to other peer communities with comparable town or village center zoning districts. In the following tables comparing zoning, common uses are listed along the left side of the table and the different colors represent whether the use is permitted by right (green), allowed with a special permit (yellow), permitted per specifications (blue), or not permitted (red). The transparent circles indicate that a specific use is not addressed in the Town's zoning bylaws and the gray circles indicate that the definition and goals of the specific districts are explained.

Rural Residential

We identified three rural land uses that serve as a useful comparison of Boxborough and other communities' active rural economic environment: open space and recreation, agricultural use, and agricultural tourism. The community currently has 1,451 acres of total open space (MAPC, 2015b). We found this acreage amount to be comparable with a number of peer communities, however, the Town owns more open space than a majority of its peers at 15% of the town's total land area.

Although Flerra Meadows, Liberty Fields, and Fifer's Field are opportunities for outdoor active recreation with a playground and various ball fields, this is approximately half of the amount Ayer, a community of similar land size and has and significantly less than the 35 facilities in Acton (Town of Acton, 2015; Town of Ayer, 2019). Additionally, the MAPC has developed a landline plan to connect the metropolitan area with bike facilities and

greenways, but it bypasses Boxborough and goes through its peer communities to tap into their existing networks (MAPC, 2018).

Permitted Uses

A significant portion of prime farmlands (determined by soil composition and grade) lies within the Agricultural/Residential and Office Park zoning districts (see Map 8. Prime Farmlands). Although Boxborough is recognized as having pro-farmer permitting requirements for signs on farms (MAGIC Comprehensive Agricultural Planning Project Report, 2014), the zoning bylaws are highly restrictive of accessory uses often associated with farming (see Figure 10. Rural Land Uses). The Right to Farm Bylaw (2012) permits “conducting agriculture-related educational and farm-based recreational activities, including agri-tourism, provided that the activities are related to marketing the agricultural output or services of the farm” (p. 2); however, uses such as craft shops, art studios, and farm stands are not permitted outside of the Business districts and Town Center. The A/R district specifically restricts the in-home display of goods, vehicle trips, and employees. Similarly, special permitting presents obstacles to establishing riding schools and bed and breakfasts, which are accessory businesses that can provide working farms with much-needed supplemental income.



Boxborough mentions adding agricultural business as a key action in its master plan, but has not moved forward with this strategy. Peer communities that have strong agriculture and agritourism businesses have less restrictive zoning, such as permitting labor housing, transitional zoning districts, and set regulations for permitting associated business uses. Bolton is an excellent example of a community that has used its rural character to enhance economic development. Bolton's Accessory Use Agricultural/Business Bylaw allows accessory agricultural or business uses to supplement income from agricultural, horticultural, floricultural, or viticultural lands where the external character of the building remains residential and has limited impacts to neighboring areas. The accessory use bylaw allows retail sales of farm products, crafts, and newspapers, the serving and consumption of baked and prepared foods, veterinary clinics, and hosting events. Bolton's bylaw applies to

active, development-restricted farms over 20 acres, but could be adapted to smaller-scale contexts. The highly successful Nashoba Valley Winery takes advantage of the accessory use bylaw with a variety of accessory uses on separate parcels, taxed at market rate, surrounding an orchard enrolled in the Chapter 61A current use tax program (Erica Uriarte, personal communication, December 11, 2019). For more information on the Town of Bolton, see Appendix D: Regional Case Studies.

Town Center

The Town Center zoning district features large lot properties with large setbacks that serve mixed residential, municipal, and commercial uses. Large distances between buildings creates an unfriendly environment for pedestrians which lacks the engaging streetscape and character found in more walkable village centers. There are few sidewalks and no bike lanes. Road and traffic features like wide-radius turns and speed limits over 30 miles per hour create an automobile-scaled environment, which can make pedestrians and cyclists feel vulnerable or unwelcome. Wellhead protection areas are present throughout the majority of this area, prohibiting or severely limiting additional development. Shared sewer and water systems which support the school and police station are nearby, though their capacity for additional demand is unknown.

Permitted Uses

The uses allowed in Boxborough's Town Center district are limited compared to Town Center districts in peer communities. While Boxborough is not the most restrictive, these examples illustrate the ways in which zoning can either restrict or attract the desired mixed-use downtown district experience.

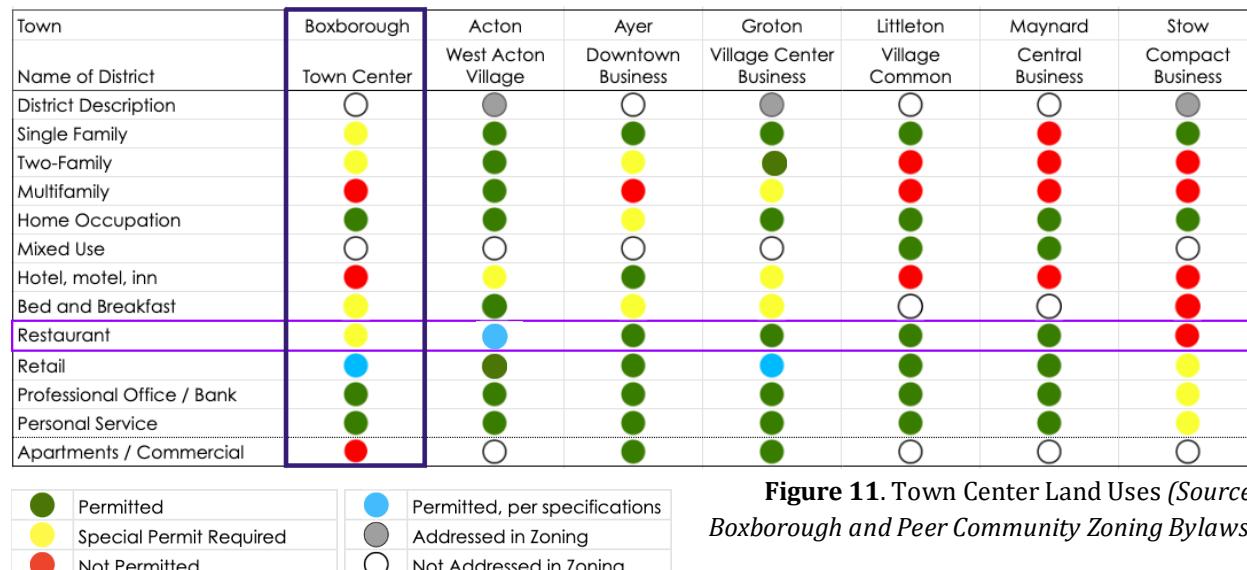


Figure 11. Town Center Land Uses (Source: Boxborough and Peer Community Zoning Bylaws)

Special permits are required for all forms of housing in the Town Center. Special permits require more time and paperwork for the applicant, which can disproportionately impact small business-owners or developers who have fewer resources. In addition, the planning authority can impose additional requirements in exchange for granting the special permit, creating barriers to development, especially small-scale development. This may hinder those who actually apply for permits, but may deter applicants altogether, especially as restrictive dimensional and use requirements present riskier returns on investment.

In mixed-use zoning districts, the integration of residential, commercial, and office uses allows residents to access resources and amenities more easily. Although the Town Center zoning regulations encourage mixed-use, Boxborough specifically prohibits apartments above the ground floor of a building. Another benefit of mixed land uses is their flexibility and ability to adapt to the needs of the community. Limiting affordable and accessible housing options in the form of apartments above commercial uses limits the economic viability of mixed-use development by restricting additional revenue streams for property owners and businesses. Restricting these uses is contradictory to the interests of the 80% of surveyed residents that expressed an interest in a village style mixed-use downtown district.

Boxborough's zoning limits the development of eating establishments to such a degree as to be nearly prohibitive. Coffee shops, bakeries, and restaurants are among the most desired businesses expressed by residents in both the *Boxborough2030* and 2019 Economic Development surveys. In the 2019 survey, about 60% of residents stated that they would like a coffee shop or bakery in town, and about 50% would like to see a full-service restaurant. However, Boxborough's zoning defines restaurants as establishments where food is consumed within the building and expressly prohibits the use of disposable utensils or take-out counters of any kind. Fast food establishments are defined by the bylaws as the sale of food or beverages that are intended for immediate consumption, available upon a short waiting time, and packaged or presented in a manner than can be readily eaten outside of the premises where it is sold. Fast food restaurants are not permitted in any district, yet bakeries, coffee shops, and restaurants all commonly practice bagging or boxing food for take away. Massachusetts general law considers bakeries to be "Moderate Hazard (light) Manufacturing," which is permitted in Boxborough in the Business, Business 1, Office Park and Industrial/Commercial zoning districts. However, limitations on take-away dining throughout the town would limit a bakery to baking and prohibit the sale of products. Towns have varying requirements for specific restaurants, such as takeout/fast food establishments and town bylaw should be reviewed for specifics regulations and permitting specifications.

Dimensional Requirements

The dimensional requirements in Boxborough's Town Center zoning bylaws restrict the formation of buildings that would reflect the character of a town center or village district. Three dimensional requirements from Boxborough's zoning bylaw were used as points of

comparison between the peer communities: minimum lot area, maximum lot coverage, and minimum setback. These three were selected as it was determined that they clearly illustrated potential limitations to town/village center development based on existing zoning regulations (see Figure 12. Comparison of Town Center Dimensional Requirements).

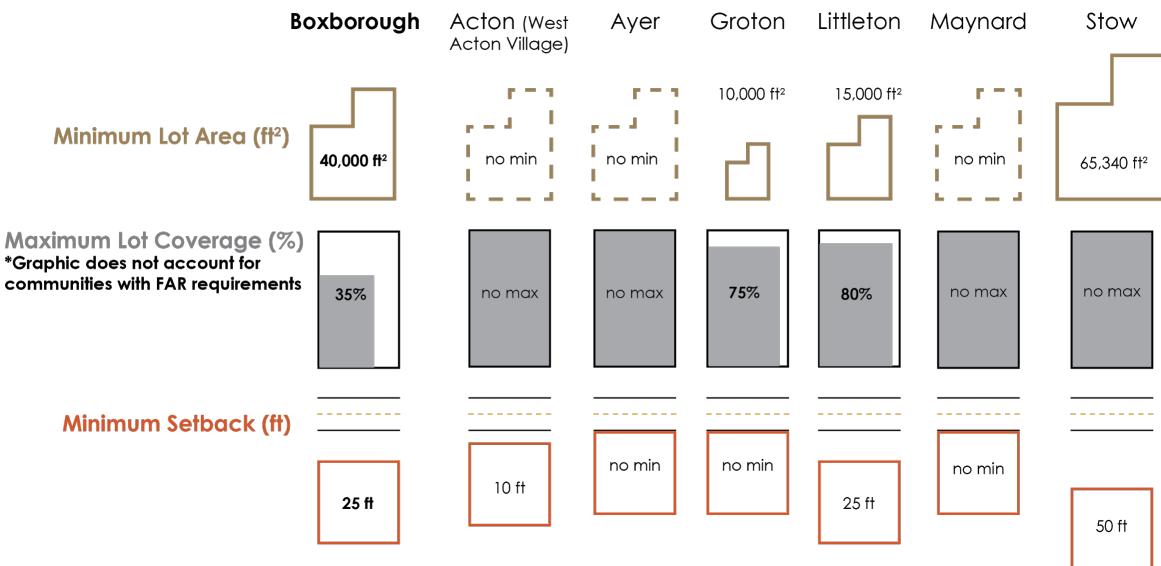


Figure 12: Comparison of Town Center Dimensional Requirements
(Source: Boxborough and peer community Zoning Bylaws)

Boxborough requires close to an acre (40,000 sq. ft.) for its minimum lot area, while many of the peer communities have significantly smaller lot size requirements. Three of the six peer communities have no minimum requirement at all. While other comparison communities may have other lot use restrictions, such as floor area ratios, Boxborough's combination of large lot size and low lot coverage requirements makes it inherently difficult to establish a compact and walkable village center.

Boxborough's maximum lot coverage allows only 35% of the lot to be covered by any building or paved surface. Of the six peer communities, Boxborough had the smallest maximum lot coverage restriction, while several peer communities had no maximum lot coverage. While several peer communities did not have a maximum lot coverage requirement in their zoning bylaw, they did have Floor Area Ratio (FAR) requirements which act in much the same was as maximum lot coverage restrictions. When coupled with large lot size requirement, Boxborough's maximum lot coverage prevents businesses from taking advantage of the space within this district. This prevents the more accessible and efficient land uses associated with town or village center development, desired by over 80% of residents according to the most recent survey.

The Town Center district's minimum setbacks are not conducive to walkable development with engaging streetscapes. Boxborough requires any building on a lot to be at least 25 ft. back from the road, which creates a disconnect between people using the street and buildings. Many peer communities required much less or no minimum setback, standards that allow pedestrians to walk quickly from building to building and close enough to see into windows—pedestrian-friendly features that are an important aspect of any town center.

Commercial/Business Corridor

The economic environment of the Business zoning district is limited by what uses are authorized. Required setbacks from the road and visual screening requirements serve as a detriment to businesses by reducing visibility of advertising geared towards automobile traffic. Mandatory parking requirements also create a barrier by forcing businesses to increase lot coverage with parking lots, complicating site selection for well, septic, set backs, and accommodation for wetlands and bedrock. Approximately half of the business corridor region is restricted or limited for development due to wellhead protection areas. The automobile scale of the environment and access by vehicle is a strength for local businesses.

Permitted Uses

Overall, allowed uses in Boxborough's zoning are similar to those of peer communities. Restaurants require special permits, which is consistent with two and more restrictive than four of the peer communities.

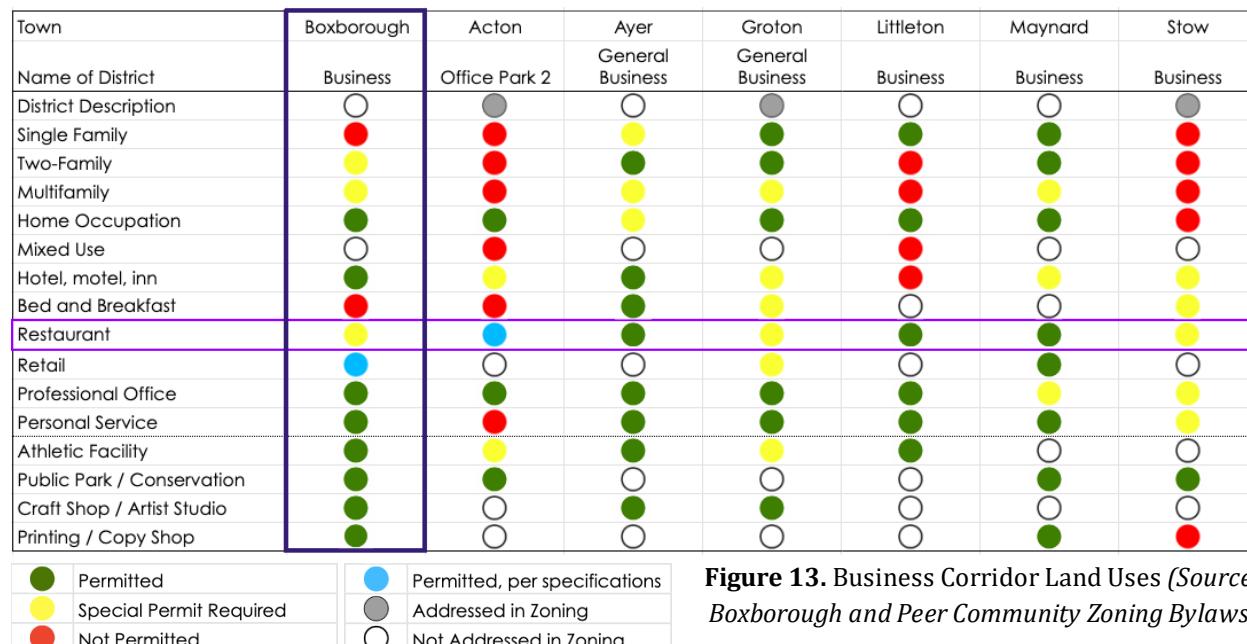


Figure 13. Business Corridor Land Uses (Source: Boxborough and Peer Community Zoning Bylaws)

Dimensional Requirements

While Boxborough's dimensional requirements in the Town Center zoning district were more restrictive relative to peer communities, dimensional requirements for the business

district aligns more closely with the peer communities. While still not the least restrictive among peer communities, the zoning bylaws for Boxborough's Business zoning district should not become a hindrance to future development in the same way the zoning bylaws appear to be for the Town Center zoning district.

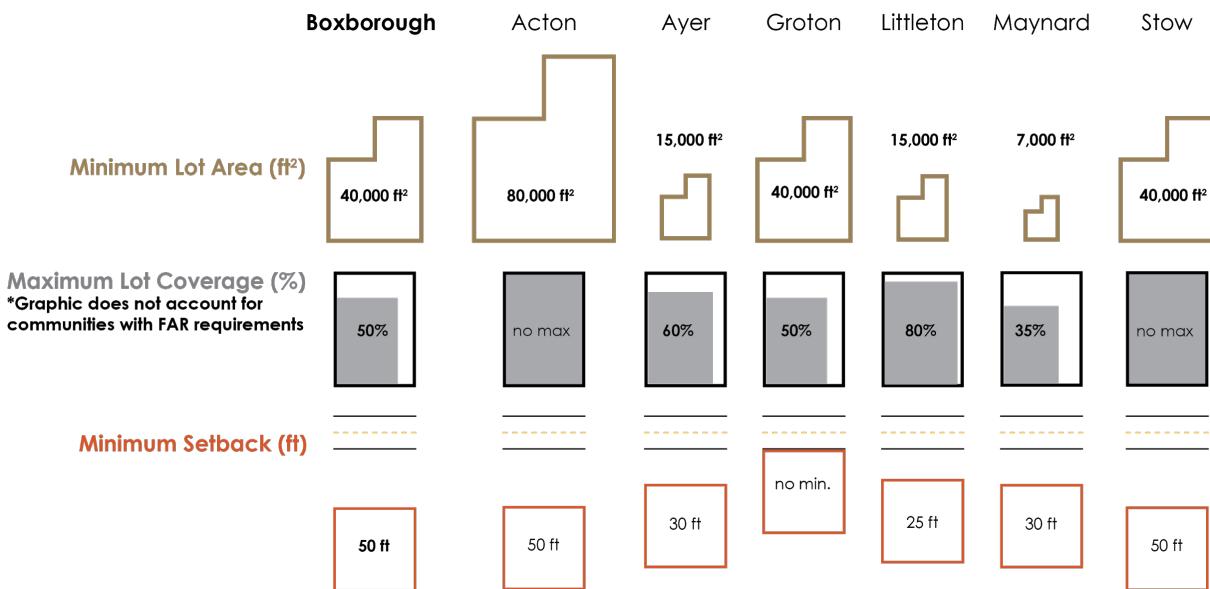


Figure 14. Comparison of Business Corridor Dimensional Requirements
(Source: Boxborough and peer community Zoning Bylaws)

Office Park

The Office Park's proximity to I-495 and Rt. 111 is a major asset, as they allow efficient commuter and distribution access without significant impacts to residential areas. However, the Office Park zoning district reflects zoning codes that were popular decades ago. The district's authorized uses are highly specific to office functions and restrict 21st century development trends supporting mixed-use community featuring opportunities to live, work and play in a convenient setting. The Office Park district is severely restricted by wellhead protection areas, aquifer protection areas, and heavily impacted by saltwater intrusion from Massachusetts Dept. of Transportation (MassDOT) road-salt sheds into the groundwater which is present in drinking water (Wisniewski, Vasconcelos, McGoff, & Vinson, 2019).

Permitted Uses

Boxborough and Acton are the only towns among the peer communities that have a designated Office Park district. As a result, comparing this district required a deeper analysis of where peer communities permit certain uses and the character of the built environment

in these districts, in order to identify comparable zoning districts. This district was compared against the peer communities' commercial, business, and industrial districts to find the ones most compatible for comparison.

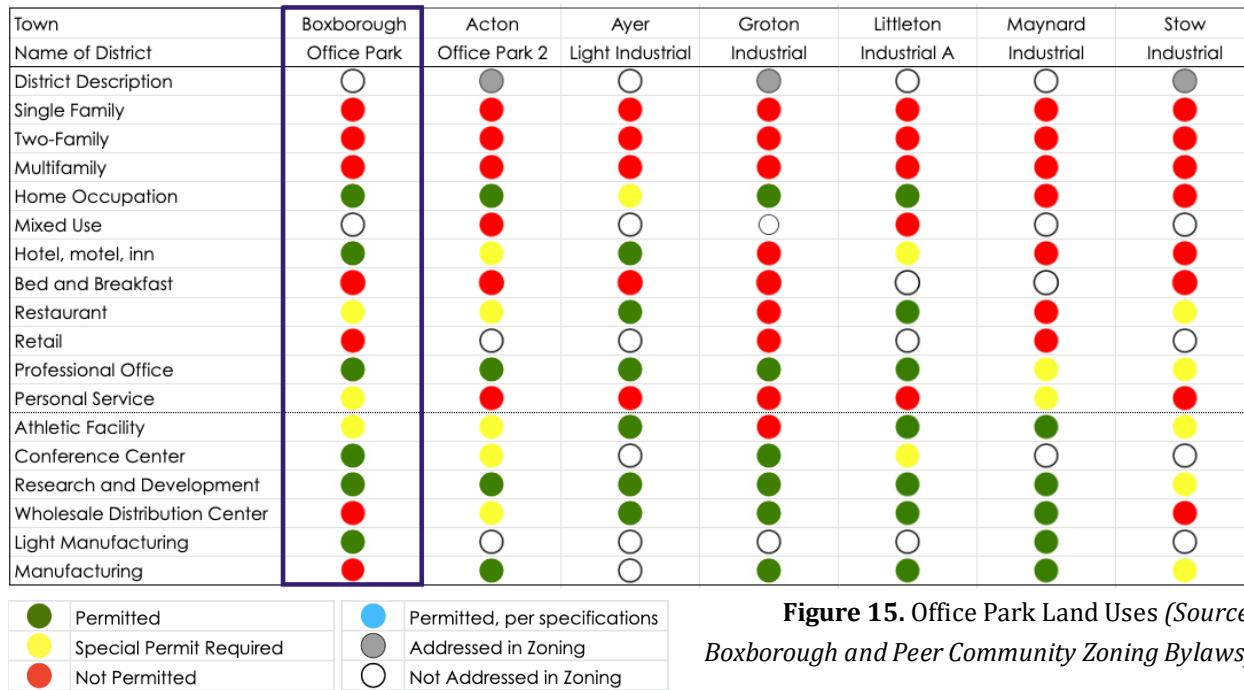


Figure 15. Office Park Land Uses (Source: *Boxborough and Peer Community Zoning Bylaws*)

Based on this analysis, the uses allowed by right and by special permit are similar to peer communities' industrial districts. Overall, Boxborough permits the uses traditionally associated with office parks. However, these uses do not allow for a creative reuse of the space that could support office park revitalization or refilling vacancies. Therefore, there may be opportunities to revise the authorized uses to allow for more flexibility in these spaces as vacancy rates hover around 50%.

Dimensional Requirements

Boxborough has much stricter dimensional requirements in their Office Park district compared to other communities' office park, commercial, business, and industrial districts. For example, Boxborough requires approximately 3.5 acres minimum lot area, while all peer communities only require an acre or less and Littleton has no minimum lot size. Large lot requirements preclude the establishment of smaller businesses and limit the efficient use of space. Combined with large setbacks from property lines, large lot requirements also discourage walkability and access to office park areas for residents or workers.

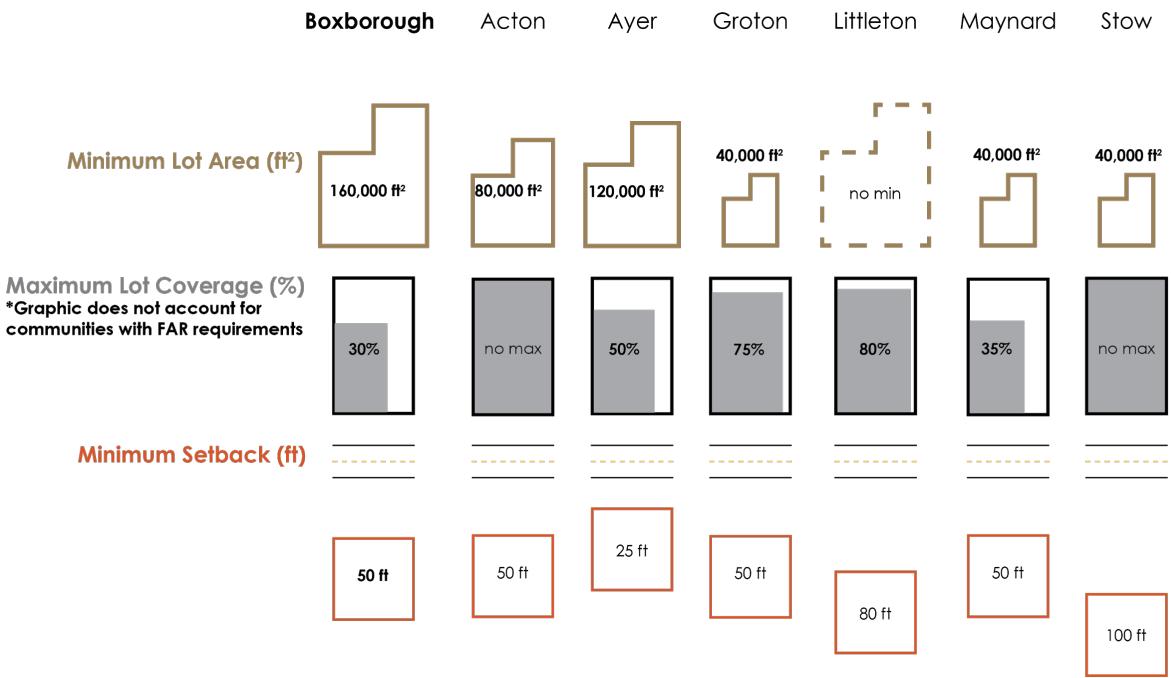


Figure 16: Comparison of Office Park Dimensional Requirements
(Source: Boxborough and peer community Zoning Bylaws)

Boxborough's 30% maximum lot coverage for office parks is a significant restriction, as office parks often require a large amount of space for the building and parking. Aside from Maynard which has a similar requirement, every other peer community allows for significantly larger maximum lot coverage. The potential of Boxborough's Office Park district is limited compared to peer communities that are more accommodating to different types of uses. While Boxborough's zoning works to protect water resources, the Office Park zoning districts also have high parking lot requirements that increase surface runoff and pollution of water resources. Large lot sizes combined with small maximum lot coverage also create the effect of spreading development out over a larger area, further fragmenting open space resources.

Summary of Findings

Overall, limitations and zoning ambiguities in Boxborough's zoning bylaws make it challenging for businesses to start in Boxborough or even apply for permitting. In some cases, the appear counterproductive in guiding development in accordance with the *Boxborough2030* Master Plan. Where the master plan is the vision, zoning bylaws are the steps to make the vision a reality. The zoning audit recently adopted should address several things with Boxborough's zoning: make the document logical in its organization, simplify confusing bylaws, define zoning districts, define clearly all terms, remove duplicate items and procedures, and allow space for new zoning amendments. A second phase to be

considered will be moving the permitting process online, which will create a more efficient review process for citizens and Town personnel. This will also make the storage and retrieval of permitting documents much faster and take up much less space.

To better understand the impact of zoning and dimensional requirements on Boxborough's current economic environment, case studies of several peer communities were conducted to further explore how those communities addressed challenges similar to those facing Boxborough. The examples from in the region serve as informative points of comparison and suggest strategies that might help Boxborough's challenges.

Regional Case Studies



There are many towns and cities throughout the Metro Boston region and along the I-495 corridor that share Boxborough's challenges and priorities for economic development. The following case studies investigate communities in the region that have pursued development that are either in line with the *Boxborough2030* Master Plan goals or address issues similar to those facing Boxborough. These communities are either peer communities (towns adjacent to Boxborough) or comparison communities (towns provided by Boxborough staff considered similar in character).

Sources for these case studies include local news publications, municipal zoning bylaws, board and department meeting minutes, planning documents, and phone interviews with town planners and economic development committee members. The following section summarizes the highlights from these findings and may serve as a learning tool when considering Boxborough's future development. An unabridged version of these case studies is located in Appendix D: Regional Case Studies.

Harvard

Neighboring Boxborough to the west, Harvard experiences similar economic leakage, wherein residents are spending money outside of town. They are looking to start an Economic Development Corporation to address this issue, as well as develop their town center district to increase commercial activity and encourage more diverse uses. Like Boxborough, it is important to Harvard to maintain their rural character, so they are implementing a form-based code, which is a zoning regulation that uses physical form as the guiding principle rather than land use, to preserve the historic qualities of their town center district. The Town also recently proposed a Rural Life Permit to further explore economic development possibilities in line with their rural and agricultural heritage. This would have allowed for limited commercial activity in their agricultural/residential land, though it was eventually voted down.

Groton

Groton is north of Boxborough and has seen some success in the development of their town center through the designation of a Town Center Overlay District, which promotes retail, pedestrian circulation, and the public realm. This district encourages Leadership in Energy and Environmental Design (LEED) certification of new buildings, requires contributions to public space enhancements, and the use of low-impact development techniques, which utilize land conservation and green infrastructure to reduce hydrological impacts of development and manage storm-water runoff.

Littleton

Bordering Boxborough to the north, Littleton also strongly identifies with its rural character. Like Boxborough, Littleton's lack of a municipal water system has impeded commercial development. The Town is in the process of developing a smart sewer system, which uses a network of sensors to control sewer flow, that would service around 180 properties within the Littleton Common Village District. This infrastructure investment will encourage new development in this district, discourage sprawl, and allow for uses such as food services that require high water usage.

Bolton

Located to the southwest of Boxborough, Bolton also considers itself rural in character. Since Bolton has a large percentage of agricultural lands and working family farms, they decided to capitalize on these resources with the creation of an Accessory Use Agricultural/Business Bylaw. This bylaw allows accessory uses on agricultural lands, uses such as retail of farm

products and crafts, agritourism businesses, event hosting, and food services. They also have a high number of long-term office park vacancies and are now, after ten years, in lease negotiations with a cannabis-growing corporation as a result of a new Marijuana Establishments bylaw which allows this use by special permit.

Marlborough

Having faced high vacancy rates in several of their office parks just like Boxborough, Marlborough has become regionally known for their success in revitalizing many of them. The City applied a mixed-use overlay to their industrial districts to encourage small businesses and amenities in office parks. They designated these districts as Local Expedited Permitting and Development sites as well as TIF zones to streamline the permitting process and guarantee TIFs to businesses willing to relocate to these districts. Marlborough also just launched a year-long free shuttle bus pilot from Marlborough's office parks to the Southborough MBTA station, financed by the city and state, to make themselves more accessible to the regional workforce.

Public Engagement Strategy



Phase 1 robustly engaged with the public through direct events and distribution of targeted surveys. The strategy sought to solicit feedback, build understanding, and educate the public about economic development. Public participation was a critical step in validating existing conditions findings and soliciting feedback on the preliminary scenarios. It is for this reason that the public was engaged early and throughout the entire process.

Phase 1 included the following events or activities:

- Trash Talk (October 5, 2019)
- Economic Development Survey (October 5, 2019 to October 20, 2019)
- Business Breakfast (October 22, 2019)
- Economic Development Community Meeting (October 24, 2019)
- Merrie Christmas Fair (November 23, 2019)
- Economic Development Scenario Survey (November 23, 2019 to January 2020)
- Special Town Meeting (December 10, 2019)

Trash Talk

Trash Talk was a community engagement event held at the Boxborough Transfer Station on Saturday, October 5th, 2019. The study team tabled and canvassed at the Transfer Station to introduce the Boxborough Economic Development Study to residents. This provided space to engage community members in conversations about economic development and the rural character of Boxborough. These conversations served as informal settings for residential feedback on what economic development could look like in the town, specifically highlighting community interests and desires for the future vision of Boxborough. Trash Talk also marked the beginning of the 2019 Economic Development Survey for Boxborough residents, which launched online the same weekend. Residents were encouraged to participate in the survey and to stay involved with the study.

Trash Talk received over 100 participants. The major takeaways from the feedback of this event are summarized below:

- Residential interest in more local, small-scale community amenities
- Preservation of Boxborough's 'rural character' should be prioritized
- Preference for limited/controlled development, encouraging reuse of existing properties



UMass students mingled with Boxborough residents at the Transfer station to collect public opinion

Economic Development Survey

To better understand the aspirations and concerns of the residents of Boxborough for the future of economic development, an Economic Development Survey was distributed online. The main purpose of this survey was to educate residents about the project and to gather public opinion to inform later scenario development. This survey included questions to assess residential, employment, and commuting patterns of community members, as well as preferences for commercial amenities and future economic development.

Portions of the survey mirrored questions about commercial amenities in the survey that was conducted as part of *Boxborough2030* Master Plan process, allowing for a comparison of public opinion across time.

The Economic Development Survey received 342 responses. Results from the survey are summarized below. Three primary themes arose from analysis of survey results:

1. Desire for more small-scale commercial amenities
2. Preference for prioritizing existing properties over extensive new development
3. Enthusiasm for village-style development within the existing Town Center district

Summary of Survey Results

Commercial Amenity Preference: Residents were presented with an extensive list of commercial amenities and asked to select all which they would like to see opened in Boxborough. Over half of all respondents expressed desire to see a coffee shop, bakery, farm stand, or full-service restaurant within town. The top 12 responses for commercial amenities are presented (see Figure 17. Survey Result 1). Generally, residents expressed preferences for the same type of commercial amenities as in the 2015 survey. Pub/Tavern had not been included in the prior survey, but was supported by over 40% of respondents in the 2019 survey.

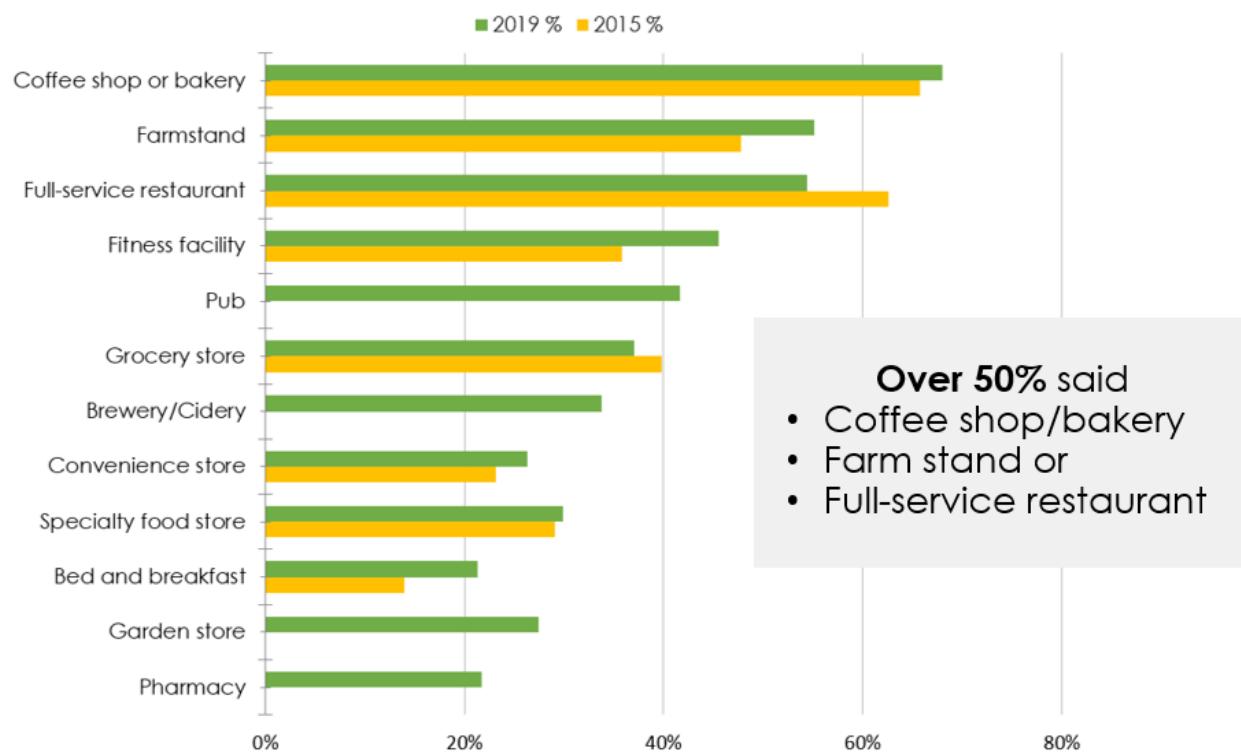


Figure 17. Survey Result 1: Preferred Types of New Businesses in Boxborough
(Source: Economic Development Survey Responses)

Common Destinations for Commercial Amenities: Respondents were asked to identify locations in the region around Boxborough where they most frequently accessed a given type of amenity. For every such category we presented, heat-mapped results of respondent's clicks clearly showed that residents need to leave town to access these businesses. This trend is most clearly exhibited by the restaurant and cafe categories (see Figure 18. Survey Result 2 and Figure 19. Survey Result 3). Over 60% of respondents also expressed desire to see these types of businesses within Boxborough in the future.

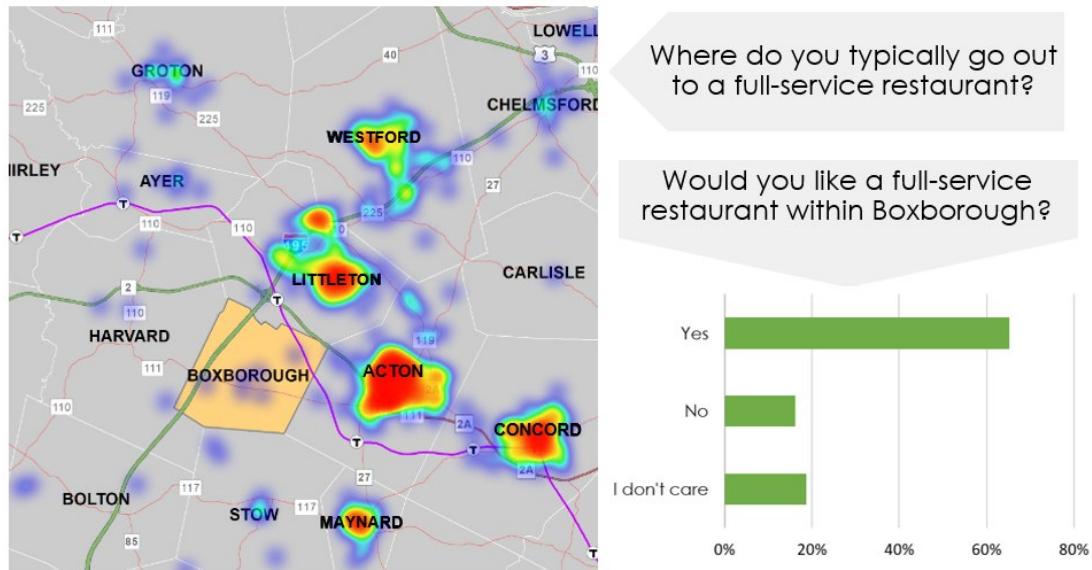


Figure 18. Survey Result 2: Heatmap of Locations where Full-service Restaurants are Accessed
(Source: *Economic Development Survey Responses*)

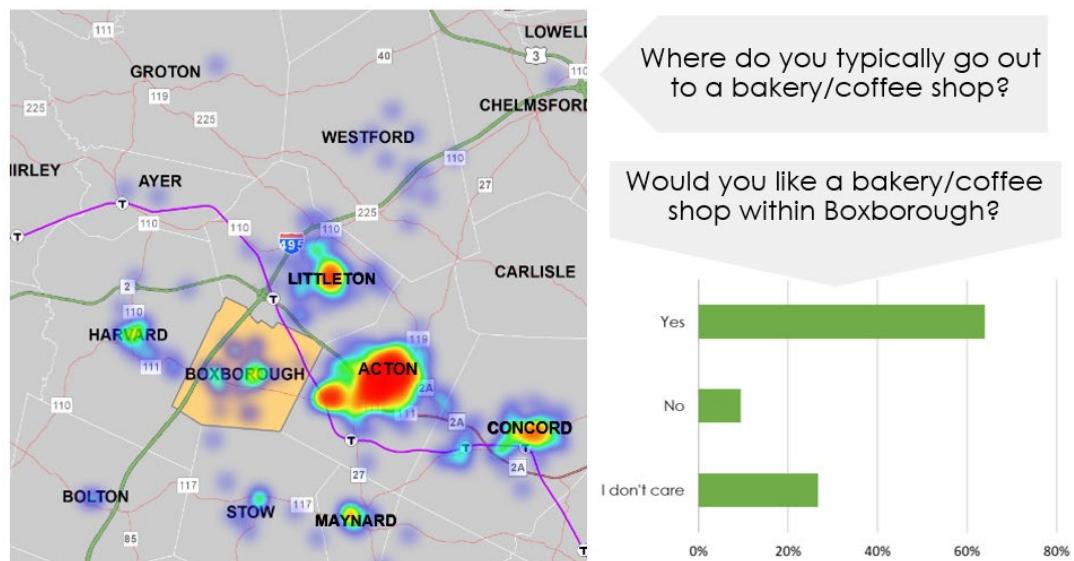


Figure 19. Survey Result 3: Heatmap of Locations where Cafes/Bakeries are Accessed
(Source: *2019 Economic Development Survey Responses*)

Village Style Development Preference: A final component asked residents where, if anywhere, respondents would like to see a future “village style development” (see Figure 18. Survey Result 2 and Figure 19. Survey Result 3). The definition of such a district was taken from the *Boxborough2030* master planning process, which defined such development as a “small-scale, compact, and walkable area with wide sidewalks and a mix of uses, including residential, office, and commercial amenities.” The Town Center district, which was originally partially districted for this purpose, was the first choice of survey respondents with 36% of the vote share. A site at the intersection of Adams Place and Rt. 111 ranked a close second with 32% of the vote share (see Figure 20. Survey Result 4). This relative popularity of the Adams Place site would inform our later shift of village-style development to this site in the scenarios.

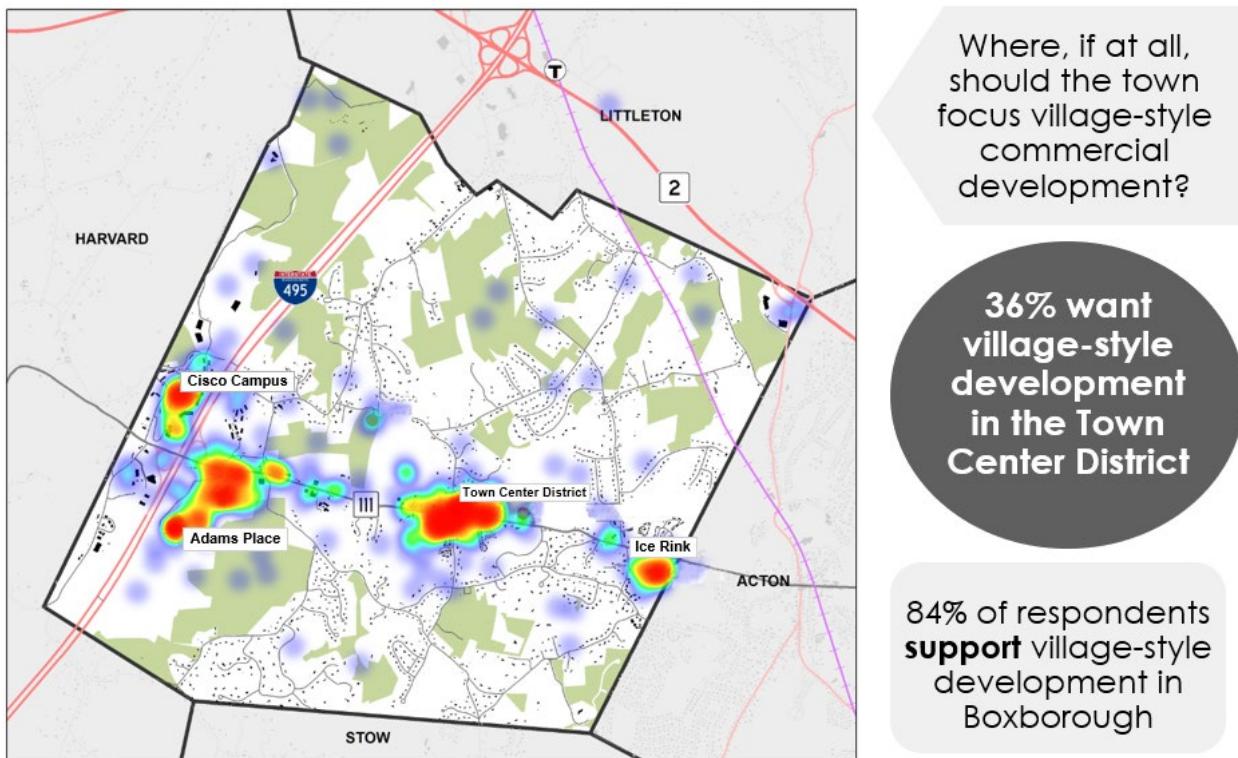


Figure 20. Survey Result 4, Heatmap of Preferred Locations for Village Style Development
(Source: Economic Development Survey Responses)

Business Breakfast

The Business Breakfast, held on October 22nd 2019, was the first-ever forum for Boxborough business owners to interact with one another and with the Town. The purpose of this breakfast was to engage local business owners, foster a network of business and property owners, determine what they view as the strengths and weaknesses of the business environment, and solicit input on what the Town of Boxborough can do to support business and property owners. After an informational briefing, business owners were guided through

a SWOT (strengths, weaknesses, opportunities, threats) analysis. The unique mix of participants included farmers, small residence-based businesses, stores in town, and regionally focused real estate developers.

Major takeaways from the event include:

- Largest strength is proximity to I-495
- Largest weaknesses are water infrastructure, zoning, business formation, and expansion opportunities
- Opportunity for town or regional business networking



Rich Guzzardi delivering the introduction presentation to local business owners and representatives at the October 2nd 2019 Business Breakfast
(Source: UMass)

Economic Development Committee Meeting

On October 24, 2019, prior to the development of scenarios, the study team presented the findings from the existing conditions to the EDC, representatives of other town committees, and local residents. An informational session on key issues preceded the presentation. Feedback from residents was incorporated into further research and development of the four scenarios to better serve the interests of the community.

Merrie Christmas Fair

The Merrie Christmas Fair is an annual event put on by the United Church of Christ Congregational. The November 23, 2019 event was used to present the economic development scenarios and solicit feedback in person as well as direct residents to the online survey and Story Map. Survey access information was also distributed at local businesses and community spaces, including Boxborough Liquors & Convenience, Bravo Pizza, VERC Gulf gas station, Oscars Burritos Mexican Grill, Pony Shack Cidery, Boxborough Public Library, and Boxborough Fire Station.



The UMass team postered with preliminary scenario ideas at the Merrie Christmas Fair (Source: UMass)

Special Town Meeting

On Tuesday, December 10th 2019, a Special Town Meeting was held to vote on various articles, including the EDC's warrant article to appropriate \$25,000 of free cash to fund Phase II of the Economic Development Study with the University of Massachusetts. The chair of the EDC, Rich Guzzardi, presented on the current work done in Phase I and the need for Phase II funding. At the special town meeting were two members of the Studio group who set up informational posters containing details about the four scenarios as well as other visuals representing survey results. As members of the public entered the building for the meeting, the studio members provided handouts containing links to our story map as well as the link to our second survey. This event allowed us to engage with the community about our

scenarios as well as the overall process one more time before the official vote took place to proceed with Phase II of this project. The article passed unanimously and funding will go forward to support the Center for Economic Development in conducting an in-depth market feasibility of the phase I scenarios and hosting a community visioning charrette.

Existing Conditions Process Outcome

Collecting regional and local data, peer comparison, public sentiment, and other information allowed for a better understanding of the opportunities and constraints Boxborough faces to thoughtful economic development. This process identified specific actions and changes necessary to implement the *Boxborough2030* Master Plan goals. Understanding existing conditions creates the foundation to propose viable recommendations and scenarios for Boxborough's future, aligned with the *Boxborough2030* Master Plan and the needs and desires of the town.

Part B: Preliminary Scenario Development



A strong foundational knowledge of Boxborough's existing conditions revealed viable options for thoughtful economic development. Through the analysis of public participation, existing conditions, peer comparisons, and an external assessment of Boxborough's opportunities & constraints, these options were arranged into four scenarios. The four scenarios are presented in order of increasing impact and intensity, from the least possible intensity (following current trends), to a comprehensive approach that imagines innovations throughout the economy. The scenarios are not mutually exclusive and should be viewed as a menu of compatible options, allowing the town to explore attractive aspects of each while considering the most viable path toward economic development.

The four scenarios are:

(I) Baseline and Current Course
(III) Village Style Development

(II) Rural/Agricultural Heritage
(IV) Comprehensive Approach

Indicators

Indicators are metrics of key concerns and elements that contribute to Boxborough's existing conditions. We developed five indicators measured across each scenario: **traffic, connectivity, new construction, municipal water, and fiscal health** (see Table 2. Indicator Measurements). These indicators were developed based on the findings from our existing conditions research and identified as predominant concerns for residents. The indicators are used to represent relative change proposed under each scenario for quick reference and comparison across scenarios. Each indicator was measured on a scale of one to five, with one representing minimal change and five reflecting a significant increase.

Indicator	Framework for Estimates
Traffic	Added vehicle trips, using generalizations based on Institute of Transportation Engineers trip generation estimates
Connectivity	Added distance of pedestrian and bicycle accommodations Added number of connections to other connectivity infrastructure or important economic locations
New Construction	Percent change in commercial and industrial square footage compared to current condition
Municipal Water	Added linear feet of municipal water infrastructure
Fiscal Health	Added tax revenue from new residential, commercial, or industrial property; Added tax revenue; Diversity of tax base

Table 2. Indicator Measurements

Each of the four Scenarios (I, II, III, IV), were they to be fully realized, would have varying degrees of impact as measured by these indicators. Generally, the impact becomes more intense with each successive Scenario (see Figure 21. Comparison of Indicators).



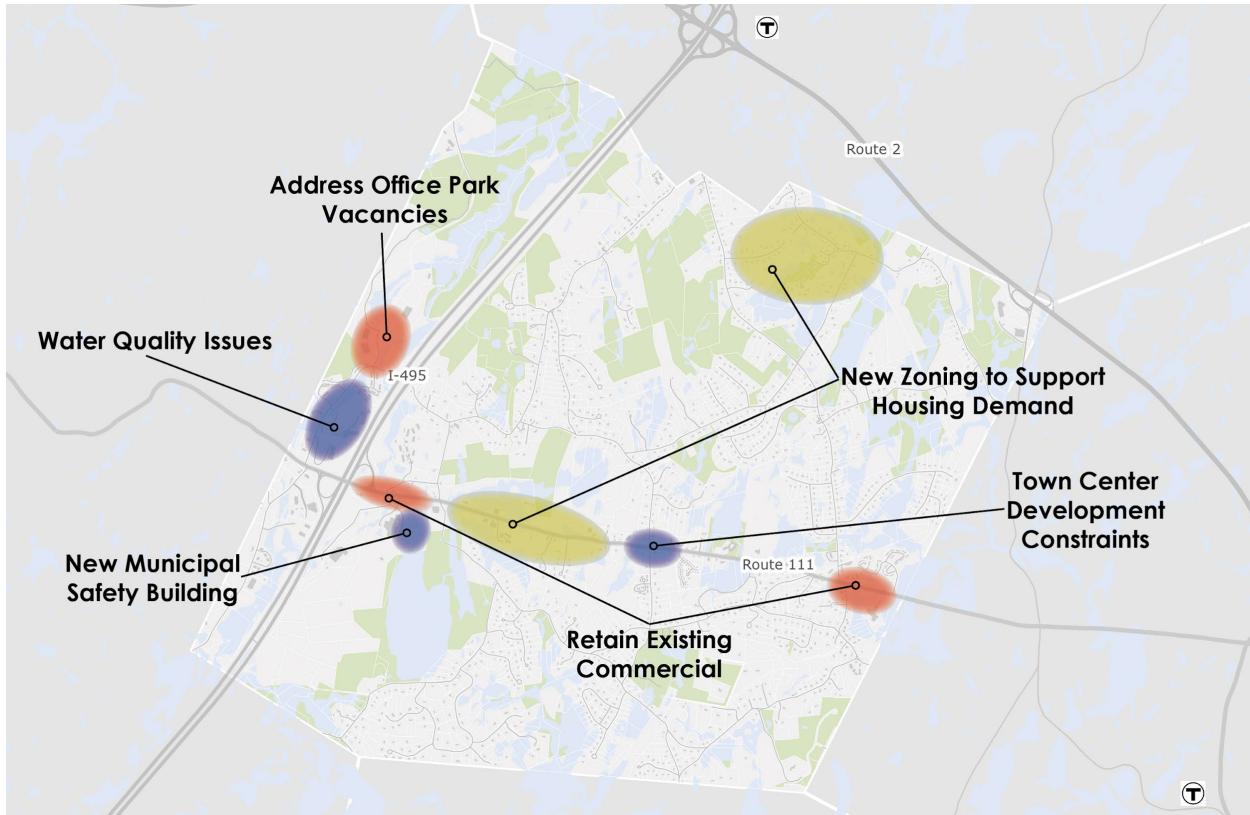
Figure 21. Comparison of Indicators

Scenario I – Baseline & Current Course



The baseline and current course scenario establishes a business as usual (BAU) course of action for the future planning horizon of Boxborough. This scenario operates under the assumption that the Town will do little to proactively address its current economic development concerns and will only act in a limited and reactive capacity to market changes. Some *Boxborough2030* goals are attainable under this scenario, but their impacts will be restricted by the lack of economic activity in town, and the shrinking commercial and industrial property tax revenue. Beyond establishing what this course of action could look like, this scenario also acts as a means to benchmark the successive scenarios discussed below (Rural/Agricultural Heritage, Village Style, and Comprehensive Approach).

Assumptions & Future Trends



Map 9. Baseline/Current Course Scenario

The Town underwent a master planning process in 2015 that outlined the community's vision for the future. The Baseline and Current Course scenario uses this vision and the goals established in *Boxborough2030* to frame the scenario within the context of current and future trends, addressing which visions are attainable and which visions will face challenges without proactive change.

It is anticipated that regional trends will continue to influence the constraints currently affecting Boxborough over the longer-term planning horizon (2040 and beyond). The community is outpacing projected population growth and housing production, and is similar to trends in the Boston Metro Area. Revenue generated through commercial and industrial properties will continue to remain flat or in decline, increasing the tax burden of residents. While current growth in housing values facilitates this shift and prevents net revenue losses from CIP value stagnation, this will likely not continue indefinitely and may lead to limitations in the ability to fund capital projects or other larger-scale investments.

FOCUS Areas

Business Constraints

The office park districts in Boxborough are experiencing high vacancy rates. Without the Town's intervention, commercial property values will remain stagnant or decline and threaten the fiscal health of the Town. From a planning perspective, the current permitting process and zoning restrictions make it difficult to establish or expand business in Town. Water is another significant constraint to attracting new businesses or development, as well as limiting the expansion of existing businesses.

Existing Assets

The Town enjoys abundant natural resources. For the residents, maintaining the country suburban character and quality of life is appealing. With increasing programming in open space and historic sites, residents and visitors can experience the Town's existing assets without significant changes to community character. High residential property values are a significant asset to the community, as they support the Town's fiscal health, while commercial and industrial properties have struggled. Home values and housing demand will allow for continued fiscal health until the market changes. While the housing market is a boon for the Town currently, this cannot be relied on indefinitely.

Municipal Services

Currently, the Town is considering options for the relocation of its Fire Station and Police Station. Funding capital projects and high-quality municipal services may be hindered by the lack of new commercial or industrial tax revenue and the lack of funding resources. Our scenario suggests adjusting the tax rate to reflect changes in property values and revenue will be needed to sustain municipal services, since the changing revenue streams may offset capital project deficits. Zoning adjustment for high housing demand may provide increased support to the tax base. Adjusting tax rates as needed is a way to continue to provide services that residents value most.

Implementation Process

While a major focus of this scenario is outlining how existing trends will affect Boxborough, we approached the baseline and current course scenario through the lens of the *Boxborough2030* Master Plan. Challenges may emerge as a result of the current and projected trends identified above. However, some quality of life amenities and services can

be sustained with limited economic development. We will define short-term, medium-term, and long-term goals and implementation strategies below:

Short-Term (0-5 years)

Short-term goals for this scenario are broadly aligned with the goals established through the *Boxborough2030* master planning process. Therefore, the short-term goals could continue the existing planning efforts made by Boxborough. The short-term planning goals support the Town creating a business association and developing marketing strategies to attract businesses and leverage existing assets. Business associations serve to advocate for the needs of the business community within a given jurisdiction and allow for collaboration across industries. The participants from Business Breakfast addressed their desires for this type of local organization.

- Develop a business association to improve collaboration between business owners and the Town
- Create a marketing strategy to attract new commercial interest in the town and leverage existing town assets
- Continue to support the goals outlined through the *Boxborough2030* master planning process (such as this Economic Development Study)

Medium-Term (5-10 years)

Medium-term planning goals highlight that the Town should investigate the development of new municipal facilities to support emergency services. However, these new development options are limited by changing funding streams, a lack of infrastructure, and no municipal water.

- Investigate possible zoning changes to accommodate shifts in housing demand
- Assess demands on water and possible implementation of a municipal water system

Long-Term (10-15 years)

Long-term actions may include exploring zoning options for accommodating future housing demand and drawing new revenue from added residential values. Without new commercial or industrial growth, Boxborough will become more reliant on residential property values, which may require more residential development than the Town currently wants. Adding new residential properties would avoid increasing tax rates to sustain the same level of municipal services. Therefore, this scenario recommends ongoing review of housing trends and how housing costs and demand will impact Town services and revenue streams. Near the end of this timeline, Boxborough should revisit its economic development planning

strategy to review the Town's vision and develop new plans that can accommodate this vision into the future.

- Revisit economic development and determine future strategies
- Investigate the possible benefits of increasing public transit access could have for the community

Indicators

Traffic

- Additional traffic may come from a growing population, regional economic growth trends, or filling business vacancies.

Connectivity

- May be future demand to improve Boxborough's internal connectivity, requiring the installation of trails, the extension of sidewalks for safe routes around town
- May be future demand to improve regional connectivity through the development of transit modes in the long-term for access to train stations and other out of town amenities.

New Construction

- New construction demands will be determined by available, buildable land, zoning processes and market demand.

Municipal Water/Utilities

- No proposed municipal water, development constraints that currently exist will continue.
- Water quality issues are currently being reviewed and a municipal water feasibility study is proposed.

Fiscal Health

- Although commercial and industrial property values remain stagnant or decrease due to abatements, the residential tax base has increased. Home values and total residential property values in town grew significantly in recent years which will support fiscal health, yet increase the financial burden on homeowners. This strategy is not likely sustainable as there are limited spaces for future residential development.

Scenario II – Rural/Agricultural Heritage



This scenario proposes that Boxborough become a regionally unique destination that approaches economic development by leveraging its natural, recreational, agricultural, and historic assets. In this scenario, family activities, agricultural tourism, small-scale food production, historic tourism, and specialty artisan crafts support modest economic development. This approach to economic development provides quality-of-life amenities and builds on the country suburban character desired by residents.

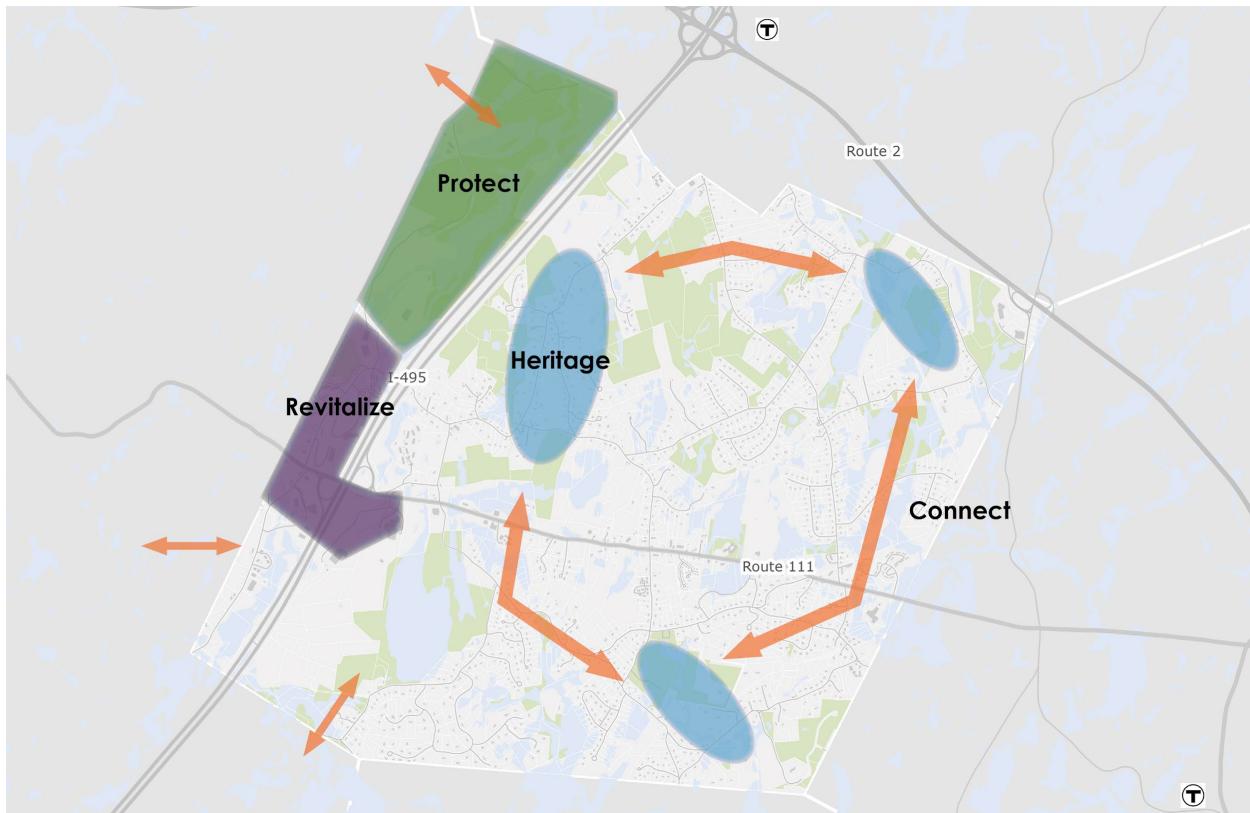
Agriculture, open space-related businesses, and community spaces emerges through zoning overlays in select locations around town, creating attractive destinations on an improved, connected, regional trail network. Land protection focused in the northwest corner of town preserves the high ecological value, limits the need for municipal services, and offers opportunities for education and recreation. Improving utility capacity and amending zoning where office park infrastructure already exists creates opportunities for new kinds of businesses, including facilities that support the regional food system. Using existing industrial capacity for agricultural food processing, storage/warehousing, and distribution facilitates a specialized, regional approach to economic development. New and improved quality-of-life amenities spread throughout Boxborough draw and retain a workforce for the revitalized office park.

This approach responds to themes in the *Boxborough2030* Master Plan that improve the quality of life and support environmental protection in Boxborough. This scenario diversifies, but does not maximize, commercial redevelopment. It does not focus economic activity in only one or two areas, but spreads economic opportunities more evenly throughout town. This scenario addresses qualities identified by seven goals stated in the master plan which have continued to garner support as evidenced in the 2019 Economic Development survey conducted in September. These desired goals are highlighted below:

Master Plan Goals

- Protect heritage, character, land, water, habitat, agriculture, recreation, trails & wildlife (1.1 + 1.2 + 1.3)
- Concentrate growth in Business park and foster participation in regional agricultural economy (3.1 + 3.2)
- Enhance quality of life services and pursue regional approach to open space and recreation (3.3 + 7.3)

Focus Areas



Map 10. Agricultural/Rural Scenario

Heritage

The three heritage focus areas are the central elements of this scenario. Their locations were selected because they contain viewsheds identified in the *Boxborough Open Space and Recreation Plan*, a high ratio of open space, land enrolled in the Chapter 61 (Agricultural) Current Use Tax Program, prime agricultural soils, and are close to historic assets (MAPC, 2015b). These areas are less constricted by water regulations, allowing more freedom to introduce businesses that require low-to-moderate water usage. Small natural heritage and agricultural lands are opportunities to grow community gardens or foster new small-scale agricultural, agritourism, and complementary small business opportunities. A small, but thriving, agricultural community can contribute to a regional local food system and take advantage of potential new storage and processing facilities in the existing Office Park zoning district.

Reducing restrictions on allowed uses and other requirements in the form of zoning accessory-use overlays allow the quality-of-life amenities Boxborough residents desire to establish themselves in the scenic parts of town. Accessory and small agribusiness uses that

align with Boxborough residents' interests may include farm stands, a country-store with a bakery, an event venue, or a cafe with local food products. More liberal permitted uses, achieved through a tool similar to Bolton's accessory-use bylaws may be needed to make this idea work.

Preservation of historical assets and promotion of new cultural assets also plays an integral role in the development of a unique local character in the Agricultural/Rural Heritage scenario. Increased support for historic building inventory, preservation, and historic tours would help preserve Boxborough's historic character. Meanwhile, greater support for arts could enliven the cultural amenities in town. While cultural events, funded in part by the Acton-Boxborough Cultural Commission, take place year-round, there are limited venues for events and affordable spaces for artists, performers, and makers (Sharon Garde, email communication, November 21, 2019). A community arts center or makerspace in a unique, rural Boxborough setting could support the town's existing artists and creative culture. Increasing support for the arts would further highlight the community as a unique destination in the region.

Development under the Agricultural/Rural Heritage scenario remains low-impact because it prioritizes adaptive reuse of existing buildings and design standards that reflect the historic character of the town. Permitting and zoning tools can incentivize restoration of existing unused buildings and adaptive reuse. Design guidelines, which currently exist only for the Town Center district, are a tool that can reinforce context-sensitive appearance of buildings.

Connect

This scenario proposes the creation of a more comprehensive network of trails by creating connections between existing trail systems, improving trailheads, and adding more ADA compliant trails. An improved network linking populated neighborhoods to economic destinations and other recreational opportunities both within and beyond Boxborough would improve quality of life for Boxborough residents and draw in others from the region.

Areas symbolized by the orange arrows illustrate opportunities for new or improved trails and trail connections. These opportunities include pedestrian-friendly road infrastructure and improved wayfinding that could cater to a variety of users, including equestrians, bikers, cross-country skiers, and users with limited mobility. Increased conservation spending would help to improve parks, trailheads amenities, and trail map resources, which would contribute to an improved experience for local residents and out-of-towners.

Out-of-town trail users could be attracted to Boxborough for the recreation-to-destination experiences throughout town. The *Boxborough2030* Master Plan survey found a desire within the community for places to stop while recreating in Boxborough: "There are so many people who bike, walk, & run on the roads of Boxborough it would be nice to have places to

stop and gather with other people or get a drink of water, or sit down for a moment" (MAPC, 2015a). An enhanced, regionally connected trail network linking unique destinations will improve upon existing recreational opportunities and complement a budding local rural-and agricultural-destinations economy supported by heritage focus areas.

Protect

This scenario proposes land protection focus area in the northwest corner of Boxborough to protect drinking water, preserve ecologically valuable areas, create recreational and educational amenities with regional draw, and limit the need to extend municipal services to outlying parts of town. The transition of the northwest corner of town west of I-495 to entirely open space aligns with the Sudbury Valley Trustees' (SVT) regional High Ridge Initiative, which identifies the value and need for land protection in the area where Boxborough, Harvard, and Littleton meet:

The nearly 2,000 acres of land with high conservation value include important wildlife habitat, drinking water protection areas, miles of public trails, and working farms and orchards, which currently maintain a balance of ecological and economic functions. Development trends and climate change threaten this balance if we don't act to protect it. (High Ridge Initiative, 2019).

Boxborough currently lacks large contiguous plots of conservation area making this an opportunity to provide an ecologically significant habitat for species migration and the State-recognized threatened species that live there. It is also the site of one of Boxborough's largest water aquifers, making conservation a priority for the health of residents.

In a similar way to the focus areas for connectivity, the protected areas (shown in green) provides opportunity for recreation and nature-based education. There is currently a popular network of trails in and around the Beaver Brook Cisco Campus that can be expanded for passive recreation. Passive recreation opportunities have minimal impact on the surrounding environment and can come in the form of walking, hiking, biking, and even horse-back riding trails and can be implemented on the short-term timeframe. Active recreation sites such as sports fields, mountain/dirt bike "pump" tracks, a driving range, or an ice-skating track, and are developed more along the medium-term timeframe. The area could draw grant-funding and regional attention for education and recreation under the banner of the High Ridge Initiative and with trail connections to other towns participating in the Initiative.

If comprehensive protection was pursued, any utility expansion through this area would require an environmental impact study component as part of the feasibility study. These studies would allow for a more informed decision on how to best utilize this particular

section of town as open space including opportunities for passive recreation and specific conservation efforts.

Revitalize

This scenario identifies a two-step approach to economic development in the revitalization area (marked in purple). The first step of this approach involves the easing regulatory restrictions which limit potentially beneficial uses and lot size requirements. The second step would involve attracting businesses that support the agricultural and local food businesses in other parts of town and the region. These approaches would require the Town to consider municipal water solutions to reduce limitations introduced by well and septic systems.

The revitalization area focuses on adapting industrial and office park spaces to support a local and regional food economy. A shared commercial kitchen could support Boxborough and regional entrepreneurs interested in creating value-added products in business growth and commercial outreach. There are opportunities to take advantage of the office park for growing agricultural products. An emerging approach to specialty farming called aeroponics leverages low rent indoor facilities for year-round agricultural production. This technology could help reduce vacancies and encourage year-round agriculture economies with farmers' markets and produce for restaurants.

Proximity to I-495 and Rt. 2 opens distribution channels to niche markets in eastern Massachusetts and Boston. The MAGIC Agricultural Report (2014) states that the region does not have sufficient processing facilities for the over 200 farms within a 30-mile radius of Boxborough generating edible products such as dairy, fruit, honey, meat, and vegetables (Massachusetts Department of Agricultural Resources, 2019). This scenario works to engage a larger community of specialty growers and farmers and fill the regional gap in food processing, warehousing, cold storage, and distribution services.



Opportunity for improving office park occupancy rates through indoor farming technologies like Aeroponics
(Source: Towerfarms.com)

Implementation Process

The Rural/Agricultural Heritage scenario requires an improved water supply, especially to the Office Park districts, increased spending on open space and recreation amenities, a

market feasibility analysis for agribusiness, and changes to the zoning—especially in the Agricultural/Residential zoning district. Boxborough may struggle to make farming and agricultural tourism viable given the current lack of agricultural activity, and may struggle to distinguish itself from neighboring towns taking similar approaches. However, Boxborough has the potential to carve out its own unique place in the region by studying the market demand and thinking creatively about how to tackle the following implementation steps.

Short-Term (0-5 years)

- Conduct a municipal water supply study, as implementation of municipal water infrastructure is a long-term project and relevant issues should be understood early
- Conduct a market feasibility study for agricultural food processing, cold storage, and distribution
- Increase the Town's conservation spending to improve trails systems and road crossing infrastructure

Medium-Term (5-10 years)

- Establish overlay zoning districts for accessory uses in residential and agricultural properties that allow for on-site sales, more vehicle trips, and more liberal signage permitting
- Continue to protect viewsheds and incentivize adaptive reuse of historic structures
- Change Office Park zoning to support mixed-uses and accessory uses, such as restaurants, light manufacturing, indoor recreation, retail, and potentially apartment-style housing units
- Engage community organizations that support agriculture and conservation to foster a stronger sense of rural community identity and facilitate opportunities for collaboration on marketing and investment

Long-Term (10-15 years)

- Establish a Parks and Recreation Department to support strategic management of natural resources
- Formalize community spaces to promote social events, family recreational uses, and other programming

Challenges to Implementation

As with all scenarios, the shortage of clean water in the Office Park and Agricultural/Residential zoning districts for commercial and agricultural activity poses a

significant limitation. Understanding the agricultural economy also poses a set of challenges. First, market demand and viability of agricultural employment in the region is uncertain. An initial review of Bureau of Economic Analysis employment trends since 2001 shows the metropolitan statistical area that Boxborough is in as having lower levels of farm employment compared to the nation and to Massachusetts. However, the metro area has had more consistent periods of farm employment growth. The existing supply of agriculture supporting facilities for storage and processing is also unknown. Secondly, there is limited available contiguous land in Boxborough for establishing agriculture and agricultural-related businesses. This scenario emphasizes the accessory uses that celebrate rural heritage more than farming enterprises, but a lack of working farms does present a challenge to the development of agritourism. Finally, Boxborough is surrounded by towns with similar natural heritage and historical assets. Shaping Boxborough into a truly unique destination with regional draw would require a good understanding of regional trends and a strong investment in consistent branding and placemaking strategy. Overall, this scenario provides a means to improve quality of life amenities while building new industries at the local and regional level. The opportunity for success will require patience and persistence to reach its full potential.

Indicators

Traffic (2 out of 5)

This scenario would likely result in a mild increase in traffic as a result of increased weekend trips. The optional industrial growth would generate truck traffic; however, this would largely be limited to the west of I-495.

- Connecting the trail network would draw recreational users to the town's trail heads and any supporting small businesses, likely on the weekends
- Connecting residential areas to recreational opportunities would allow pedestrian access to recreational spaces and reduce the reliance on automobiles
- Potentially reusing the office park district for regional agriculture-related business would generate trips west of I-495

Connectivity (4 out of 5)

Greater focus on the internal connection of local trails and sidewalks, as well as the external regional connections to neighboring towns, would greatly improve connectivity.

- Expanding pedestrian and recreational opportunities by linking existing trails throughout the conservation and residential areas east of I-495 and to improve accessibility for all trail users

- An improved trail network would connect Boxborough residents and visitors from neighboring communities to recreation-to-destination experiences across town

New Construction (1 out of 5)

There would be little new construction because this scenario emphasizes the reuse of existing buildings. The creation of heritage sites may entail additional accessory uses.

- Encouraging adaptive reuse and prioritizing the filling of existing spaces would enable the growth of small businesses
- Allowing more accessory uses in strategic locations would encourage the types of businesses that Boxborough residents desire

Municipal Water Utilities (2 out of 5)

Although beneficial for robust agricultural-related industry development, municipal water investment is not necessary for the majority of concepts presented in this scenario.

- Municipal water is recommended to serve high intensity agricultural processing, but existing capacity at Cisco may be enough for low-intensity uses of the office park
- Utilizing the office park spaces which have existing water capacity would not require municipal water investment, unless there is substantial expansion

Fiscal Health (2 out of 5)

This scenario proposes a new leg of the local economy, consisting of small businesses, quality of life amenities, and agricultural food processing to diversify the tax base. This scenario may create a positive outlook for small business and creative reuse, but a study of the viability of an agricultural economy is required. Initial studies by MAPC (2014) identified a regional shortage for agricultural storage and processing. Employment trends in the Boston-Cambridge-Quincy Metropolitan Statistical Area show lower levels of farm employment compared to the nation and to Massachusetts; however, the area has had more consistent periods of farm employment growth (Bureau of Economic Analysis, 2019). These additions to the economy would encourage growth of the existing tax base by improving home values in heritage areas, drawing a larger workforce, and addressing office park vacancy rates.

- Adding recreational options, small businesses, and heritage areas would increase home values by enhancing the town's quality of life amenities
- Encouraging tourism through agriculture-related businesses would help to diversify the tax base
- Developing cold storage, community kitchen, and agriculture-related industrial facilities have the potential to support the region's existing agricultural network

Scenario III – Village Style



The third scenario explored for economic development in Boxborough focuses on village style development in two locations in town: the existing Town Center District, and a Village Green at Adams Place. In the 2019 Economic Development Survey, village style development is defined as "...small-scale, compact and walkable areas with wide sidewalks and a mix of uses, including residential, office, and commercial amenities, such as restaurants and retail". Support for village style development was established in the *Boxborough2030* Master Plan, and echoed in the results of the 2019 Economic Development Survey.

The goals of village-style development in Boxborough are to primarily serve the needs of Boxborough residents, by providing dining and grocery amenities, community gathering spaces, and the preservation of historic assets. By locating the proposed village-style development at Adam's Place, close to I-495, it is also expected that this development would receive visitation from commuters and workers at the nearby office parks. In this way,

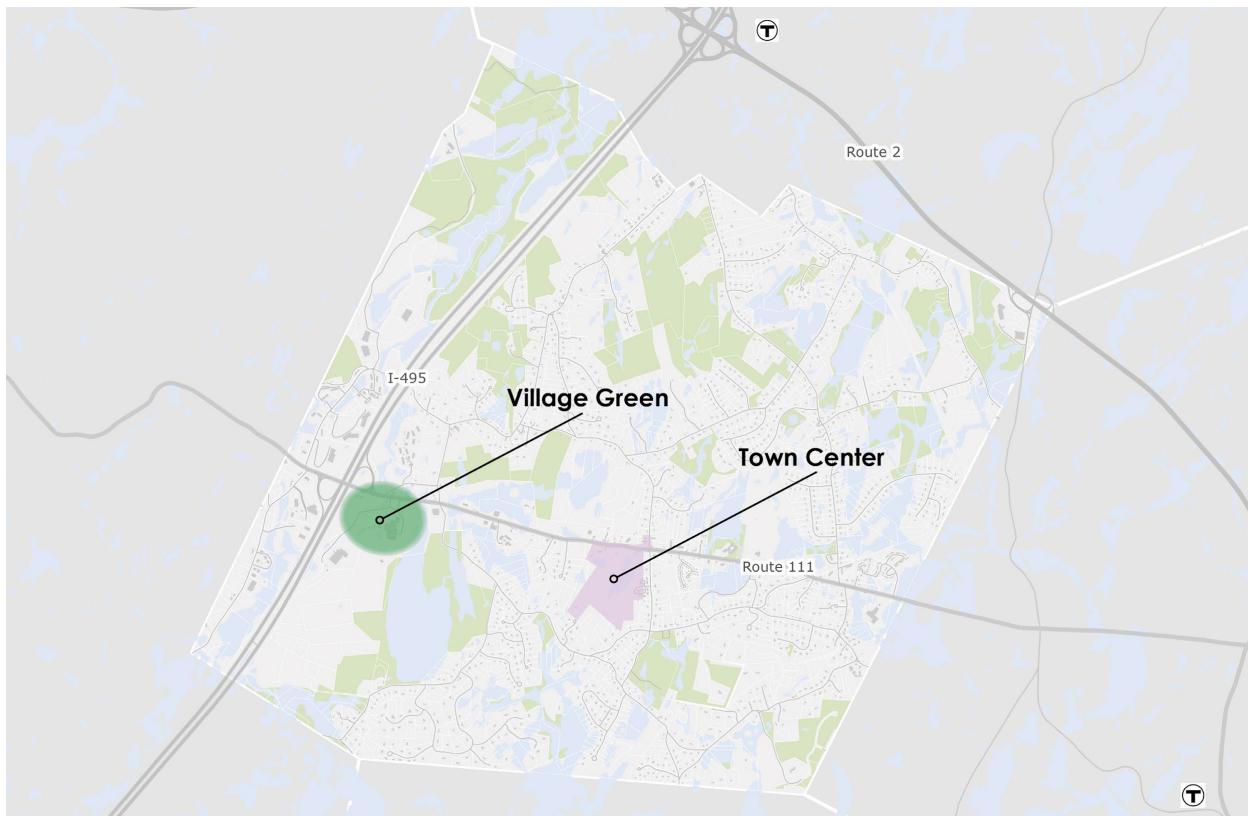
Boxborough can both reduce economic leakage and induce economic activity from the region. A current pattern of economic leakage is evident by the heat mapping activity in the 2019 Economic Development Survey.

The community gathering spaces were another identified need for the community - a place to come together that is not a home or a workplace, but a “third” place, where chance encounters occur and there is an opportunity to meet your neighbors.

Master Plan Goals

- Increase participation in town events and governance to reach greater consensus on the meaning of rural heritage and character, while creating social investment in its protection (1.1 + 1.2 + 2.2)
- Guide future commercial growth into the Business and Town Center Districts, attract amenities which enhance the quality of life for Boxborough residents (3.1 + 3.3)
- Maintain the existing quality of and allow for future expansion of municipal facilities and services (4.2)

Focus Areas



Map 11. Village Style Scenario

The locations for the Town Center and Village Green were selected based on environmental constraints, traffic considerations, and available land for development. The Village Green and Town Center are both located along Rt. 111, the main east-west corridor in Boxborough and the area with the most existing commercial and civic functions. Analysis demonstrated that the existing Town Center District likely could not support village-style development, due to wetland and wellhead buffers, the incoming Enclave housing development, and the historic nature of the buildings in this area. Therefore, this scenario outlines limiting new development in Town Center and focusing on the reuse of buildings to more civic and community functions. The Village Green is proposed for Adam's Place as a location to establish a more robust version of village style development.

Town Center District

Since the construction of the Church (1832) and Town Hall (1901), the 'Town Center (District)' has acted as the civic and cultural hub of Boxborough, connecting residents to police, the fire department, the library, and the elementary school. Given the existing business climate of Boxborough, the economic development of the 'Town Center' proves to be a critical point of interest; however, the constraints on development limit the viability of a large-scale economic development intervention there. To remain aligned with *Boxborough2030*, the results from the 2019 Survey, and the current uses of the area, this scenario proposes the 'Town Center' remain located in the current zoning district and allow for limited, controlled development and reuse of buildings toward civic and cultural purposes (e.g. cultural center, post office, historic preservation, etc.).

Village Green

The new Village Green will be located in the vicinity of the Adams Place property on Rt. 111. This proposal was modeled after the Lincoln Property Company's site plan for a village Green, including a municipal public safety building for Police and Fire. In addition, this development would feature small-scale commercial and dining amenities like a cafe, restaurant, and retail establishments. The intent for this development is that it would be self-sustaining, without the need for a large anchor tenant as found in the office parks and would instead be filled with small businesses. Due to the proposed location, there is an opportunity to tie into existing trail networks to the south and provide parking for hikers looking to access these trails.

Implementation Process

Achieving the proposals outlined in this scenario, the Village Green and Town Center, will require community engagement, updated zoning, outside investment, and possibly

increasing municipal water utility supplies. The challenges, approaches, and outcomes for each development proposal vary slightly based on their context, intensity, and intended use, however, there are common themes similar to both proposals.

Short-Term (0-5 years)

- Inventory vacant and/or historic buildings in Town Center
- Investigate utility expansion from Littleton and/or existing capacity at Adam's Place

Medium-Term (5-10 years)

- Implement form-based code in Town Center, restrict high-utility demanding uses
- Implement Village-Style overlay district along Rt. 111, allowing development of small-scale commercial
- Utility connections with Littleton or Adam's Place

Long-Term (10-15 years)

- Move public safety complex to Village Green development
- Develop a Community Cultural Building in Town Center

Challenges to Implementation

The challenges for village-style development include utility capacity and available land. Analysis of the available land in the Town Center District highlighted that wetland and wellhead buffers significantly reduce the amount of buildable land. Land availability is further hampered by the incoming Enclave development which occupies one of the last remaining undeveloped parcels in the Town Center district.

Water utilities are a major concern in Boxborough given that there is no municipal water and sewer serving the town. Any proposed development must factor in a plan for providing water and sewage, especially one that includes dining options which are water intensive. Regionally there are models of shared municipal services, where Boxborough could partner with a neighboring community or depending on demand look to utilize existing capacity at the office parks. Either option would likely require significant investment. Water utilities for Village Green present less of a challenge given there is likely additional capacity for water and sewer at the Adam's Place office park and this area is located closer to Littleton, providing the opportunity for utility expansion from this town.

Additional challenges for village-style development in Boxborough include the need to maintain the historical character of the town, which is a major asset. Boxborough residents are proud of the rural and historic character of the town, which is evident from the 2019

Economic Development survey and the *Boxborough2030* Master Plan. Village-style development would need to be designed in a way that maintains and enhances the vernacular architecture of historic New England and incorporates common green space, communal areas, and civic functions which were inherent to historic town and village centers. The challenge is to introduce new, modern amenities while harkening back to historic architecture and traditional village design.

Indicators

Traffic (3 out of 5)

- While the Village Green proposal will likely generate a modest increase in traffic, the location of the Village Green close to Interstate 495 means that fewer visitors will need to drive through Boxborough to reach their destination
- Proposed community and culture center in the center will slightly increase traffic

Connectivity (3 out of 5)

- The Village Green proposal ties into existing trail networks, providing a new destination and parking area for trail visitors
- Sidewalks are proposed within each of the new districts providing connectivity within the Town Center and Village Green
- Long term goal is for sidewalks along Rt. 111, providing connectivity
- A long-term goal is to provide shuttle service between the Town Center, Village Green, and MBTA stations, with a focus on serving seniors and the disabled

New Construction (3 out of 5)

- Village Green proposal constitutes a significant construction project and will require new construction of roughly 30,000 sq. ft. of commercial space

Municipal Water Utilities (3 out of 5)

- The Village Green development proposal will require investment in water and sewer utilities

Fiscal Health (4 out of 5)

- Significant improvement to fiscal health
- Adds a variety of small businesses, diversifying the tax base away from strictly residential

Scenario IV – Comprehensive Approach



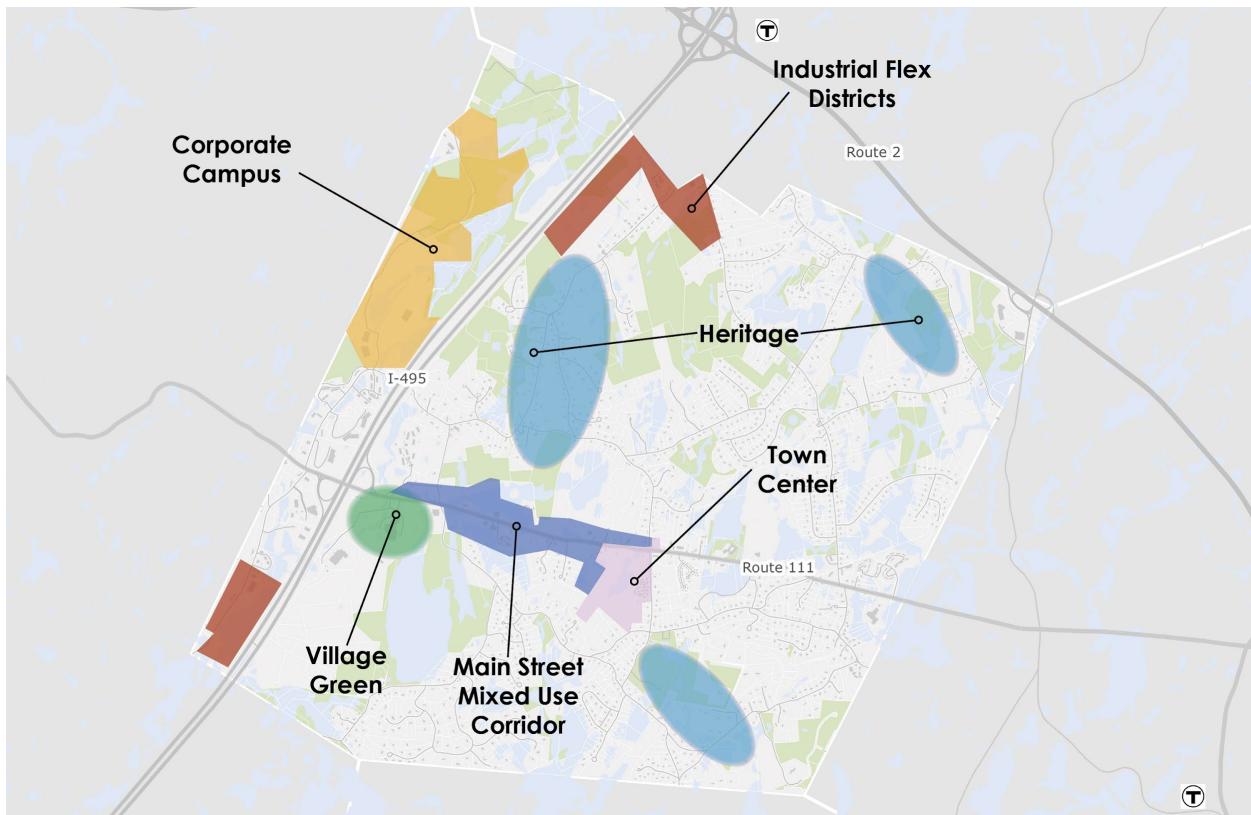
The fourth and final scenario explored for economic development in Boxborough expands on the previous two (Rural/Agricultural Heritage and Village Style) with the aim of reinvigorating existing commercial districts and diversifying the economy in order to attract and retain a 21st century workforce.

This scenario takes advantage of all of Boxborough's assets: the existing corporate campus infrastructure, proximity to I-495 and Rt. 2, and agricultural landscapes, while mediating between residents' desire for both economic development and protection of their rural heritage. This approach amplifies synergies between all districts to maximize efficiencies between them (see Figure 22. District Synergies Diagram).

Master Plan Goals

- Foster the business environment within Boxborough and seek to attract key existing and emerging industries to desired districts that support and diversify the Town's tax base and improve resident quality of life (3.1, 3.2 + 3.3)
- Improve accessibility of transportation options for all age and income groups, focused on regional partnerships and interconnection (7.1 + 7.2)
- Preserve the town's natural and historic scenic areas, regional open space and recreation areas, and the character of Boxborough's rural landscape (1.1, 1.2 + 7.3)

Focus Areas



Map 12. Comprehensive Approach Scenario

Route 111 Mixed-Use Corridor

The district aims to connect Adam's Place (Village Green) with the Town Center proposed by the Village Style scenario through the development of Rt. 111 into a vibrant commercial corridor. It encourages appropriately scaled business development, commercial amenities, and housing, which were identified as desirable by citizens through our surveys and the master planning process. The district invests in pedestrian and bike infrastructure aligned

with the MassDOT Complete Streets Prioritization Plan, and makes connections with other trail networks (see Map 13. Boxborough Complete Streets in Appendix A).

The Corridor will serve Boxborough residents by providing both workspaces, for the many home business owners in town, and third-spaces, like cafes and community gathering spaces for all residents. It will also serve agricultural businesses within town by providing small commercial spaces to sell local produce and goods. The location of the district, connecting to the Town Center from the west, maintains geographic disparity from West Acton Village, and will draw Boxborough residents that might otherwise look elsewhere for goods and services.

Corporate Mixed-Use Campus

The Scenario aims to fulfill the potential of the former Cisco campus by capitalizing on developable land and underutilized water capacity. In order to fill these office spaces for the long term, this Scenario envisions new buildings and renovations to existing ones in order to modernize work spaces and provide amenities that appeal to the 21st century workforce. The updated Corporate Campus will provide a mix of uses to residences as well as employees, such as restaurants, cafes and fitness options, as well as urban design decisions that appeal to young professionals. Multiple tenants should be pursued to fill campus vacancies rather than one anchor institution, that will make the district more resilient to economic uncertainty and prevent future large-scale vacancies.

If fully realized, the Corporate Campus will be well-positioned to serve both the town and the wider economic region. It also provides a strategy to eliminate existing tax abatements and provide steady tax revenue from more highly-valued commercial real estate. The Corporate Campus is well positioned in the region to attract employment sectors that have clustered along I-495, and provide quality jobs that will draw people to the Village Green residences (see Village Style Scenario) as well as Greater Boxborough.

Flex-Industrial Districts

The Flex-Industrial Districts address the existing Commercial/Industrial zones which keeps negative impacts from industrial uses to a minimum, allows for re-use of existing spaces, and capitalizes on warehouse infrastructure and proximity to the I-495 interchanges in Boxborough and Littleton. The current zoning will be updated to increase flexibility of uses, while heavily regulating nuisance, which will position these districts to accommodate industries of the future and remain productive and viable sources of tax revenues through market unpredictability.

Industrial uses will be encouraged that will serve the Town's other commercial districts. Research and Development, technology, and other innovation sectors that are well-served

by light industrial spaces will be encouraged in these districts, complementing industries that may locate in the Corporate Campus. Uses supporting the Rural/Agricultural districts will also be encouraged, such as vertical farming, agribusiness, cold storage, and distribution.

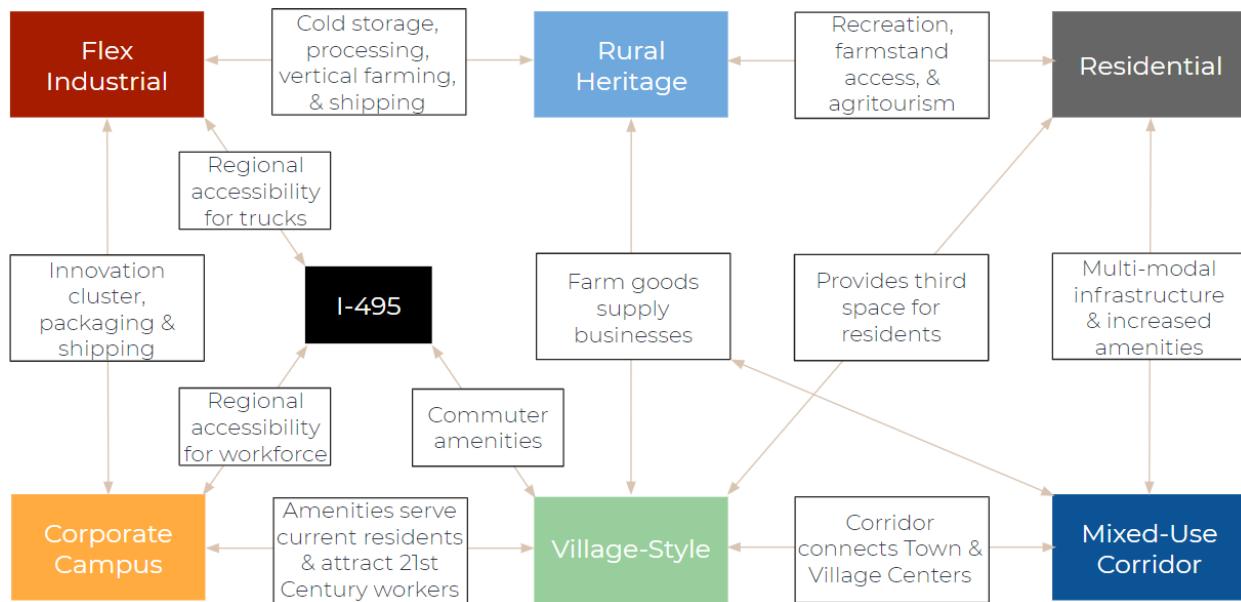


Figure 22. District Synergies Diagram (Source: UMass)

Implementation Process

Bringing this Scenario to life will require town-wide implementation strategies, carried out over the short, medium, and long-term.

Short-Term (0-5 years)

- All districts within the Scenario will require zoning changes to minimize dimensional and parking requirements to accommodate new development and make the Rt. 111 corridor walkable
- Mixed-use overlays in office park districts and along Rt. 111 specifically will encourage a mix of new, desired uses
- More streamlined permitting process to encourage new business development, which is currently a barrier for businesses that was highlighted by the Business Breakfast

Medium-Term (5-10 years)

- Develop a marketing strategy for the Corporate Campus and other commercial real-estate to generate interest in Boxborough's economic potential
- Explore municipal water partnerships with adjacent towns, particularly Littleton, which has considered a shared water district in the past
- Keep an eye towards emerging regional industries in the medium-term, ensuring that new businesses are part of sustainable trend

Long-Term (10-15 years)

- Maintain a balanced, appropriately-scaled economic base resilient to changing market forces.

District-Specific Implementation Strategies

The Scenario recommends the following measures to help realize the specific districts proposed in its comprehensive vision for the town.

Rt. 111 Mixed-Use Corridor

The first step in implementing the Mixed-Use Corridor is to revamp the zoning bylaws for Boxborough. The Town has already made progress by approving a zoning bylaw audit at the December 10th Special Town Meeting. The zoning audit will identify where the zoning bylaws are confusing, incomplete, or incongruent with implementing a Mixed-Use Corridor and moreover the vision of the Master Plan. Based on the zoning audit, the Town should rewrite the zoning to allow for a mixed-uses e.g. commercial first floor and residential on any additional floors. These changes can be done through an overlay district, or form-based code, whereby the aesthetics and physical form dictate the bylaws. In the zoning update, the Town should also consider loosening dimensional requirements, which will allow infill development and structures to be placed closer together and closer to the street to improve walkability. The Town should consider conducting an additional water feasibility study on the possibility of having municipal water/sewer along the Rt. 111 corridor.

The short to medium term goals for the Town will include implementing the MassDOT Complete Streets Prioritization Plan, which includes Rt. 111 and other pedestrian improvements (see Map 13. Boxborough Complete Streets Prioritization Plan in Appendix A). The Town should further invest in infrastructure that calms traffic, and consider the Complete Streets interventions to encourage cycling. Over time the Corridor will serve as a transit link between the developing Village Green and Town Center.

Corporate Mixed-Use Campus

In the short-term, the Town may consider exploring marketing strategies to catalyze private investments in the office park. The Town should take steps to improve consistency in permitting to streamline private developer negotiations and partnerships with the Town. The ongoing effort by the Economic Development Committee "[i]ndex commercial development opportunity sites for potential private acquisition, assembly, or development" (*Boxborough2030* Master Plan) is another critical step towards catalyzing investment in Beaver Brook and other sites.

The Scenario supports applying an overlay over office parks to allow mixed-use redevelopment including residential and specific commercial uses which support the main purpose of the zone (e.g., childcare, dry-cleaning, food and fitness). The overlay will improve the ability of the campus to attract and retain talent with an offering of urban amenities and transportation.

In the long term, the Town should continue ongoing resident engagement and explore how local businesses might be interested in sponsoring various municipal initiatives. Among these may be developing a shuttle service to serve the Corporate Campus through the CrossTown Connect Transportation Management Program (see Appendix C: Transportation Programs), which Boxborough could consider rejoining.

Beaver Brook Site

The on-site amenities available at Beaver Brook, an area of the Corporate Campus District, can currently support the development of the site. The area has 500,000 sq. ft. of potential commercial space between two sites. When reviewing development plans for the site, the Town can advocate for mixed-use development and represent resident preferences. Traffic impact studies can inform if a private-public partnership on transportation improvements relevant to Beaver Brook is necessary.

Continued public access to the open space on the site, including parking, should be incorporated into plans and permits for site improvement at Beaver Brook. Finding a developer who embraces the use of green infrastructure and progressive design standards is beneficial to modern corporate campuses, such as Toyota's HQ in Plano, TX. Recent research suggests a link between financial resiliency and green infrastructure for office parks.

This site was previously improved to become the Cisco Beaver Brook Campus by Société Générale Financial Corporation and Cisco Systems Sales and Services, Inc. after the Town of Boxborough agreed to reduce the sites' property tax bills by 15% over 20 years. If the office space market does not support filling the vacancy of Beaver Brook without financial incentives, then the Town may choose to again consider reduced tax rates, abatements, tax-

increment financing or district-improvement financing (see Appendix C: Financial Tools). Comparable tax break negotiations have been seen recently in Foxborough with Schneider Electric, in Maynard, with an abandoned mill site development, and in Canton with Spear Street Capital.

Depending on the financial tool, various steps and timeframes will be required to implement reduced taxes, TIF or DIF (see Table 3. Comparison of TIF and DIF Implementation). A discussion on the benefits and tradeoffs of these tools are discussed in the Existing Conditions and Financial Tools sections of this report.

Flex-Industrial Districts

The first step towards realizing the Flex-Industrial Districts is conducting an inventory of existing warehouse space and industrial properties to determine whether additional or upgraded space is required for desired uses. Subsequently, the Town should update the zoning bylaws of the Industrial/Commercial zones, or create special zoning districts within these zones, to further geographically delineate these areas. Given the similarity of these districts to existing zoning, these changes will be minor, but will allow for both light industrial uses with commerce-related activities.

Other necessary steps may include the installation of water infrastructure and constructing new highway on-ramps for industrial traffic, both of which may involve collaboration with adjacent towns. The northern Flex-Industrial District is adjacent to Littleton while the southern District is adjacent to Harvard. Either of these towns may benefit from the shipping capacity of these zones, and thus may be willing to participate in a joint investment. The on-ramps would further allow traffic generated by the Districts to remain isolated from Boxborough residential life.

An example of the possibilities for the Industrial Flex District is found in North Andover, located north of Boxborough along I-495. The Town voted to approve zoning amendments and extend a sewer line in June 2019, allowing for the development of an Amazon distribution warehouse that will employ up to 1,500 workers.

Indicators

The Comprehensive Approach Scenario is a culmination of all the previous scenarios and therefore has higher indicators than all the other scenarios. The following section discusses the reasons for these higher scores.

Traffic (4 out of 5)

- Traffic impacts from the Agricultural and Village Style scenarios' interventions, with the addition of traffic from warehouses and the Mixed-Use Corridor along Rt. 111
- Impacts of Commercial/Industrial traffic from the warehouses will be mitigated by their proximity to I-495 and Rt. 2
- Traffic impacts of the Mixed-Use Corridor will depend on the land uses chosen as the district develops, with certain uses generate more vehicle trips than others

Municipal Finance (5 out of 5)

- Additional obligations to maintain physical infrastructure for the municipality
- Tax abatements will terminate as vacancies are filled
- Tax revenue will increase as home values in Boxborough will be influenced by the quality of life improvements and job accessibility
- Town's municipal budget will rely less on residential taxes
- Local property values may be more resilient to changing taste and behavior due to increased diversity in land uses and amenities
- Jobs will increase, become more varied, and be more resilient to changes in markets

New Construction (4 out of 5)

- Envisions construction required for Village Green and Town Center districts along with infill development along Rt. 111 and build-out of the corporate campus
- New construction along the Mixed-Use Corridor will include accessory buildings that make better use of developable land within existing commercially-used parcels
- Additions may also take advantage of loosened dimensional requirements and less restrictive setbacks
- Warehouse space will utilize existing industrial building and may be expanded to accommodate increasing demand for industrial space

Municipal Water (4 out of 5)

- Expanding municipal water to allow for a diversity of businesses along Rt. 111
- Utilizes untapped water capacity at Cisco

Connectivity (5 out of 5)

- Number of connections made, transit options, and the linear feet of infrastructure
- Maximizes the level of connectivity, through linking trail networks, improving pedestrian and bike infrastructure, regional transit options, and wayfinding

Scenario Development Survey

Following the creation of the four scenarios discussed above, a survey was created to solicit feedback from the community on their perceptions about the scenarios in the context of their vision and economic development goals.

Survey Format

The Scenario Development Survey was conducted in two sections, the first section directly collected feedback on the individual scenarios and the second collected general demographic information. The demographic section was intended to provide context to responses and allow for comparison against the economic development survey conducted earlier.

The scenario portion of the survey was premised on three key issues: (1) whether or not the described scenario fits the character of Boxborough, (2) whether or not the respondent feels that the described scenario supports economic development, and (3) whether or not the described scenario aligns with the respondents' personal vision for Boxborough. Respondents scored each of the four scenarios for these key issues. Each of these three key issues was scored on scale, 1 to 5, with 1 being strongly disagree, and 5 being strongly agree. Additionally, respondents were asked two open-ended questions per scenario: (1) what excites the respondent about the given scenario, and (2) what concerns the respondent about the given scenario.

Scenario Development Survey: Key Themes and Findings

The town has asked that this survey remains open through the end of 2019 when final results will be collected and disseminated to the town. At the time of analysis (December 2019) the preliminary survey results reveal that residents largely agree that the current course is not working, but there is little agreement on the scenario that most appropriately balances Boxborough's character, economic development, and individual visions (see Figure 23. Preliminary Survey Result: Scenario Preference Questions). Water, sewer, traffic, and environmental impact are identified as major concerns for all of the scenarios, excluding the baseline scenario.

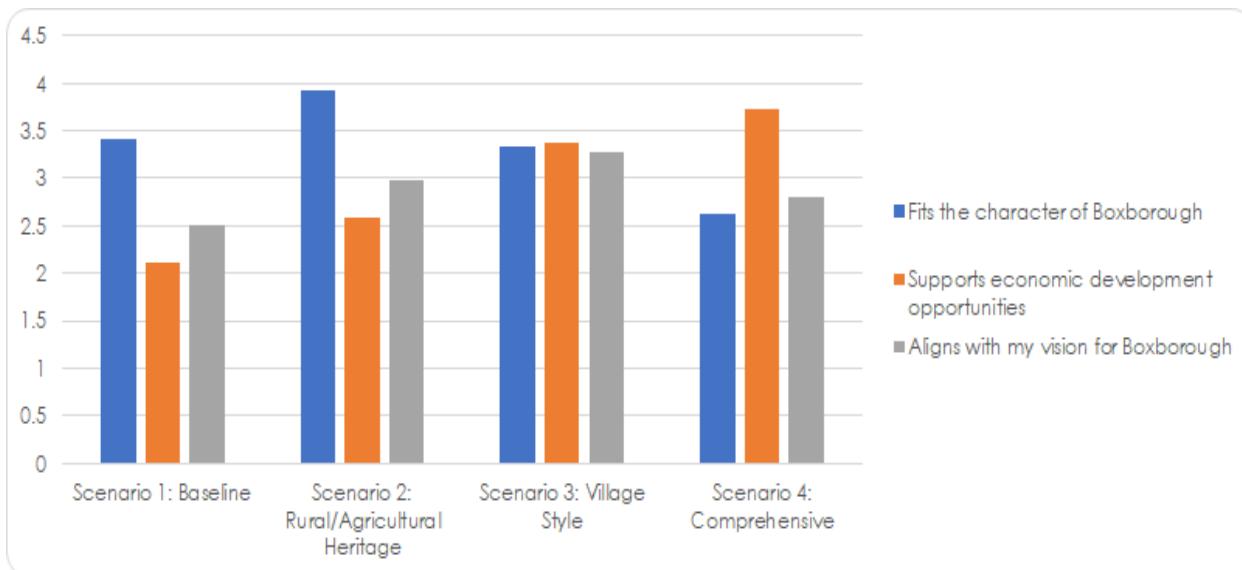


Figure 23. Preliminary Survey Result: Scenario Preference Questions
(Source: 2019 Scenario Development Survey Responses)

Residents also have ambiguous and conflicting views of Boxborough's character, community vision, and town-appropriate economic development. The relationship between property taxes, municipal services, and long-term economic development is not well understood and should be further clarified to ensure informed decision making.

Conclusion

Boxborough is an engaged community pursuing thoughtful and sustainable economic development from a variety of perspectives. This approach is needed to address increasing office park vacancies, a shifting and vulnerable tax burden, and the lack of resident-desired amenities while balancing preservation of the community's rural heritage and character. The *Boxborough2030* Master Plan provides important direction and for balancing competing concerns and needs as the town furthers economic development. The research and technical assistance provided in this report support ongoing economic development planning efforts.

This study has identified enthusiasm for small-scale commercial amenities, revitalization of existing properties over new development, and village-style commercial development. However, some commercial amenities do not currently exist because their development has not been compatible with current zoning and physical constraints. Additional sewer capacity (Cisco and Regency) and possible municipal water infrastructure in western Boxborough may provide the opportunity to develop the kinds of amenities outlined in the *Boxborough2030* Master Plan. Ongoing zoning analysis, combined with the results of Phase 2 of this study, will inform which zoning changes, marketing and incentive strategies, and physical investments could be made to make the community's vision more possible.

The scenarios presented respond to the economic development needs of the community and the desires of the public as stated in the master plan and community engagement activities. These scenarios are not mutually exclusive and are designed to be exploratory and educational in nature. Preliminary responses to the scenarios indicate that residents largely agree that the current economic course is not working, but there is little agreement on which scenario most appropriately balances Boxborough's character, economic development, and individual visions. Residents feel that water, sewer, traffic, and environmental are a major barrier for all of the scenarios, excluding the baseline or current course scenario.

Conflicting opinions on where Boxborough should be and what the character of the community will continue to pose a challenge for future development planning. However, the existing conditions and the preliminary scenarios presented in this document should act as the new starting point for thoughtful economic development. These scenarios produce a spectrum of options to help define what economic development means for Boxborough. Phase 2 of this study will provide an opportunity for further engagement through a planning charrette and more detailed economic impact analysis.

Appendix



Appendix A: Maps

Appendix B: Zoning SWOT Analysis

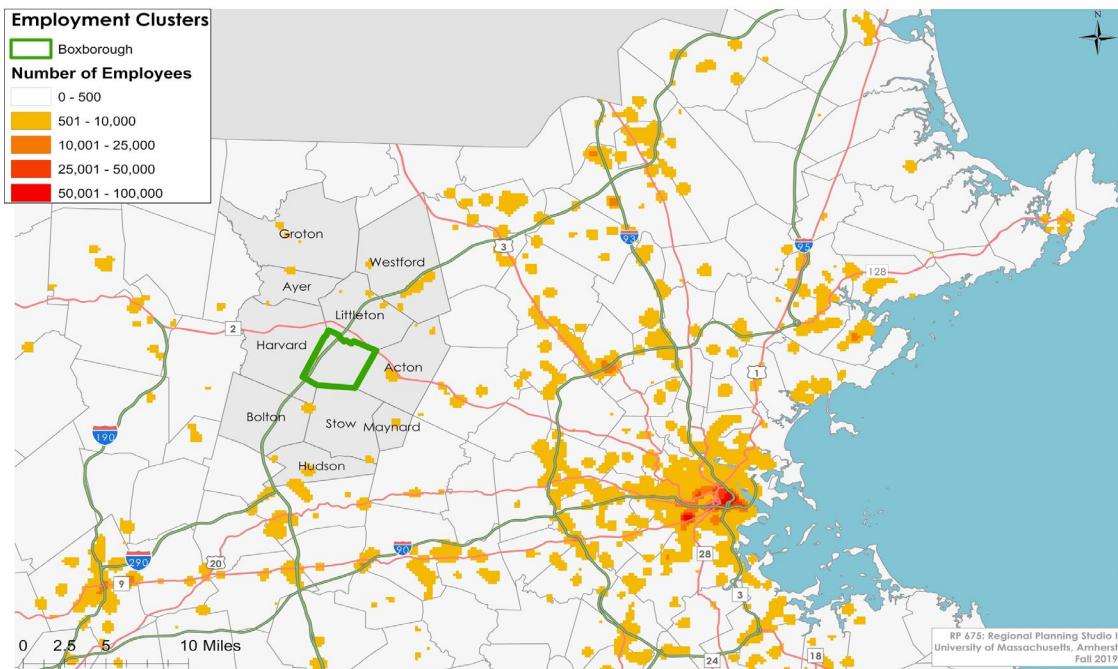
Appendix C: Land Use Tools & Innovative Strategies

Appendix D: Regional Context & Case Studies

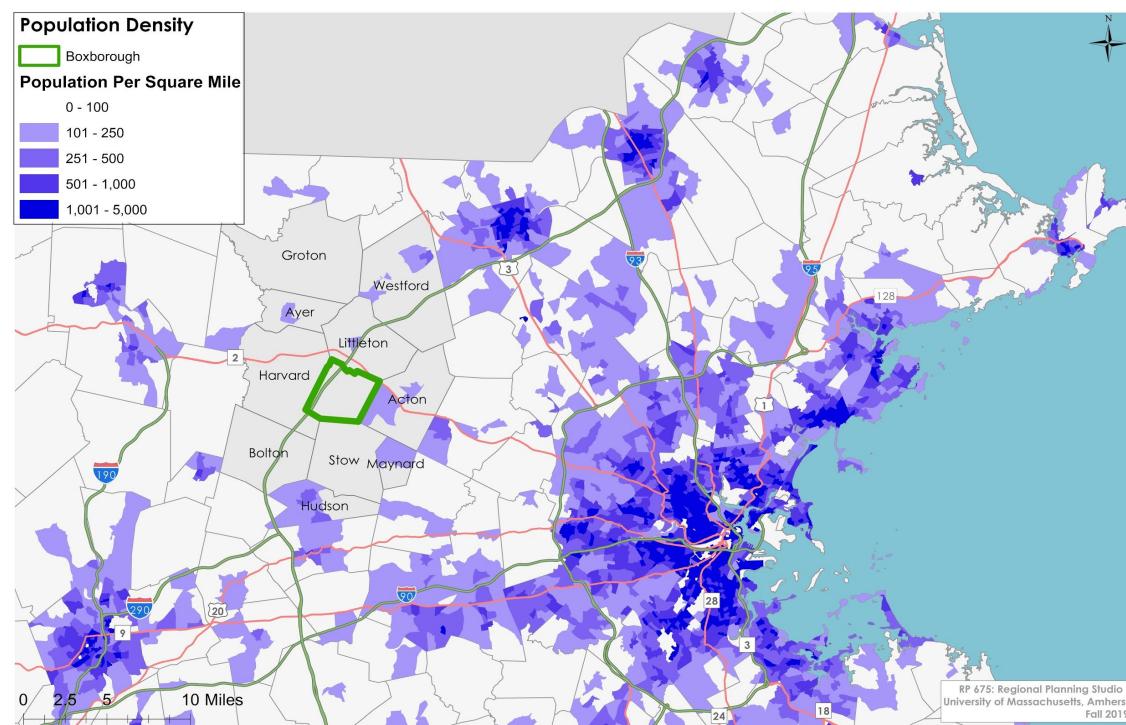
Appendix E: References

Appendix A: Maps

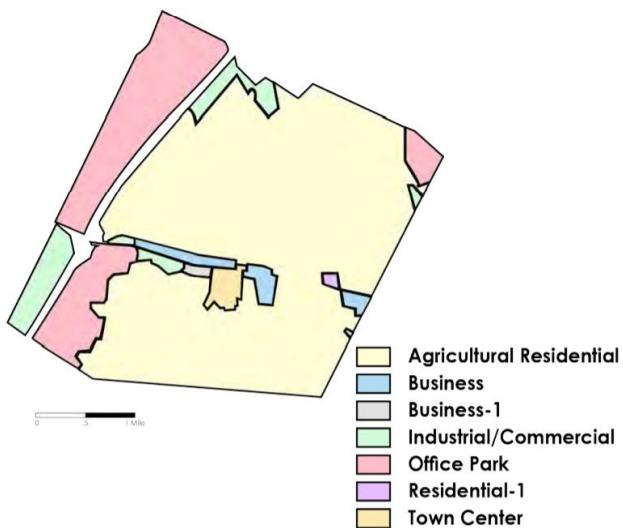
Map 1. Regional Context: Employment Clusters (*Source: MA GIS and EOEEA*)



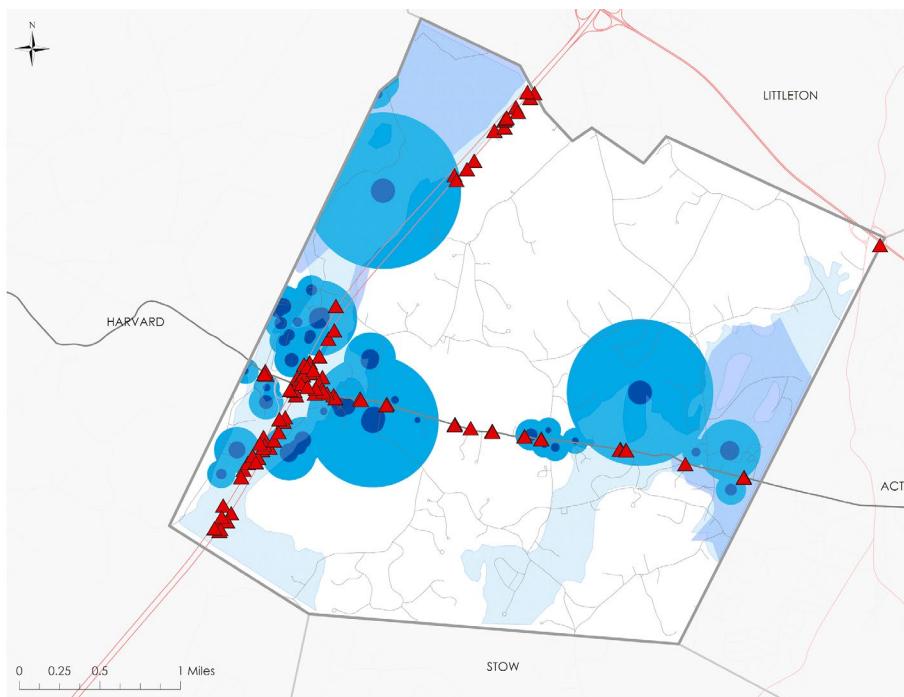
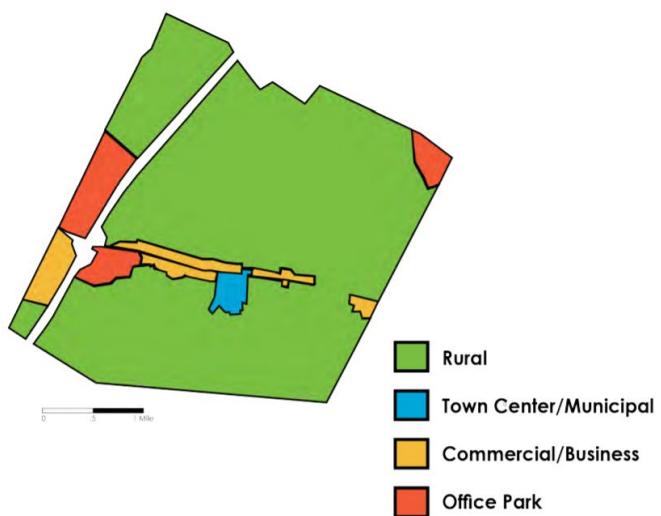
Map 2. Regional Context: Population Density (*Source: MA GIS and EOEEA*)



Map 3. Zoning Districts
(Source: Town of Boxborough)



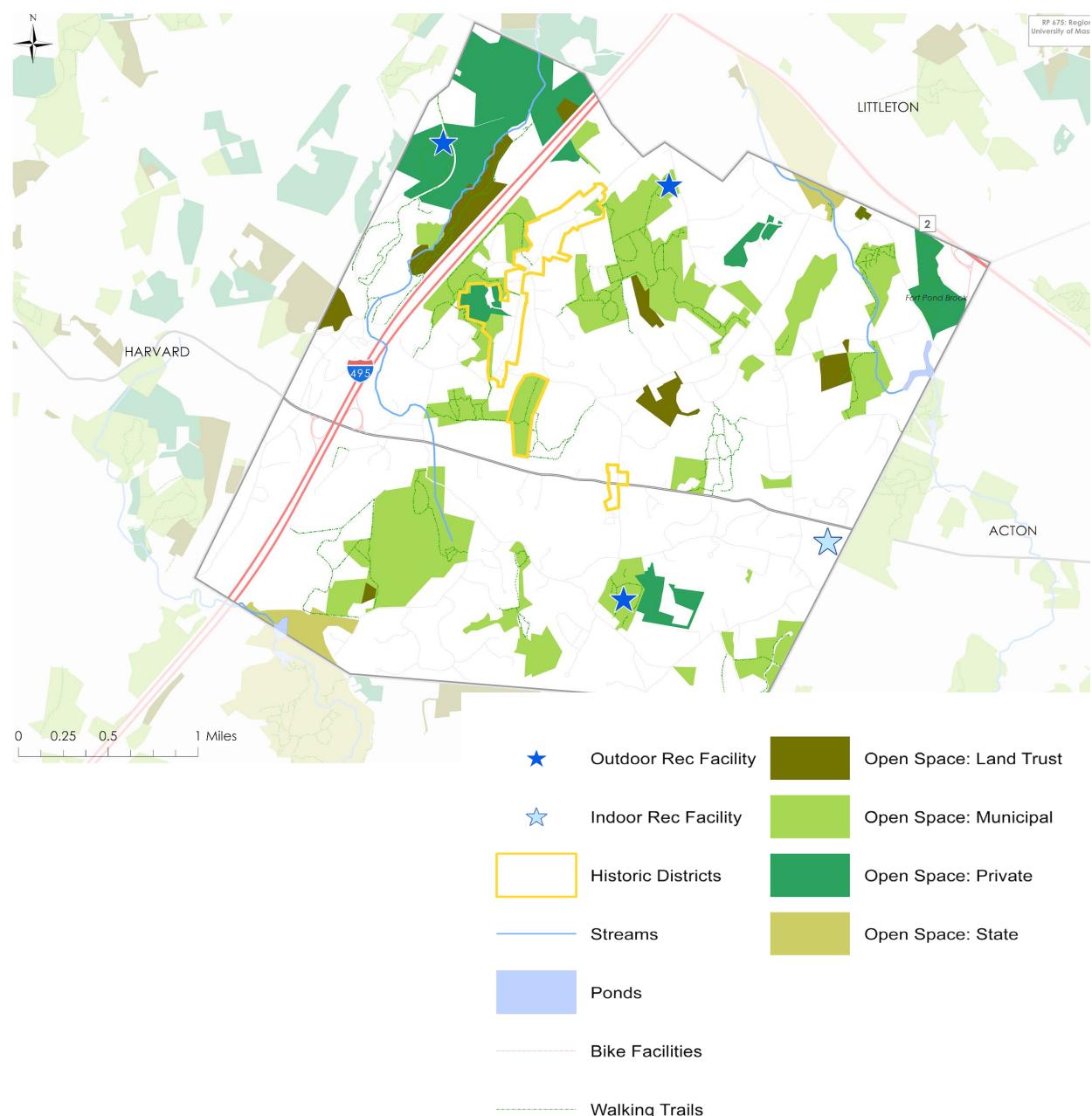
Map 4. Land Use Patterns
(Source: visual analysis)

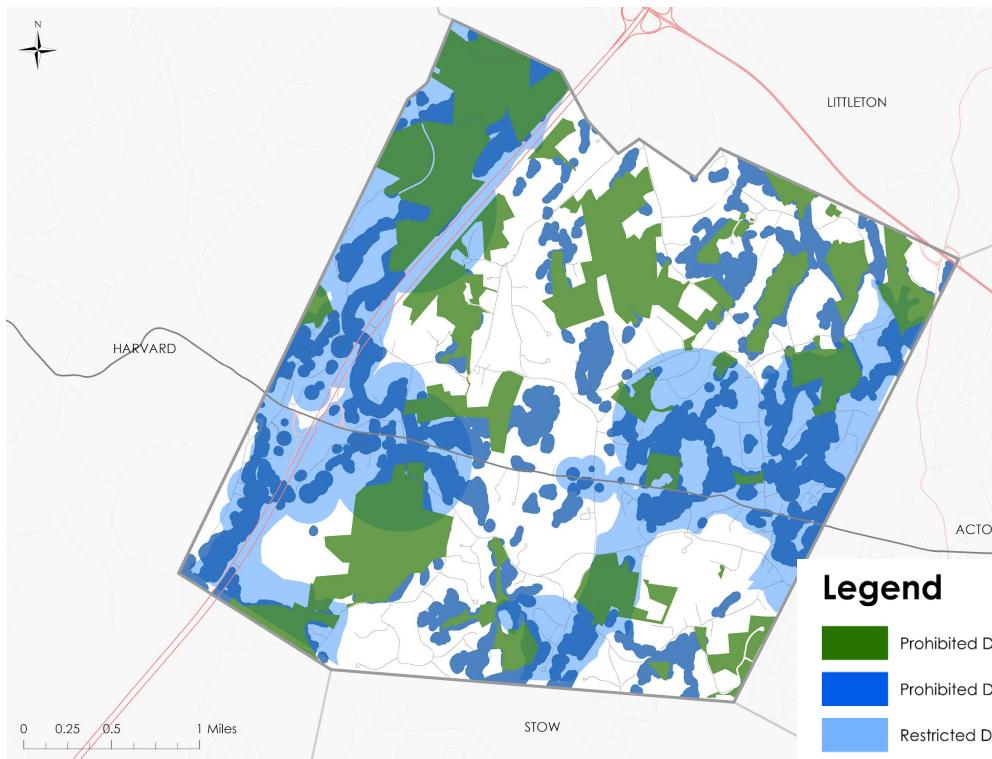


Map 5. Water Constraints & Stormwater Catchment Drain (Source: MassGIS & Mass DEP)

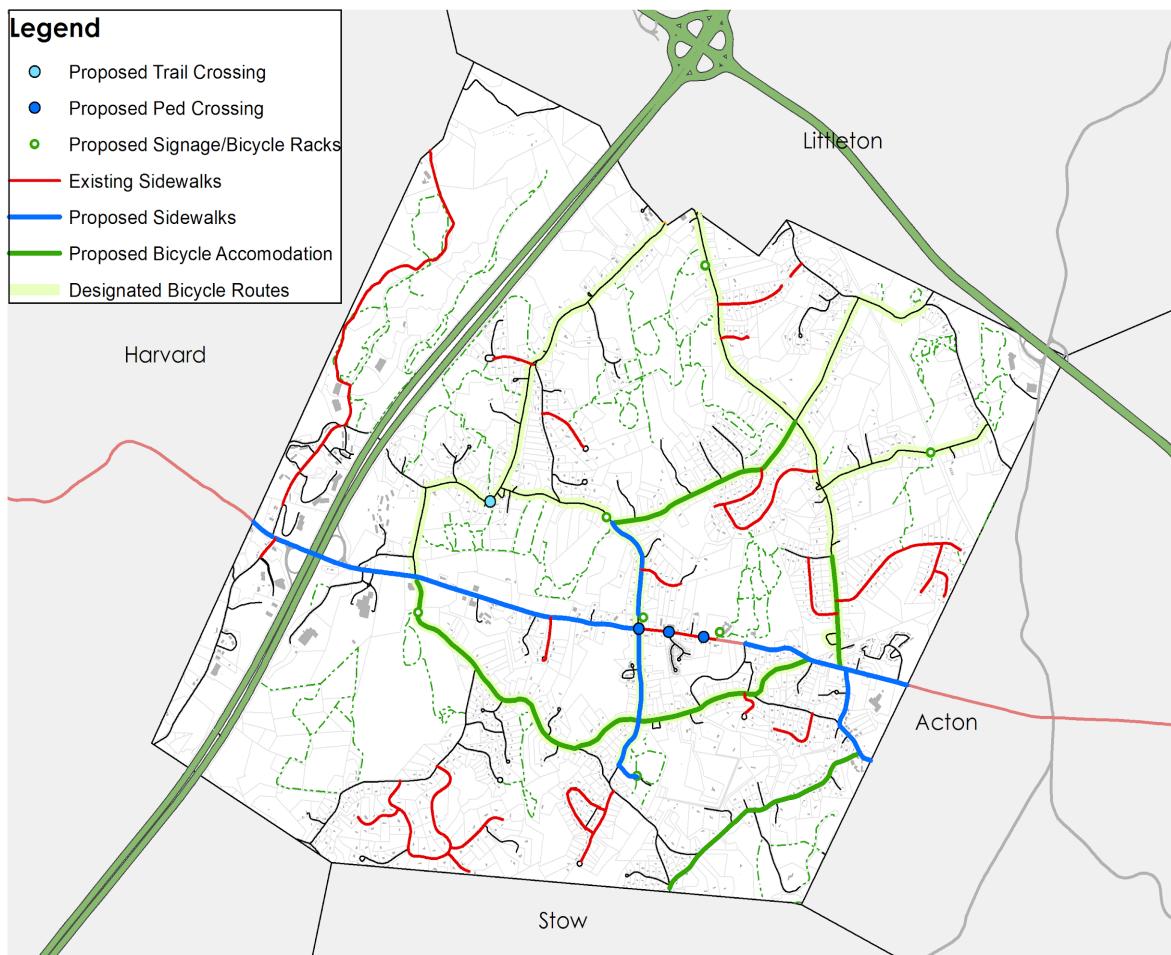
Legend

Map 6. Open Space, Recreation & Historic Resources
 (Source: Mass GIS, Town of Boxborough)





Map 13. Boxborough Complete Streets Prioritization Plan
(Source: MassDOT [digitized by UMass])



Appendix B: Zoning SWOT Analysis

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix C: Land Use Tools & Innovative Strategies

Zoning

An overlay zone is a tool that can be used by municipalities to preserve the character of the town, keep historic buildings, or maintain natural resources. Overlay zones are placed over existing zoning, have additional requirements, and can be used in conjunction with other incentive strategies to encourage mixed-use and low-impact development, water conservation districts or incentive other desired land-use outcomes. Overlay zoning is used to encourage flexible parking requirements. Overlay zoning can be used on all four scenarios that we propose.

Incentive zoning is a reward-based procedure where developers are offered additional rights for meeting municipal development goals. This tool can be used to get public benefits like parks, sidewalks, municipal buildings, or housing units. It is a great tool for municipalities looking to change specific sites that can be used with other zoning tools, but can be difficult to get public support if they do not understand the process. Additionally, it is usually used for towns seeing significant development pressure and can be difficult to implement. No peer communities identified used incentive zoning.

Design guidelines can determine the character of a place as much as zoning requirements. Boxborough has design guidelines applicable to the Town Center area only, which controls facades, building openings, structure massing and spacing, placement and orientation of buildings within a lot, architectural details, materials and colors, roof slopes and shapes, signage, lighting, and landscaping. Master Plan Action 1.2.1.1 suggests review of these guidelines to ensure alignment with current community desires.

Village Design, Rural Placemaking & Smart Growth Resources

1. "Village Guidance: Tools and Techniques for Rhode Island Communities" by Peter Flinker. Published 2015. Electronic copies available on the Rhode Island Department of Environmental Management, Narragansett Bay Estuarine Research Reserve and Division of Planning website: www.planning.ri.gov
2. "Writing Village Center Bylaws" presentation at the MA Citizen Planner Training Collective Spring 2019 conference. Created by the Barrett Planning Group, LLC. <https://masscptc.org/docs/conference-docs/2019/cptc-conf19-18-Village%20Center%20Zoning.pdf>

3. "Putting Smart Growth to Work in Rural Communities" by the Smart Growth Network. Published 2010, ICMA. <https://www.epa.gov/smartgrowth/putting-smart-growth-work-rural-communities>
4. "Smart Growth Self-Assessment for Rural Communities." 2015 EPA publication. <https://www.epa.gov/smartgrowth/smart-growth-self-assessment-rural-communities>
5. "Essential Smart Growth Fixes for Rural Planning, Zoning, and Development Codes." 2012 EPA publication. https://www.epa.gov/sites/production/files/documents/essential_smart_growth_fixes_rural_0.pdf
6. "Enhancing Local Character." Produced by the Heart and Soul Process Phase 4 by the Orton Family Foundation, 2015. <https://www.orton.org/wp-content/uploads/2017/03/enhancing-local-character.pdf>
7. "Rural Placemaking: Making the Most of Creativity in Your Community." Published in *Rural Voices*, summer 2017. <https://www.rural-design.org/resource/rural-placemaking-making-most-creativity-your-community>
8. "Rural Policy Plan for the Commonwealth of Massachusetts." Prepared by the Rural Policy Advisory Commission, October 2019. https://frcog.org/wp-content/uploads/2019/10/Rural_Policy_Plan_10.01.19.pdf
9. "Saving Land, Water, & Money with Low Impact Development." Prepared by the Massachusetts Audubon Society. <https://www.massaudubon.org/our-conservation-work/advocacy/shaping-the-future-of-your-community/saving-land-water-money-with-lid>
10. "Metro Atlanta ranks 3rd in nation for green-certified office buildings." Saporta Report, November 20, 2019. <https://saportareport.com/metro-atlanta-ranks-3rd-in-nation-for-green-certified-office-buildings-cbre/>.
11. "The Suburban Office Park, an Aging Relic, Seeks a Comeback." NYTimes, November 19, 2019. <https://www.nytimes.com/2019/11/19/business/suburban-office-park-comeback.html>.

Financial Tools

Tax abatements are a strategy to make a municipality a more attractive area to invest in, by increasing the returns for investors (Dalehite, Mikesell, & Zorn, 2005). They are a financial incentive tools used by municipalities where the property owner gets a temporary reduction or elimination in the taxes on eligible properties. The municipality creates and set the terms of the agreement. While a town may see development on a property or a zone that uses tax abatements, they are forgoing taxes on a property that may have been developed anyway. Property taxes are usually the lowest cost for businesses (see Figure 24. Input Costs as Share of Total Costs for Manufacturing). Tax abatements are generally not favored by tax-payers and Boxborough has had experience where a company was given an abatement, but because of the economy was unable to develop the property to the extent that they proposed. Giving out tax abatements should be cautioned that municipalities get into an incentive war, offering more and more tax abatements to businesses and further artificially decreasing tax rates (Kenyon, Langley, & Paquin, 2013). Furthermore, an analysis should be conducted to see if the loss in tax revenue is more than the cost of municipal services used by the business.

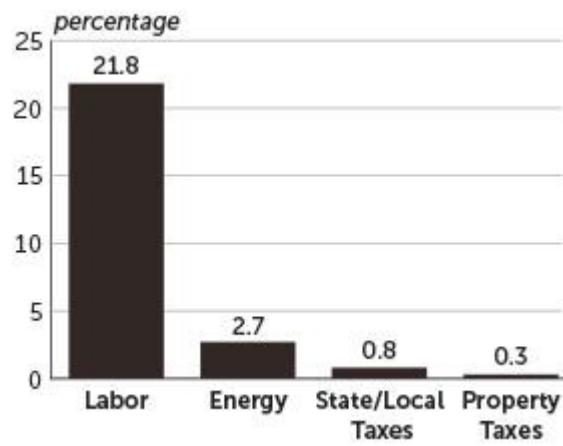


Figure 24. Input Costs as Share of Total Costs for the Manufacturing Sector, 2004-2009
(Source: Lincoln Institute of Land Policy)

Tax increment financing (TIF) is another financial tool that municipalities use to encourage development in a defined area, or tax increment district. It funnels any increase in tax revenues from a base rate in the TID into a fund to further develop the district through streetscape improvements, rehabilitating or demolishing structures, cleaning up brownfield sites, or investing in other job creating programs (Flint, 2019). The funding to pay for improvement is often paid for with the sale of bonds, and any gap in the revenue brought in by the TIF and the bond must be paid for by the city.

District improvement financing (DIF) is a tool that municipalities use to pledge a portion of their taxes to surrounding amenities within a district of their town. A development district can range from one parcel to 25% of a town's land. In Massachusetts, a "DIF is authorized by M.G.L.c. 40Q and its implementing regulations 402 CMR 3.00"(Mass.gov, 2019). To implement a TIF or DIF in Massachusetts requires a different implementation process (See

Table 3: DIF and TIF Comparison (Source: Mass.gov)

District Improvement Financing	Tax-Increment Financing
<ul style="list-style-type: none"> First designate a development district and a corresponding development program; the district must then be certified by the State Economic Assistance Coordinating Council. District may be as small as one parcel or may comprise up to 25% of town land. A district can be in effect for a maximum of 30 years. Each district must have a unique development program; the program will identify the following: <ul style="list-style-type: none"> Existing use & current zoning, Proposed uses and any needed zoning change Current and planned infrastructure Any planned construction A financial plan Once a district and program have been certified, the city or town has the ability to use various tools to implement the program, among them: <ul style="list-style-type: none"> (Re)constructing improvements (e.g. buildings, roads, schools) Pledging tax increments and other project revenues for repayment of these debts. 	<ul style="list-style-type: none"> A municipality may enter into a TIF Agreement with a landowner for a max term of 20 years. A TIF Zone must be in an area approved by the EACC as an Economic Opportunity Area (EOA) or found to be an area "presenting exceptional opportunities for economic development" by the Director of Economic Development. A city or town must initiate a TIF by a vote of its governing body approving the TIF Plan, which must include: <ul style="list-style-type: none"> Description of all construction activity Projection of public and private costs and a betterment schedule for the defrayment of public costs Authorization of a tax increment exemption from property taxes Establishment of a maximum percentage of costs of public construction that can be recovered through betterments or special assessments against any parcel in the TIF zone eligible for exemptions Identification of property owners in the TIF Zone Executed Agreements between the city or town and each owner of property within the TIF zone Delegation of authority to enter into development agreements

Potential Grant Funding Sources

There are a number of resources available annually through both the state of Massachusetts as well as the U.S. Department of Agriculture (USDA). These available resources are intended to support the rural and agricultural heritage of the community while providing needed investment into the conservation, recreational, and agricultural goals of Boxborough.

The following is a list of possible grants that Boxborough should be able to qualify for:

- Rural Community Development Initiative Grants (USDA)
- Conservation Assistance for Small Communities Grant Program (Mass)
- Housing Choice Capital Grant (Mass)
- Housing Choice Small Town Grant (Mass)
- Farm Viability Enhancement Program (Mass)
- Farmers Market Promotion Program (USDA)
- MassTrails Grants (Mass)
- Local Acquisitions for Natural Diversity Grant Program (Mass)
- Parkland Acquisitions and Renovations Grant Program (Mass)
- Partnerships Matching Funds Program (Mass)

Other funding opportunities include the microloan program offered by the USDA. These specific loans are intended to support small and beginning farming endeavors as well as more non-traditional forms of agriculture such as aeroponic/hydroponic farming (United States Department of Agriculture, n.d.). This model of aeroponic/hydroponic farming has been shown to be successful in nearby communities to Boxborough such as LittleLeaf Farms in Devens MA.

Another potential funding program offered by the USDA that could suit the needs of Boxborough and the surrounding region well is the “Farm to School” grant program. The purpose of this program is to improve access of local foods to schools (United States Department of Agriculture, n.d.). Given the high regard given to the Acton-Boxborough Regional School District, this program could further add to the strong reputation of the district while continuing to support the agricultural heritage of the community.

Transportation Programs

The Complete Streets program provides technical assistance and funding to support interventions aimed at planning, designing, operating, and maintaining streets to be safe for multi-modal forms of transit. MassDOT completed a Complete Streets Prioritization Plan for Boxborough in September 2018.

MassDOT Workforce Transportation Program seeks to award up to \$4,580,000 of federal and state funds to new and/or existing projects that will provide workforce transportation service. Funding will be provided for targeted operating assistance, capital investment and/or the implementation of technology improvements that will benefit the transportation of workers. Priority will be given to projects that will result in new services and/or provide an innovative and sustainable approach to providing workforce transportation. MassDOT expects the average project award to be between \$100,000 and \$250,000.

The MassDOT Community Transit Grant Program is an annual competitive grant program to meet the mobility needs of seniors and individuals with disabilities. Provides funds for the purchase of vehicles, mobility management activities, and operating costs. This includes the federal 5310 Program and the state Mobility Assistance Program (MAP).

The MassWorks Infrastructure Program is a competitive grant program that provides the largest and most flexible source of capital funds to municipalities and other eligible public entities for public infrastructure projects that support and accelerate housing production, spur private development, and create jobs throughout the Commonwealth.

The CrossTown Connect Transportation Management Association serves the residents and business sector of Acton, Boxborough, Concord, Littleton, Maynard, Sudbury, and Westford. The programs and services are designed to reduce traffic, maximize local mobility options, coordinate transportation resources, and improve economic vitality while minimizing the impact of development. These include shuttle services for seniors and persons with disabilities, as well as commuter shuttles including the Cross Acton Transit Rail Shuttle, Maynard-Acton Commuter Shuttle, and Littleton-Westford Commuter Shuttle.

Appendix D: Regional Context & Case Studies

Regional Organizations

In 2008 the MAPC released *MetroFuture*, a 30-year regional master plan for Metro Boston. The plan outlines and expands on six key areas of focus: sustainable growth patterns, housing choices, community vitality, prosperity, transportation, and the environment. Along with these key elements, *MetroFuture* defines future priority areas for development and conservation throughout the region that builds on existing infrastructure and density. Included in this plan is a proposed transit corridor, which runs southeast to northwest through Boxborough, prioritizing multi-modal investments to improve circulation between Boxborough and neighboring towns. A large percentage of land in Boxborough is also identified as priority conservation areas due to significant environmental value, with a small portion of industrial commercial land west of I-495 identified as a priority development site (MAPC, 2008).

In 2014, the MAPC published a *Strategic Plan 2015-2020* which builds on *MetroFuture*, and defines the agency's priorities for 2015-2020 to further the comprehensive mission of "smart growth and regional collaboration." Priorities include transit-oriented development, funding and promoting regional collaborations, achieving greater equity through the inclusion of vulnerable populations in planning processes and improving access to services, and an aggressive approach to reducing GHG emissions and climate change preparedness (MAPC, 2014).

More locally, MAGIC released a *Fiscal Year 2020 Work Plan* with a mission statement of identifying and addressing common issues throughout the subregion through multi-town collaboration as well as to promote the MAPC's mission. Areas of focus include: age-friendly planning for housing and transportation, implementing microtransit pilots, developing climate response strategies, expanding energy-efficient transit service and alternative transportation infrastructure, water resource planning, increasing affordable housing, and economic development.

Transportation Master Plans

The MBTA's *Strategic Plan*, completed in 2017, details ten objectives and corresponding strategies to improve the current state of the MBTA and plan for the future. Priorities include expedited capital spending to bring the MBTA system to a state of good repair, increase affordability through implementation of the Automated Fare Collection system, reduce operating costs, redesign the bus network, and increase rider capacity for the core MBTA system.

Rail Vision is an MBTA planning initiative carried out from 2018-2019. Six alternatives to improve the commuter rail system were explored, from a lower-impact option of fleet expansion to a “full transformation” that would electrify the entire system with trips running every 15 minutes. Several alternatives propose express train routes, and identify “key stations” where these trains would stop. These scenarios identify Littleton/495 Station as a key station, where Littleton would be either the second or third stop on the Fitchburg Line from Boston’s North Station, and trains would run every 15 minutes all day long.

MassDOT, together with the MBTA, released *Focus40* in March of 2019, which is a capital investment plan for the MBTA through 2040 that will respond to future markets, climate change, technological innovations, and demographic shifts in the region. The *MBTA Strategic Plan* and *Go Boston 2030* provide the framework for *Focus40*, and guides all initiatives such as *Rail Vision*. The three pillars of the plan are reliability, robust service, and resiliency into the future. MassDOT is working to identify “Priority Places” to focus investments, developing connections to other forms of transit, and considering infill stations between existing stations as well as relocating station connections to maximize and increase regional system connectivity.

Regional Commuting Patterns

The following table shows the origins of Boxborough employees and the employment destinations for Boxborough resident.

Commuting Origins	Count	Share	Commuting Destinations	Count	Share
Acton	227	5.3%	Boston	317	11.2%
Lowell	190	4.5%	Acton	245	8.6%
Boxborough	141	3.3%	Cambridge	193	6.8%
Boston	130	3.1%	Boxborough	141	5.0%
Nashua	117	2.8%	Concord	125	4.4%
Westford	90	2.1%	Burlington	120	4.2%
Worcester	88	2.1%	Waltham	92	3.2%
Waltham	84	2.0%	Littleton	67	2.4%
Chelmsford	81	1.9%	Marlborough	67	2.4%
Hudson	81	1.9%	Westford	64	2.3%
All Other Locations	3,023	71.1%	All Other Locations	1,408	49.6%
Total	4,252		Total	2,839	

Table 4: Commuting Pattern (Source: U.S. Census OnTheMap 2019)

Complete Case Study Analysis

Harvard

Type of Development: Town Center/Downtown

Points of Comparison:

- Identifies with rural character
- Suffers from “economic leakage” with dollars spent outside of the community

Harvard is Boxborough’s neighbor to the west and has a comparable population and size of economic base. Similar to Boxborough, Harvard suffers from “economic leakage,” whereby dollars are spent outside the community and has identified economic development as a

solution to this issue. Currently, its economic activity is mainly concentrated in Devens, an economic enterprise zone shared by Harvard and adjacent towns. Harvard is otherwise rural in character. They are considering forming an Economic Development Corporation which would raise funds for grants for small business development.

Harvard intends to develop their town center with a town center overlay, included in their 2016 Master Plan, which suggested utilizing a Mixed-Use Commercial Overlay District which would encourage appropriate uses by special permit such as restaurants, small markets, bookstores, cafes, and apartments above shops (Town of Harvard, 2016). They are also considering a form-based code for the district which would preserve their center's rural character, historic charm, and important viewsheds. In order to preserve the rural character throughout town, they proposed a Rural Life Permit which would have allowed for limited commercial activity on residential-agricultural land. It was voted down by the public.

Groton

Type of Development: Town Center/downtown

Points of Comparison:

- Identifies with rural character

Groton is located to the north of Boxborough and Littleton. It has twice the population but approximately the same size employment. Groton has seen some success in the development of their town center through the designation of a Town Center Overlay District in 2008. Aside from the Town Center district, Groton has a more rural settlement pattern.

Groton favors LEED certified developments in the overlay district, requires contributions to public space enhancements, and the use of low-impact development techniques. The overlay promotes a variety of uses, particularly retail, and pedestrian circulation. Emphasizing the public realm is a main focus of the district, which they hope to accomplish through creation of additional civic spaces, small building setback requirements, bike lanes, street furniture, and tree lined streets.

Since the adoption of the overlay, two significant developments have occurred in the town center. First, a mixed-use, village style housing development, which the Town planner Takashi Tada says has complemented the rural character of the town center. The second is an example of adaptive reuse, which is encouraged by the Town Center Overlay District, where a historic, unused fire house was converted into a restaurant.

Littleton

Type of Development: Business Corridor

Points of Comparison:

- Identifies with rural character
- No public water and sewer

Littleton borders Boxborough to the north and has similarly rural development patterns in much of the town. A major asset is Littleton's commuter rail station, which makes Littleton more accessible to Boston and the surrounding region by public transportation. They are currently working to expand commercial districts, particularly addressing the Beaver Brook area and Littleton Common.

Littleton created the Littleton Common Village District in 2010 which allows mixed-use development by special permit. This encourages the re-use of existing structures, design guidelines to maintain village character, and promotes residential development. Littleton has also funded a feasibility study and design for the Littleton Common Smart Sewer Project to address the lack of public sewer and water which has been an impediment to development. The study and design will be funded by Littleton, which voted to borrow \$2.2-million, and a MassWorks grant of \$1.5-million. The system is localized and will serve around 180 properties in the area. The sewer will allow for new uses such as restaurants, discourage sprawl, address water contamination issues, and greatly reduce environmental impacts. The system will cost \$27 million and will be paid for through user connection fees (Littleton, Massachusetts, n.d.).

Bolton

Type of Development: Agricultural/Rural

Points of Comparison:

- Identifies with rural character
- No public water and sewer
- Office park vacancies

Like Boxborough, Bolton is a small town along the I-495 corridor with a population of less than 6,000 and has primarily single-family housing stock. The town identifies strongly with its rural heritage, and has a large percentage of agricultural lands and many working family farms. Bolton has guided economic development to enhance rural character through the Accessory Use Agricultural/Business Bylaw, which allows accessory uses on agricultural lands, such as retail of farm products and crafts, agritourism businesses, hosting and staging events, and food services. Bolton is best known for Nashoba Winery, which has a distillery, brewery, restaurant, vineyard, and orchard on site and has become a statewide tourist attraction. Like Boxborough, Bolton lacks public sewer and water which has challenged development, though a tactic used by the Town has been to offer cheaper land and lower

taxes to incoming food service businesses in an attempt to offset some of the higher cost associated with a septic system.

Bolton currently has vacant office buildings that have sat empty for the last 10 years. According to their Town planner, Erica Uriarte, the Town is currently in negotiations with a marijuana manufacturing company who wishes to purchase this land. The Town has encouraged this through bylaw that allows this use by special permit, and are looking past traditional office spaces and tenants to fill other vacancies (Erica Uriarte, personal communication, October 9, 2019).

Marlborough

Type of Development: Office park revitalization

Points of Comparison:

- Office park vacancies

Like Boxborough, Marlborough recently faced high vacancy rates in several of their office parks and has become regionally known for their success in revitalizing many of them. After Fidelity and HP both left the city in 2007, Marlborough decided to take a more active approach to redevelopment. The city applied a Mixed Use Overlay to the Industrial and Limited Industrial Districts to encourage small businesses and amenities in office parks. They also designated these districts as Local Expedited Permitting and Development sites and TIF zones to streamline the permitting process and guarantee TIFs to businesses willing to relocate in these districts, which is a financial incentive commonly used by Marlborough.

Marlborough Hills Corporate Campus is one example of the city's revitalized, mixed-use office parks, now home to GE Life Sciences, Quest Diagnostic, Whole Foods Headquarters, Wegmans, TJX, and Boston Scientific. Both GE and TJX took advantage of TIFs. Office buildings were either renovated or rebuilt in order to provide modern workspaces for incoming corporations. The campus features a residential component, childcare facilities, and other modern amenities. In September 2019, the city launched a year-long free shuttle bus pilot from Marlborough's office parks to the Southborough MBTA station, financed by the city and state, to make themselves more accessible to the regional workforce.

Appendix E: Works Cited

Acton Natural Resources Department. (2013). *The Town of Acton Open Space and Recreation Plan 2014-2021*. Retrieved from <http://doc.acton-ma.gov/dsweb/Get/Document-50377/2015%20Acton%20OpenSpace.pdf>

Atlantic Management Corporation. (2017). Marlborough Hills | Atlantic Management. Retrieved December 17, 2019, from <http://atlanticmanagement.com/case-studies/marlborough-hills/>

Boxborough Board of Selectmen. (2015). *Boxborough Housing Production Plan*. Retrieved from <https://www.mass.gov/files/documents/2016/07/pz/boxborough.pdf>

Bureau of Economic Analysis. (2019). *SAEMP25N Total Full-Time and Part-Time Employment by NAICS Industry*. Retrieved November 19, 2019 from https://apps.bea.gov/iTable/db_message.cfm?ReqID=70&step=1

Bureau of Labor Statistics. (2nd Quarter 2019). *Quarterly Census of Employment and Wages*. Retrieved December 16, 2019 from <https://www.bls.gov/cew/>

Commonwealth of Massachusetts. (2019). Massachusetts Grown...and Fresher! Retrieved December 17, 2019, from Mass.gov website: <https://www.mass.gov/orgs/massachusetts-grownand-fresher>

Dalehite, E. G., Mikesell, J. L., & Zorn, K. (2005). Variation in Property Tax Abatement Programs Among States. Retrieved December 17, 2019, from <https://journals.sagepub.com/doi/abs/10.1177/0891242404272352?journalCode=edqa&>

Flint, A. (2018). The Hidden Costs of TIF. Retrieved December 17, 2019, from Lincoln Institute of Land Policy website: <https://www.lincolninst.edu/publications/articles/hidden-costs-tif>

Genna, S. (2019). Boxborough Property Abatements: Questions and Answers.

Good Jobs First. (2019). Tax-Increment Financing. Retrieved December 17, 2019, from <https://www.goodjobsfirst.org/accountable-development/tax-increment-financing>

Kenyon, D. A., Langley, A. H., & Paquin, B. P. (2013). The Effective Use of Property Tax Incentives for Economic Development. Retrieved December 17, 2019, from Federal Reserve Bank of Boston website: <https://www.bostonfed.org/publications/communities-and->

[banking/2013/fall/the-effective-use-of-property-tax-incentives-for-economic-development.aspx](https://www.marylandtaxes.com/banking/2013/fall/the-effective-use-of-property-tax-incentives-for-economic-development.aspx)

Kolko, J. (2019). Suburban Jobs Are Growing Fastest, But Urban Jobs Pay More. Retrieved December 17, 2019, from CityLab website:
<https://www.citylab.com/life/2019/12/job-growth-suburbs-employment-city-data-salary-rural-urban/603238/>

Marlborough Economic Development Corporation. (2014). Marlborough Basking in Economic Turnaround. Retrieved December 17, 2019, from Marlborough Economic Development Corporation website:
<https://marlboroughedc.com/2014/07/marlborough-basking-in-economic-turnaround/>

Marlborough Economic Development Corporation. (2019). Financial Incentives. Retrieved December 17, 2019, from <https://marlboroughedc.com/our-services/financial-incentives/>

Massachusetts Bay Transportation Authority. (2017). *Fiscal and Management Control Board Strategic Plan- Draft*. Retrieved from
[https://old.mbta.com/uploadedfiles/About the T/Board Meetings/3-20-17%20Draft%20MBTA%20Strategic%20Plan.pdf](https://old.mbta.com/uploadedfiles/About_the_T/Board_Meetings/3-20-17%20Draft%20MBTA%20Strategic%20Plan.pdf)

Massachusetts Bay Transportation Authority. (2019). Rail Vision | Projects | MBTA. Retrieved December 17, 2019, from <https://www.mbta.com/projects/rail-vision>

Massachusetts Department of Environmental Protection. (2016). *D310 CMR 22.00: Drinking Water*. Retrieved from
https://www.mass.gov/files/documents/2016/10/us/310cmr22_372_16185.pdf

Massachusetts Department of Transportation. (2019). *Focus40 Plan- Positioning the MBTA to meet the needs of the region in 2040*. Retrieved from
https://static1.squarespace.com/static/57757a3cff7c50f318d8aae0/t/5c9042690852294993eae62b/1552958096600/F40+Final+Book+Layout_V9-2019_03_13-508compliant.pdf

Massachusetts Division of Local Services. (2019). *Municipal Databank*. Retrieved from <https://www.mass.gov/orgs/division-of-local-services>

Massachusetts Executive Office of Learning and Workforce Development. (2018). Employment and Wages Report (ES-202) | Town of Boxborough. Retrieved December 17, 2019, from Executive Office of Labor and Workforce Development (EOLWD) website:

http://lmi2.detma.org/lmi/lmi_es_b.asp?AT=05&A=000165&Y=2018&P=00&O=00&I=LVL_1&lopt=&Dopt=TEXT

Massachusetts Division of Local Services. (2019). Municipal Finance Trend Dashboard.

Retrieved December 17, 2019, from Mass.gov website:

<https://www.mass.gov/service-details/municipal-finance-trend-dashboard>

Massachusetts Historical Commission. (2019). Massachusetts Cultural Resource

Information System (MACRIS). Retrieved December 17, 2019, from <http://mhc-macris.net/>

Metropolitan Area Planning Council. (2008). *MetroFuture: Making a Greater Boston Region*.

Retrieved from http://www.mapc.org/wp-content/uploads/2017/08/MetroFuture_Goals_and_Objectives_1_Dec_2008.pdf

Metropolitan Area Planning Council. (2014a). *Boxborough Buildout and Alternative Futures*

Technical Report. Retrieved from https://www.boxborough-ma.gov/sites/boxboroughma/files/file/141006_boxborough_buildout_techinical_memo_final.pdf

Metropolitan Area Planning Council. (2014b). *Metropolitan Area Planning Council Strategic*

Plan 2015-2020. Retrieved from <http://www.mapc.org/wp-content/uploads/2017/08/Strategic-plan-FINAL-DRAFT-for-Fall-Council-Meeting-10-29-14-2.pdf>

Metropolitan Area Planning Council. (2014c). *Minuteman Area Comprehensive Agricultural*

Planning Program. Retrieved from https://www.mapc.org/wp-content/uploads/2017/09/MAGIC_ag_report_1-21-14.pdf

Metropolitan Area Planning Council. (2014d). *Population and Housing Demand Projections*

for Metro Boston / Regional Projections and Provisional Municipal Forecasts.

Retrieved from https://www.mapc.org/wp-content/uploads/2017/08/MetroBoston-Projections-Final-Report_1_16_2014_0.pdf

Metropolitan Area Planning Council. (2015a). *Boxborough2030 Community Economic*

Development Survey Results. Retrieved December 16, 2019 from

https://www.boxborough-ma.gov/sites/boxboroughma/files/u426/box2030_edsurvey_fullresults.pdf

Metropolitan Area Planning Council. (2015b). *Town of Boxborough Open Space and*

Recreation Plan 2015-2022. Retrieved from https://www.boxborough-ma.gov/sites/boxboroughma/files/file/boxborough_open_space_rec_plan_2015_160415.pdf

Metropolitan Area Planning Council. (2016). *Boxborough2030 Master Plan Magazine*. Retrieved from https://www.boxborough-ma.gov/sites/boxboroughma/files/u446/the_boxborough2030_magazine_january2016.pdf

Metropolitan Area Planning Council. (2018). *Landline Vision Report*. Retrieved from <http://www.mapc.org/wp-content/uploads/2018/06/180620-Landline-Vision-Report.pdf>

Minuteman Advisory Group on Interlocal Coordination. (2019). *MAGIC Fiscal Year 2020 Work Plan*. Retrieved from http://www.mapc.org/wp-content/uploads/2019/10/MAGIC_FY20_workplan_FINAL_20191015.docx.pdf

ReferenceUSA. (2018). Boxborough Business Profile. Retrieved from ReferenceUSA database.

Rosen, A. (2018). Developers are trying to make the suburbs cool. Is that possible? - The Boston Globe. Retrieved December 17, 2019, from <https://www.bostonglobe.com/business/2018/08/02/developers-are-trying-make-suburbs-cool-that-possible/n1e9vUeD1wddrVU9y6WaNJ/story.html>

Sacco, J. (2016, December 1). Littleton Town Meeting Approves Multimillion-Dollar Projects. Retrieved December 17, 2019, from John Guilfoil Public Relations website: <https://jgpr.net/2016/12/01/17933/>

Sudbury Valley Trustees. (2019). High Ridge Initiative | Sudbury Valley Trustees. Retrieved December 17, 2019, from <https://www.svtweb.org/land-protection/projects/high-ridge-initiative>

Town of Ayer. (2018). *Ayer Zoning Bylaw*. Retrieved from https://www.ayer.ma.us/sites/ayerma/files/uploads/ayer_zoning_bylaw_with_october_22_stm_amendments_included_1_0.pdf

Town of Ayer. (2019). *Open Space and Recreation Plan Town of Ayer, Massachusetts 2019-2026 Update*. Retrieved from https://www.ayer.ma.us/sites/ayerma/files/uploads/open_space_and_recreation_plan_approved_february_27_2019.pdf

Town of Bolton. (2019). Town of Bolton, MA: Special Regulations. Retrieved December 17, 2019, from <https://ecode360.com/14848661>

Town of Boxborough. (2012). *Right To Farm Bylaw*. Retrieved from https://www.boxborough-ma.gov/sites/boxboroughma/files/file/file/right_to_farm_bylaw.pdf

Town of Boxborough. (2018). *Town of Boxborough Zoning Bylaw*. Retrieved from https://www.boxborough-ma.gov/sites/boxboroughma/files/uploads/zoning_bylaw.pdf

Town of Boxborough. (2019a). Conservation Trail Maps | Boxborough MA. Retrieved December 17, 2019, from <https://www.boxborough-ma.gov/conservation-commission/pages/conservation-trail-maps>

Town of Boxborough. (2019b). Tax Bill Calculator Fiscal 2019 | Boxborough MA. Retrieved December 17, 2019, from <https://www.boxborough-ma.gov/town-assessor/pages/tax-bill-calculator-fiscal-2019>

Town of Groton. (2019). Town of Groton, MA: Town Center Overlay District. Retrieved December 17, 2019, from Town of Groton, MA Code website: <https://ecode360.com/9082287>

Town of Harvard. (2016). *Town of Harvard 2016 Master Plan*. Retrieved from https://www.harvard.ma.us/sites/harvardma/files/uploads/mp_final_8-16-2016_large_format_maps.pdf

Town of Littleton. (2018). *Littleton Smart Sewer Project*. Retrieved from <https://www.littletonma.org/department-public-works/smart-sewer>

Town of Littleton. (2019). Town of Littleton, MA: Code. Retrieved December 17, 2019, from Town of Littleton, MA Code website: <https://ecode360.com/LI1092>

Town of Maynard. (2019). *Town of Maynard Protective Zoning By-Laws*. Retrieved from <https://www.townofmaynard-ma.gov/wp-content/uploads/2019/10/maynard-zoning-bylaws-20190520.pdf>

Town of Stow. (2016). *Town of Stow Zoning Bylaw*. Retrieved from https://www.stow-ma.gov/sites/stowma/files/uploads/final_zoning_bylaw_amended_through_may_2_2016.pdf

United States Census Bureau. (2018a). Boxborough Annual Population Estimates. Retrieved from <https://www.census.gov/quickfacts/fact/table/boxboroughtownmiddlesexcountymassachusetts/BZA010217>

United States Census Bureau. (2017). *2017 American Community Survey 5-Year Estimates*. Retrieved from <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

United States Census Bureau. (2018b). *Census Building Permits Survey 2001-2017*. Retrieved from <https://datacommon.mapc.org/browser/datasets/384>

United States Department of Agriculture. (2019a). Farm to School Grant Program | USDA-FNS. Retrieved December 17, 2019, from <https://www.fns.usda.gov/cfs/farm-school-grant-program>

United States Department of Agriculture. (2019b). Microloan Programs. Retrieved December 17, 2019, from <https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/microloans/index>

Wisniewski, J., Vasconcelos, K., McGoff, M., & Vinson, S. (2019). *Collaborative Options to Improve Drinking Water Quality in Western Boxborough, MA*. Worcester Polytechnic Institute. Retrieved from <https://digitalcommons.wpi.edu/iqp-all/5423>