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Boxborough Economic Development Study: Phase 2, Technical Memo

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BOXBOROUGH ECONOMIC DEVELOPMENT STUDY

Phase 2 Technical Memo

December 2020



Town of
BOXBOROUGH
Massachusetts

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Table of Contents

Executive Summary.....	1
A. Background.....	3
Phase I: Existing Conditions and Development Scenarios	3
Phase II: Scenario Evaluation	5
B. Scenario Evaluation Survey.....	7
Background and Summary.....	7
Survey Design.....	8
Results	8
Summary, caveats, and conclusions	17
C. Market Analysis	19
Purpose and Scope.....	19
Methods and Data.....	23
Supply / Demand Analysis.....	25
Summary and conclusions	44
D. Community Discussion Forums.....	46
E. Recommended Actions.....	52
F. Appendices.....	53
Appendix A. Scenario Infographics (from survey)	53
Appendix B. Survey Response Distributions.....	55
Appendix C: Location Maps for Existing Businesses.....	57
Appendix D: Supply/Demand Analysis, Data Tables	60
Appendix E: Breakout Room (BR) Summaries, Community Discussion Forum #1.....	62
Appendix F: References	69

Figures

- Figure 1: Phase I, Project Timeline..... 3
- Figure 2: Phase II, Project Timeline..... 6
- Figure 3: Age Profile of Survey Respondents compared to U.S. Census Bureau Estimates 9
- Figure 4: Live and/or work in Boxborough..... 9
- Figure 5: Length of residency, in years..... 10
- Figure 6: Intentions to move from or stay in Boxborough 10
- Figure 7: Average Scenario Evaluation Scores..... 11
- Figure 8: Average scenario preferences by respondent age 16
- Figure 9: Average scenario preferences by length of residence 16
- Figure 10: Average scenario preferences by future moving plans 17
- Figure 11: Boxborough Village Market Areas, Local and Regional..... 24
- Figure 12: 21st Century Office Park Market Areas, Local and Regional..... 24
- Figure 13: Household expenditures in the regional market area (2019) 27
- Figure 14: Household expenditures in the local market area (2019) 27
- Figure 15: Market potential, Commodity Basis..... 29
- Figure 16: Market Potential, Industry Basis 31
- Figure 17: Potential Room for New Businesses 32
- Figure 18: Artists' Visualization of Hub RTP 35
- Figure 19: Inventory of Office Space, 1998 to 2020..... 36
- Figure 20: Vacancy Rates, 1st Quarter 2008 to 2nd Quarter 2020..... 37
- Figure 21: Net Absorption, 2008 to 2020 (2nd Qtr)..... 38
- Figure 22: Gross Leasing Rates (Rent) in Office Space, per sq ft..... 39
- Figure 23: Age Profile of the Resident Population, Current and Future 41
- Figure 24: Location of Senior Living Facilities in the Region..... 43
- Figure 25: Promotional Flyer for the Community Discussion Forums..... 46

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 II began in January of 2020 and provides a deeper evaluation of the development scenarios proposed at the completion of Phase I, involving four key components:

1. Summarize the results from a survey of citizen preferences on the Phase I scenarios.
2. Produce a series of "vignettes" to explain the key elements of the different scenarios to the public.
3. Assess the potential market demand for specific office, retail, and other commercial activities discussed in the Phase I scenarios.
4. Convene two ‘virtual’ community discussion sessions to identify town-wide development priorities and possible short-term actions.

The citizen preference survey identified an overall preference for village-style commercial development and for supporting agricultural-focused businesses that align with Boxborough’s rural character. However, the inherently unrepresentative nature of internet surveys and relatively low response rates should warn against reading too deeply into the findings.

The market/demand supply analysis finds sufficient untapped demand for a variety of small-scale commerce. There seems to be sufficient demand for a full-service/family-stye restaurant or a brewery that might potentially anchor a village-style retail center—assume some return to a pre-COVID normality. The suburban office market remains highly uncertain, caught between offsetting post-pandemic trends of urban office exodus and remote work reducing the overall demand for office space. Regardless, it is likely that successful office parks of the future will be those that can flexibility adapt to meet the varied demands of different businesses requiring a smaller footprint and a variety of needs, while attracting workers and employers with on-site food and entertainment options, and other recreational amenities.

The two virtual discussion forums were very successful, together attracting more than 130 community participants. The attendees outlined four town-wide priorities:

1. Protect and build-upon rural character
2. Encourage a village-style retail center and commons
3. Support re-use of vacant office parks
4. Update zoning bylaws

The overall tone was to proceed deliberately and with due caution, so that the community can maintain its rural character while recognizing a need to adapt the current by-laws as to not dissuade desired forms of commercial activity. Whenever possible the community should favor reuse of already developed sites and small-scale development.

Reflecting on the entirety of the study, the three principal investigators (Barchers, Mullins and Renski) concluded by offering a list of near-term suggestions and actions. These recommendations include:

- Form a task force to revise Boxborough's zoning bylaws, particularly those pertaining to Office Parks and Town Center districts. Revisions should also allow for village zoning, special permit granting authority, and design controls.
- Invite representatives (such as zoning board members) from other communities to review Boxborough's zoning and make recommendations.
- Consider offering density bonuses and/or other incentives to entice development consistent with the community's vision.
- Ease parking and set-back requirements for the office parks to accommodate mixed-uses.
- Create ad-hoc focus-groups comprised of representative to from the EDC, Planning board, and other community governance boards to develop recommendations for office park redevelopment and agricultural business support, to name a few.
- Continue outreach efforts and encourage community involvement with more a periodic series of events.

A. Background

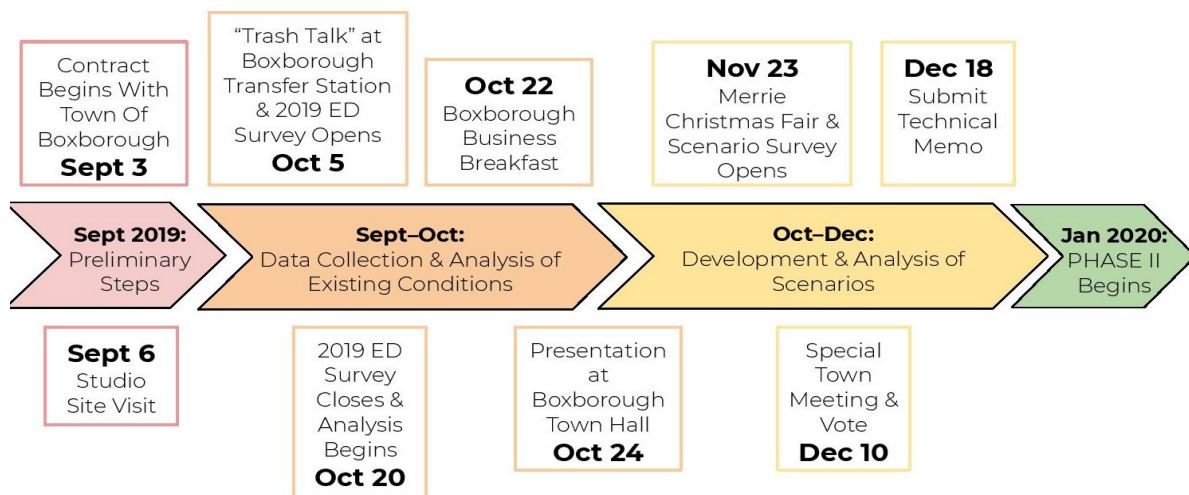
The Town of Boxborough faces many challenges as it attempts to adapt to a quickly changing and uncertain economy. The Town saw significant growth in high-tech companies from the 1990s through 2012, most notable as the home of Cisco’s East Coast Headquarters. However, like many communities on the urban fringe, a long-term trend of locating industry and tech sectors in urban areas has strained the community and left many of its office park areas underutilized and a tax base increasingly supported by residents. Coupled with rising costs, infrastructure constraints, a growing residential population, and concerns that the Town lacks in local shopping options and common space, Boxborough set about developing an economic development strategy in conjunction with the priorities set in its *Boxborough2030* master plan.

In the summer of 2019, members of Boxborough Economic Development committee approached the University of Massachusetts Amherst Center for Economic Development to assist with much of the analytical work necessary for advancing a long-term Economic Development plan. The project consists of two distinct phases, beginning at the start of September of 2019 and ending in August of 2020.

Phase I: Existing Conditions and Development Scenarios

The first phase began in September 2019 and was completed in December of 2019 (Figure 1). It was carried out by the students of the Fall 2019 LARP graduate planning studio under the supervision of Dr. Camille Barchers.

Figure 1: Phase I, Project Timeline



The existing conditions study was designed to supplement and complement the work begun in the Vision 2030 process by focusing specifically on economic development conditions and needs that were not adequately addressed. In particular, the work of the studio included:

1. A review of recent town and regional plans, reports, and related documents including data and notes from past meetings and charrettes to better understand community goals within the context of regional priorities, and to identify existing information gaps and data needs.
2. Online surveys, multiple site visits, and in-person interviews with key town personnel and stakeholders to establish development priorities and determine their thoughts and perspectives on the alternate development scenarios.
3. A business breakfast co-hosted with the EDC to identify strengths, weaknesses, opportunities, and threats among the local business community in Boxborough. This included a follow-up survey for business owners in Boxborough.
4. Preparing and summarizing several case studies profiling revitalized suburban office parks and town center/commons-style mixed-use developments in similar communities.
5. A preliminary review of zoning codes and other regulations as they pertain to economic development.
6. An assessment of current town regulations to determine if they are consistent with the preferred scenarios and identify other potential impediments to growth.

The final deliverables of the Fall 2019 studio included a report, a public presentation, and a series of informative 'story maps' walking viewers through the findings. The final report includes a summary of how each scenario capitalizes on the community's existing strengths, possible liabilities and caveats, their relative feasibility, and an initial assessment of the steps necessary to advance each option. The some of the primary conclusions from Phase I are:

1. Residents have enthusiasm for small-scale commercial amenities that prioritizes the revitalization of existing properties over new development and emulates "village-style" forms of commercial development.
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 Adams Place / 1414 Mass Ave.) may provide an opportunity to develop the kinds of amenities outlined in the Boxborough2030 Master Plan.

The studio then proposed four alternate development scenarios for Boxborough residents to consider, including those calling for a re-imagined office park and town center/commons

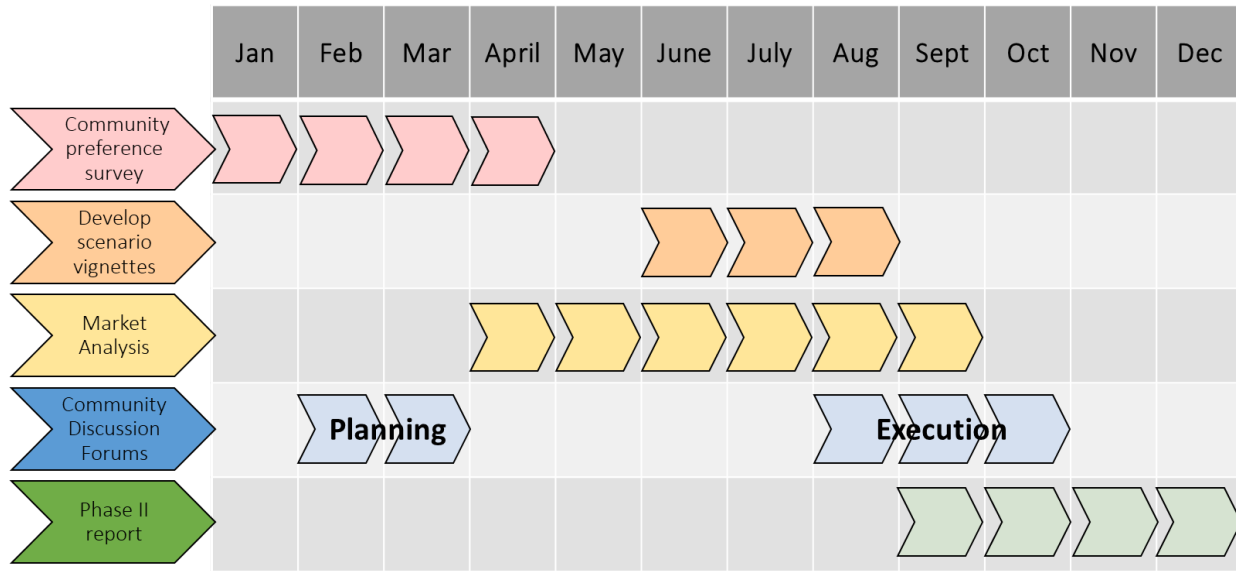
Phase II: Scenario Feasibility and Evaluation

Phase II builds upon existing conditions report by providing a deeper evaluation of the feasibility of key elements of the development scenarios proposed at the completion of Phase I. This involves four key components:

5. Analyze the results from the survey of citizen preferences in favor or against the different scenarios.
6. Produce a series of brief "vignettes" to be posted on the Town's website that explains the key elements of the different scenarios.
7. Collect and analyze relevant demographic and economic data for understanding the existing and potential market demand for specified office, retail, and other commercial activities in the region.
8. Convene two community discussion sessions focused on determining the relative support for each scenario, identify town wide development priorities, and recommend a list of short-term actions to help the town move toward its development goals.

While initially scheduled for the Spring and Summer of 2020, the onset of the Covid19 pandemic required a change in the original timetable for Phase II, in addition to other adjustments to respect physical distancing requirements necessary to protect the public health (Figure 2). Most notably, the 'virtual' community feedback sessions held in the Fall of 2020 were originally envisioned as in-person community gatherings for the Spring of 2020. The market feasibility analysis was also initially envisioned as following the listening sessions and providing an in-depth detailed analysis on a specific development scenario favored by the town. Instead, the town agreed with UMASS to perform a broader market feasibility study in advance of the listening sessions, covering a more extensive list of possible activities. This allowed for the study to continue, leveraging the assigned UMASS resources. This approach also favored Boxborough as coming out of Phase I, it was clear that it would be difficult for the Town to coalesce around a specific scenario.

Figure 2: Phase II, Project Timeline



Phase II was overseen by CED director Dr. Henry Renski who is the lead analyst and primary author of this report. He had help from graduate research assistant Christian Neilson who helped plan for the original (in-person) discussion meetings, assembled some of the secondary data required for the market study, and scripted and recorded the web vignettes. UMASS Professor Emeritus John Mullin moderated and helped plan the community discussion sessions. Dr. Camille Barchers provided guidance and advice to inform the entire Phase II study process, while ensuring continuity from Phase I. In addition, a team of twelve graduate students affiliated with the Planning Student Organization (PSO) volunteered their time to help staff and moderate the breakout sessions during the community charrettes. We especially appreciate the assistance of graduate student, Nathan Chung who worked behind the scenes with Dr. Renski on the technical aspects of coordinating and hosting the community forums through remote video conferencing technology.

B. Scenario Evaluation Survey

Background and Summary

In the fall of 2019, second year students from the University of Massachusetts Amherst Master's in Regional Planning program worked with the Town of Boxborough to begin development for a community economic development strategy. Phase I of this project involved collecting and analyzing data on demographic, economic and fiscal trends, a survey of potential development sites documenting assets and capacity constraints, as well as extensive outreach to solicit community opinions and preferences.

Phase I culminated with the creation of four possible "scenarios" or visions for economic development in Boxborough.

Scenario I - Baseline or Current Course

The "Baseline or Current Course" scenario assumes that development in the town remain mostly unchanged. However, it does allow for some actions identified in the Master Plan that do not result in major zoning changes, sizable development, or alteration of town character in response to local and regional trends.

Scenario II - Rural/Agricultural Heritage

This scenario proposes that Boxborough's agricultural and historic heritage and its open space amenities be leveraged for small-scale economic development. It encourages more agriculture and landscape-related businesses through zoning overlays and permitting regulations to promote the emergence of destinations and community spaces, while also supporting the regional food system via agricultural storage and processing facilities.

Scenario III - Village Style Development

This scenario seeks to implement Village-Style Development in two areas of Boxborough. It emphasizes restricting development to civic and cultural amenities in the Town Center District. It also proposes a new Village Green with small-scale commercial and dining amenities like a cafe, restaurant, and retail establishments at Adams Place on Route 111.

Scenario IV - Comprehensive Approach

This scenario focuses on adapting and re-imagining current office parks for the 21st century workforce. This scenario includes supportive town-wide amenities to attract and retain new residents to support employment in a variety of businesses.

Near the end of Phase 1, the study team issued a scenario evaluation survey to better understand community preferences and perceptions about each of the scenarios.

Survey Design

The scenario evaluation survey had two sections. The first asked respondents to evaluate each of the four development scenarios according to a common set of criteria. They were asked to review a ‘one slide’ infographic for each of the four development scenarios (see Appendix A), while also providing links to an online “Story Map” that describes each scenario in much more detail.¹ The infographics were designed to strike a balance between adequately characterizing the key elements of each scenario while keeping the survey brief and easily understood. After reviewing each infographic, respondents were asked five questions. On a one to five scale, the first three questions asked citizens to rank the scenario on whether it: 1) Fits the character of Boxborough, 2) Supports economic development, and 3) Aligns with my vision for Boxborough. The final two questions of this section were open responses. They asked 4) What aspects of the above scenario excite you, and 5) What aspects of the above scenario concern you?

The second section includes questions to understand the respondent’s relationship to Boxborough (i.e. live in, work in, etc.), how long they have lived in the community and what their intentions for staying in the community are. These were followed by an opportunity for respondents to include any additional comments.

The survey was designed by students in the second year Master’s Planning Studio using the Qualtrics survey design software. It was pretested and vetted by Town officials, and posted online from November to the end of December, 2019. A total of 66 people responded, although not all answered every question.

Results

This section presents the findings from both parts of the survey, including some select cross tabulations and a brief discussion of its implications moving forward.

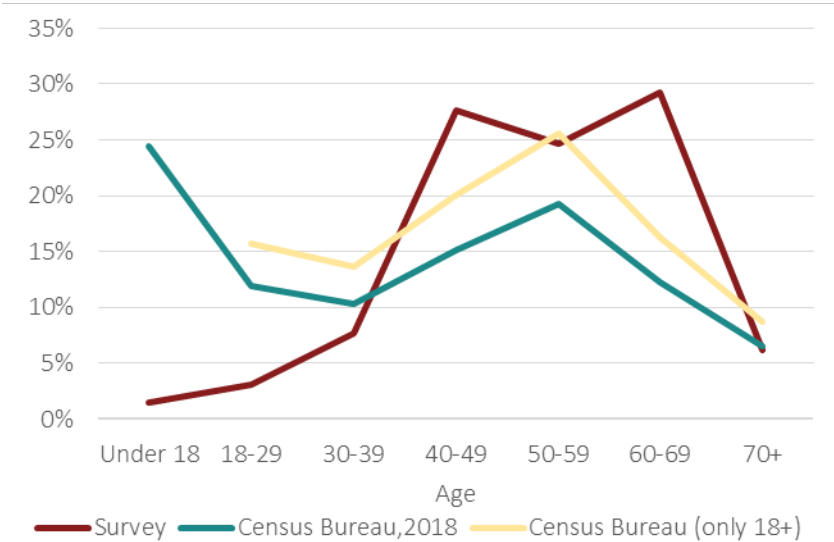
¹ The story map can be found at <https://umass-amherst.maps.arcgis.com/apps/Cascade/index.html?appid=4c69360a898742a88a0a914bb7747b34>

Demographic profile

We will first review results from second part (demographics) of the survey, as knowing a little about the type of people who responded may help us better understand the results.

The typical survey respondent tended to be older than the typical Boxborough resident, but not altogether unrepresentative of the adult population. Figure 3 compares the age distribution of survey respondents to the official 2018 counts from the U.S. Census Bureau. According to the Census Bureau, nearly 25 percent of Boxborough’s population is under 20 years old. Not surprisingly, few minors answered the survey (only 1 reported being under 18). Eliminating the youngsters from the census counts (yellow line), the survey respondent profile comes a bit closer to the official counts, although still noticeably underrepresented by young adults (roughly 18 to 39) and over represented by people in their 40s and 60s.

Figure 3: Age Profile of Survey Respondents compared to U.S. Census Bureau Estimates



Nearly all respondents were Boxborough residents, although a small number indicated that they either worked or owned a business in Boxborough (Figure 4). Consistent with the age profile, a large majority of respondents had been residents for more than ten years, with many exceeding 20 years (Figure 5). Additionally, Figure 6 shows that very few respondents (< 15) indicated an interest in moving in the near future (< 2 years) or medium term (< 10 years). In short, the vast majority of residents plan on staying in Boxborough over the long haul and are deeply invested in its future.

Figure 4: Live and/or work in Boxborough

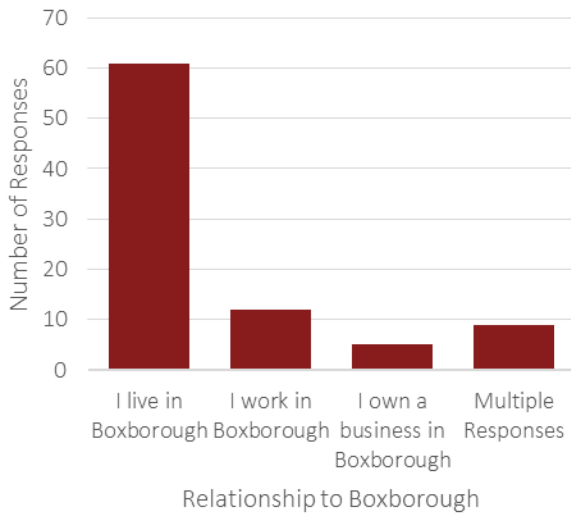
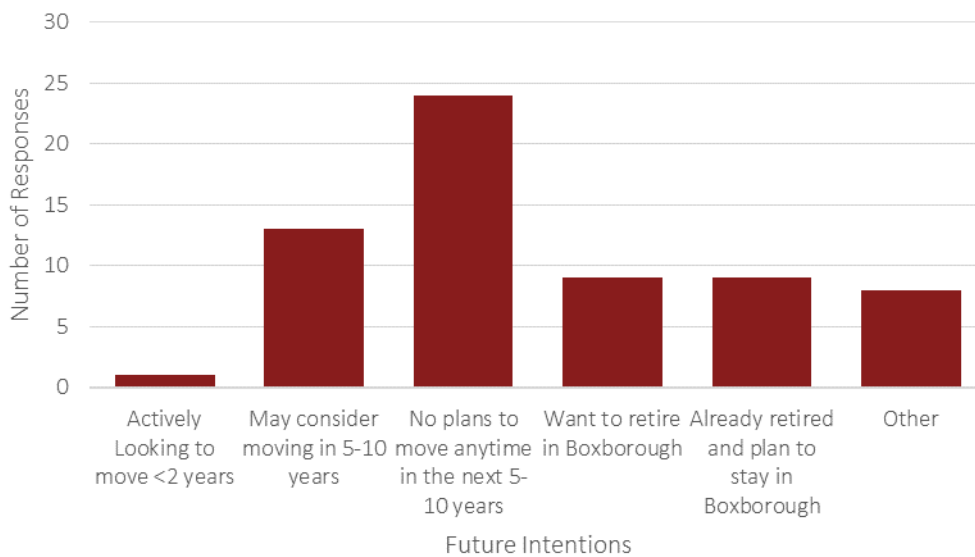


Figure 5: Length of residency, in years



Figure 6: Intentions to move from or stay in Boxborough



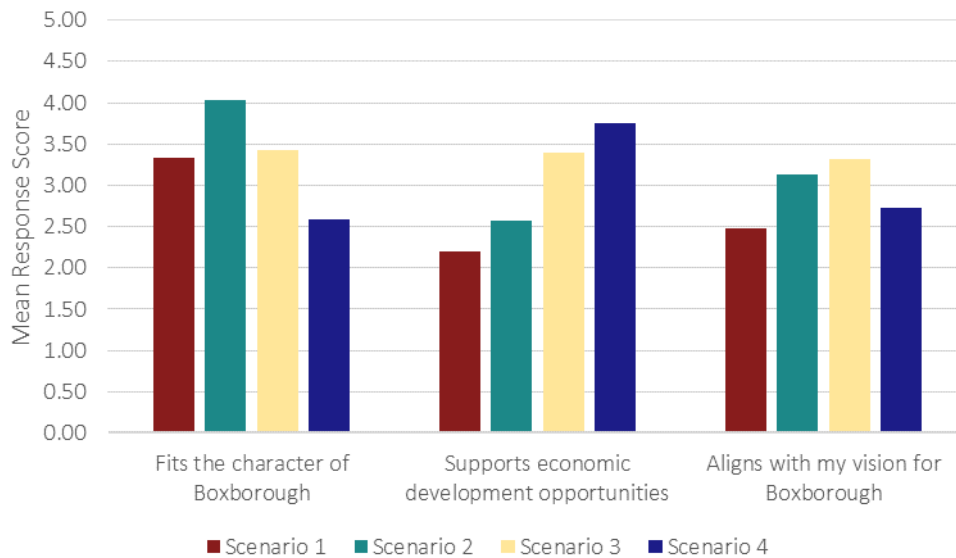
It is important to emphasize that as non-random “convenience” sample, our online survey is not necessarily representative of the overall town sentiment. We should recognize possible biases in the responses to the survey evaluation questions. First, with only 66 responses, the survey represents a tiny fraction of Boxborough’s nearly 6,000 residents, and likely those people that are already more engaged in civic affairs. It also likely underrepresents the opinions of younger residents and more recent arrivals. This is important because the results likely reflect the subjective lifestyle preferences of current and older residents over persons the community may like to attract or target – such as younger adults and families. The survey also predominantly

represents the preferences of those currently living in Boxborough, with very few responses from non-resident workers or business owners. In other words, it favors the preferences of residents over existing or prospective businesses, which may sometimes be at odds. Despite its small size, the high overall quality of responses and comments indicate an active and invested respondent base who are deeply committed to the Boxborough community, even if they sometimes disagree.

Scenario evaluations (Questions 1 through 3)

This first part of the survey asks the community to score on each scenario by how well it: fits the character of Boxborough, supports the goal of economic development, and aligns with their vision for the community. Each option was scored on a scale of one to five (five being highest). We summarize the findings by taking the simple average of the rank scores and then comparing across the different scenarios within each question (Figure 7). Keep in mind that, as averages, our summary figures may distort the actual spread of the responses, especially when the results are highly polarized. Therefore, we show the actual distribution of responses in Appendix B.

Figure 7: Average Scenario Evaluation Scores



The ranked preferences clearly reveal both a widespread perception of Boxborough as a rural community, as well as the apparent contradictions between that vision and more intensive forms of commercial development. Respondents believe that Scenario Two (Rural/Agricultural Heritage) is most in keeping with the current character of Boxborough. This was followed by a near tie between Scenarios Three (Village Style) and One (Current Course). Scenario Four, which proposed a comprehensive scenario focus on redevelopment of existing office parks, was interpreted by residents as being the least in keeping with the current character. By contrast, Scenario Four was viewed as being the most supportive of economic development opportunities

in the communities, while the business as usual approach embodied by Scenario One was the described as the least supportive of economic development.

The third question offers some insight into the development preferences of the townsfolk. When asked which scenario best aligns with their vision for Boxborough, Scenario Three (Village-style) was the most heavily favored. However, only slightly more so than the Scenario Two, which advocates for more agriculture-focused development that aligns with Boxborough's rural character. Scenarios One (current course) and Four (comprehensive) were the least favored.

Open ended responses (Questions 4 and 5)

Following each scenario, respondents were asked to comment on what about the scenario most excited them and what aspects of the scenario most concerned them. A summary of these responses are presented as follows.

Scenario One, Current Course: Respondents to this category were split between those who felt that the current course of action and direction of the town was sufficient and those who felt it didn't go nearly far enough. Many like the notion of simply working to support existing business in Boxborough and using marketing to fill existing vacancies without encouraging new development. These opinions are reflected in sentiments like:

[I am excited about...] *"Short term focus on maintaining/attracting businesses to stay or move to Boxborough to fill existing spaces."*

"I like developing a marketing plan and creating a business association to support businesses."

However, others commented that Scenario One didn't go far enough to address the town's economic concerns and the business-as-usual approach is what has been previously tried and failed.

[I am concerned...] *"The proposed development will not provide the necessary tax revenue to meet even basic development or public services."*

"Status quo is reactionary and does not support our town character. Recent development along Rt. 111 does not fit our character or provide amenities. This is scenario is high risk for erosion of our community's character and [is] financially unsustainable. I will likely leave town if this scenario is our long-term approach."

The responses to this scenario seem to broadly summarize the divide in the community—between those who feel the community is just about perfect the way it is and feel that any more

development will ruin it, and those who feel without development and without investment that the community will 'decline'.

Scenario Two, Rural/Agricultural Heritage: Supporters of this approach are excited about the way the scenario adheres to the Town's rural character and how it may generate additional recreation opportunities and agricultural amenities.

[I am excited about...] *"Leveraging our current assets to actually bring our heritage and character together and invest in it. Also, a move toward some level of measured, focused development."* or *"Protecting all that we cherish as a community - rural, agricultural, natural setting - and delicately utilizing these assets to improve economy."*

However, some respondents were concerned that this scenario will not generate the type of revenue needed to address the community's fiscal concerns. The sentiments of excitement can be characterized Respondents concerns are characterized by sentiments like:

"It won't make any money so it probably couldn't happen."

"Too focused on agricultural economy, which is not a 21st century economy... Despite our words, we are not a highly agricultural town - we have a couple of community gardens, which are nice, a horse farm, and a small farm or two, but we do not appear to have a critical mass of agricultural assets that we can leverage for this scenario."

Scenario Three, Village Style Development: The excitement and concerns presented by respondents for this scenario are diverse. Excitement is centered around the belief that village style development will lead to economic growth, provide desired amenities and stop community 'stagnation'. This excitement is reflected in statements like:

"The village green suggestions is what is needed in this community, town has been stagnant for a long time and has been limiting growth."

"I like creating centers for social interaction and economic activity, I also like creating ways for me to spend my money in town, we go out to dinner 1x a week, rarely in Boxborough, last Saturday shopping for the holidays I spent \$100 in Littleton, \$150 in Maynard, \$400 in Acton and \$0 in Boxborough."

However, some are concerned that there simply isn't a market for this type of development anymore.

"Seriously unlikely. We have a restaurant. No one goes. We had a "Tea Room", it failed. I question whether we really would support a cafe, a restaurant, when there are so many VERY nearby."

Others believe that commercial development in Boxborough is a bad idea (in general) or due to natural resource concerns.

[I am concerned with].. *“Everything. Water. Traffic. Destruction of open space. Increased cost of infrastructure.”*

Others think that the village style scenarios simply isn't thinking big enough. For example, one respondent indicated that they felt the village style amenities were missing the mark and the town should be looking to include a large box store since many residents have to drive 35+ minutes to reach these amenities.

Scenario Four, Comprehensive Approach: Along with 'current course' the responses and reactions to this scenario were the most polarized. Respondents excited by this scenario and generally highlight its potential to provide the economic boost needed to expand/diversify the tax base and address anticipated vacancies of office park tenants. Others favor this option as offering more local professional work opportunities while limiting development to near the interstate and revitalizing existing commercial structures.

[I am excited about].. *“TAX REVENUE! and draw for the town. It also keeps development close to 495 (primarily) and 111 which can help keep the outskirts the rural and historic community we love.”*

“...It appears to balance commercial and community growth with least impact on municipal services and thus, TAXES.”

Concerns range from feelings that the scenario doesn't align with their vision of Boxborough, to concerns over its economic, ecological and social implications for the community, to doubts as to whether this scenario could actually attract a 21st century workforce. Many appear to be under the impression that the comprehensive scenario inevitably implies opening the floodgates of the community to the type of low-density commercial sprawl that characterizes other out-ring communities, although the actual scenario instead favors more mixed-use approaches for the adaptive re-use of existing structures over green field development.

“This is not the town I want to live in. I left Northern California 15 years ago to get away from exactly this kind of soulless town.”

“Demands on water resources, increased traffic, air pollution, noise pollution, light pollution, low-paying jobs for workers who couldn't afford to live here--supporting our tax structure through income inequality... It would wreck Boxborough, but those who brought such development here would use it as a resume-builder as they moved on to other jobs.”

So while there is general agreement that this scenario has the greatest potential to boost the commercial tax base, it is also clear that this scenario solicited the most vocal opposition among our respondents. However, given the unrepresentative and voluntary nature of our survey, one should not interpret strength of sentiment as necessarily indicative a majority opinion.

Synthesis: Preferences by selected demographics

Do younger residents favor scenarios that offer more recreational or commercial amenities? Do retirees favor options more likely to diversify the tax base? In this section, we examine these and related questions by cross-referencing the scenario preference questions from Part One with selected demographic characteristics covered in Part Two. More specifically, we examine which scenario best fits with each respondent's preferred vision for the community according to age, length of residence, or whether the respondent intends of moving or staying in Boxborough for the foreseeable future.

The limited number of responses stymie our ability to finely slice the data to identify preferences for detailed sub-populations. However, we can get insight into general preference patterns by first grouping respondents into broad demographic classes. For each characteristic, we define two classes with each including roughly half of the completed responses. For age, we divided the population into those under or over 50 years of age. For length of residency, we distinguished 'relative newcomers' as those living in Boxborough for less than twenty years and 'long-time residents' for anyone living there longer. Lastly, we identify 'possible movers' as respondents who indicated that they were either actively looking to move within two years, were considering moving in the next five to ten years, or indicated 'other' but wrote about an intention to move in the comments section. Those with no discernable plans to move (whether retired or not) were labeled 'likely stayers.'

In general, we see only relatively modest differences in the response profiles whether distinguished by age, length of residence, or future moving plans. Older respondents are more likely prefer Scenario Three (Village Style), whereas the under 50 cohort is split between Scenarios Two and Three (Figure 8). Relative newcomers (Figure 9) also tend to prefer the Village-Style commercial amenities and mixed housing options implied in Scenario Three. However, those with no plans to move favor Scenario Two, which seeks development that compliments the rural character of Boxborough (Figure 10). While not their most preferred option, older and more long-term residents favor the comprehensive approach more than do younger and newer residents. It may be that given their limited incomes, older / longer-term residents are more concerned with diversifying the tax base and see the comprehensive approach as the best path to achieving this end.

Figure 8: Average scenario preferences by respondent age

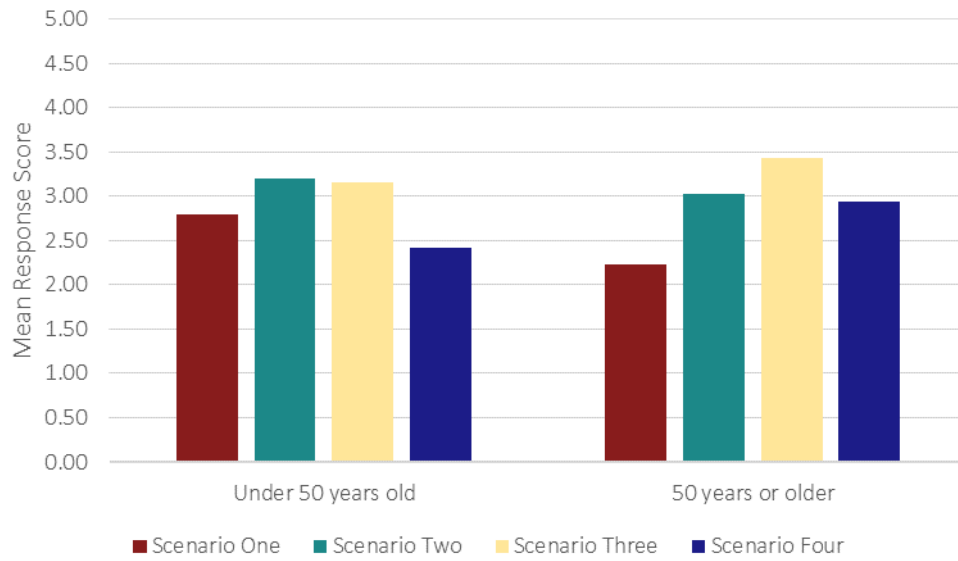


Figure 9: Average scenario preferences by length of residence

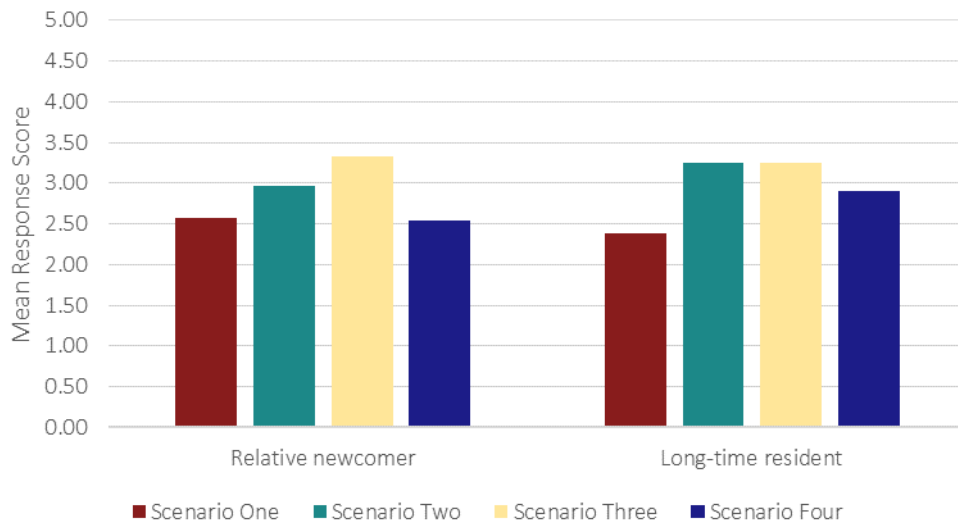
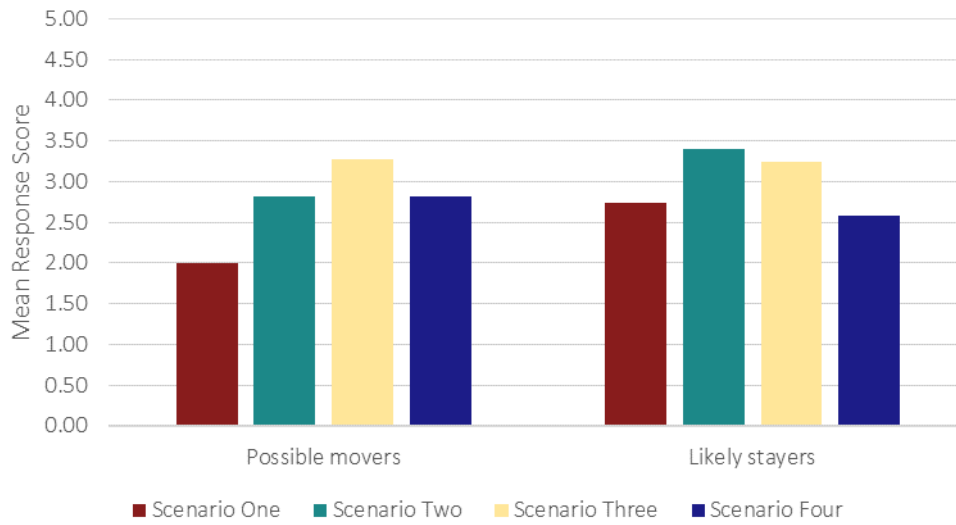


Figure 10: Average scenario preferences by future moving plans



Summary, caveats, and conclusions

The survey responses indicate a preference for either Scenario Two (Rural/Agricultural Heritage) or Scenario Three (Village-Style development). Both scenarios address community requests, such as farmers market and mixed-use retail, that were presented in the Phase I engagement process and the preceding master planning process. Scenario One (Current Course) had the least support, suggesting that residents by and large realize that some change is necessary. However, there is also considerable ‘spread’ within the data, with no clear consensus outcome. It would be erroneous for any group to look at these results and claim a clear victory for their perspective.

Keeping in mind the low sample sizes and skewed respondent profile means that our results are likely biased. It is most likely going to favor the preferences of older and long-term residents, and not necessarily the preferences of the business owners and managers, nor the young professionals the community seeks to attract. Nevertheless, we find that it is generally the older and most-established residents who favor more comprehensive approaches to courting new tenants to the town’s increasingly vacant office parks and expanding local options for amenities and services. Younger and newer residents are more likely to view commercial development less favorably.

In many ways the survey results echo well-known divisions within the community. Many imagine Boxborough as a rural oasis, and fear additional commercial development will erode the town’s character. Then there are those who worry about the continued loss of existing tenants in the town’s remaining stores and office parks, and the hit to the tax base that will follow. They also

worry about the future of a town that provides few work opportunities and fewer amenities that appeal to younger professionals.

This divide is most evident in the polarized and somewhat perplexing reaction to Scenario Four (the Comprehensive Approach). As imaged by the planning studio, Scenario Four calls for the adaptive modernization of the town's existing office parks, with no additional green field development to speak of. While scenario four had many vocal supporters, this scenario also ranked lowest in keeping with "community character" with many fearing this to be an open invitation to sprawling office campuses and commercial development run amuck. It may be that the "comprehensive" label fails to adequately emphasize the added amenities or the re-use of existing sites. Or it may truly be a mixed-use complex just off the highway just does not align with how residents perceive the future of Boxborough.

Nevertheless, it should probably be of little surprise that the Village-Style development embodied by Scenario Three was the most widely favored, as it best represents a middle ground scenario of adding desired commercial amenities that retains the overall community character.

C. Market Analysis

Purpose and Scope

In this section we report on the possible success for different types of commercial activities, such as niche shopping, restaurants, and office space. This is known as a market analysis or a market feasibility study.

What is a Market Analysis?

A market analysis attempts to determine the potential for a successful business venture by forecasting the anticipated demand for a product or service and comparing this to anticipated supply. *Demand* for most in-person shopping, restaurants, and personal services, like beauty salons, comes from the spending of local households. Local businesses *supply* these desired goods and services.

Places where demand exceeds supply are more favorable for new business activity. Likewise, areas that export a considerable amount of their purchases, either by buying online or from further away, might benefit from having a business provide those goods and services closer to home. This expansion of business activity, in turn, will generate new jobs and tax revenues through a process known as import replacement. An excess of supply, by contrast, suggests market saturation. It is more difficult to attract development to a saturated market.

Furthermore, any new activity that did come would be more likely to draw business away from existing enterprises, producing net little benefit to the community in terms of employment or tax revenue.

There is no one size fits all approach to a market analysis. In fact, the analysis of the market for housing, retail and office space requires different data sources and methodologies. Market studies also vary depending upon the specific desires of the client and the available. Some studies take a narrow and deep approach, examining one type of business or a single site in considerable depth and pulling together information gleaned from a variety of sources. This may include a thorough review of plans and documents, site visits, analysis of publicly available secondary data, and in-depth interviews with experts and stakeholders. If the budget allows, they may even purchase data from private vendors that specializing in market information. These kinds of in-depth studies are common when a developer or prospective tenant is nearing the final stages of their site selection process or is courting potential investors. Other circumstances call for more of a broad and shallow approach. This is fitting given with the more prospective nature of their long-term planning efforts. A broad and shallow study typically

examines a longer list of potential activities and/or multiple sites. As such, it tends to be more reliant on readily available secondary data as opposed to more time- and resource-intensive primary data gathering such as interviews and site-level assessments.

Scope

There are four typical steps to a market study (see sidebar “Steps in a Market Analysis.”)

This report focuses on steps three and four: Analysis of Regional Supply and Demand Conditions and Recommendations and Conclusions. Steps one (site assessment) and two (study area profile) were already conducted by the students of UMASS Masters in Regional Planning studio class. The resulting Phase I Technical Memo report covers population composition and growth, housing, and business trends in the Town of Boxborough as compared to other communities in the immediate region.² It also provides an extensive analysis of Boxborough's municipal finances, including a detailed analysis of how recent office vacancies have impacted the tax base. It also assesses whether the Town's zoning aligns with different development scenarios and discusses constraints and opportunities at a variety of different sites around the town.

The scope for the Phase II Market Analysis was developed through an ongoing dialog with municipal officials and the Boxborough Economic Development Committee (BEDC), with additional suggestions from the Town Planning Board and municipal officials. In keeping with the exploratory and prospective nature of Boxborough's long-term planning efforts, the advisory board was interested in having us evaluate an extensive list of possible commercial activities at

Steps in a Market Analysis

Market studies come in many different flavors, although most have several common elements.

1. *Site assessment and inventory*

A market studies typically begin with an assessment or inventory of known conditions to help identify any major infrastructure, zoning or other features that may hinder or favor certain types of development. If the site an entire community or neighborhood, the focus is on identifying area-wide constraints and opportunities, such as school quality, zoning, and municipal revenue.

2. *Profile of the study area*

The site assessment is followed by statistical profile of the target community and market area. The purpose of this profile is to characterize general context for development, while highlighting specific opportunities and challenges, such as key demographic or economic trends that may affect future demand and supply.

(continued next page)

² A copy of the Phase I report is available at: https://www.boxborough-ma.gov/DocumentCenter/View/999/UMass_Economic-Development-Study_Phase-1-Technical-Memo_12-19-2019

Steps in a Market Analysis (continued)

3. Analysis of regional supply and demand conditions

Information gathered as part of the study area profile feeds directly into an analysis of demand and supply conditions. This is the heart of a market study, where much of the detailed data reporting and analysis takes place. It typically cumulates with an assessment of the balance between supply and demand factors - which is used to assess whether there is a potential market.

4. Recommendations and conclusions

The study typically concludes with specific recommendations on which activities would be the most well suited to the site given prevailing market conditions. It also may suggest possible actions that community should take if it wishes to pursue these activities.

several prospective locations. Hence our market analysis, follows a broader approach where we are more reliant on secondary data analysis, while building upon the extensive set of interviews and site work conducted during Phase I. In addition to secondary data, we also reviewed numerous recent studies and reports from trade associations, leading scholars, and others discussing recent trends and the future of the suburban office market, brick-and-mortar retail, entertainment, and personal services.

Potential Sites and Commercial Activities

The BEDC asked the Center for Economic Development to evaluate prospective commercial activities at two potential sites. The first site is named "Boxborough Village" tentatively located on Adams Place and/or adjacent parcels near the Boxborough Regency Hotel just off the 495 interchange. The second is "21st Century Office Park" located on the Beaver Brook Rd. This would potentially include the campus currently owned by Cisco Systems along with adjacent parcels.

Focusing on these two sites, the UMASS Center for Economic Development set about collecting the information necessary to evaluate a variety of uses at each site, as well as the possible synergies that might exist among them. Working with the Planning Board to pursue a "site specific approach", the BEDC put together a list of attractions and activities that town residents might find appealing.

Boxborough Village

Boxborough Village is envisioned as an upscale retail outlet featuring a variety of personal services, a café, causal sit-down dining, small-scale and boutique retail and possibly a medical clinic or urgent health care

facility on the backside of the site, all centered on a grassy common area. The Boxborough Village concept features prominently in the "Village Style" development scenario. The Phase I team evaluated two possible locations for a Village Center style retail complex, one at Adams Place, the other at the historic town Center. The ultimately concluded that, while more centrally located, infrastructure constraints (namely water) and development restrictions at the historic town center made the development of a village-style retail complex unrealistic at this location. The Adams Place site has underutilized capacity and would require less new development in environmentally sensitive areas. The site's proximity to the Interstate 495 is likely to make it additionally appealing to developers and business owners, while minimizing traffic impacts through the town. Redevelopment, however, would require a change in the current zoning to accommodate a greater variety of uses.

The BEDCs proposed commercial activity list for Boxborough Village includes:

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. Mass Ave frontage<ol style="list-style-type: none">a. Pharmacy / Health Clinicb. Restaurant/Tavernc. Fast Casual diningd. Cafée. Hardwaref. Dry Cleanersg. Personal Servicesh. Pet store / Pet servicesi. Small/medium groceryj. General retail | <ol style="list-style-type: none">2. Rear of property<ol style="list-style-type: none">i. Health facilityii. Sports / Entertainment Center (e.g. APEX in Marlboro)iii. Brewery / Distilleryiv. Medical clinic / facility (General health, day surgery, radiology, MRI...)v. Innovation center / startup businesses / micro businesses |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Early on we determined that "general retail" was far too broad to realistically evaluate. Most of the activities for "general retail" is either traditional department stores (e.g. Wal Mart) or discount stores (think Dollar General), and thus would not reflect the actual usage of the space. There is also no industry or commodity code that reports data specifically for innovation centers or start-up businesses. Analysis of this type of activity would require an entirely different type of study far beyond the initially agreed-upon scope of work. Several other activity categories were combined or split due to data limitations. For example, we were unable to distinguish fast casual dining from other types of restaurants, although we were able to eliminate take-out and most fast-food chains. The available data also distinguishes taverns, breweries, and other drinking places for other types of restaurants.

21st Century Office Park

Following years of organizational consolidation, Cisco Systems Inc. announced its intention to sell its East Coast headquarters at Beaver Brook, with plans to lease back one of the three existing buildings for three years from the new owners for its downsized operations. Recognizing waning demand for space in traditional suburban office parks, the Boxborough2030 Master Plan recommends exploring opportunities to rethink underutilized office parks, such as mixed-use “live-work-play” style developments that are favored by more youthful tech businesses. This would include a refurbished office complex with a scaled down and more flexible office space, space for an entertainment center, dining, shops, and possibly an adjacent retirement community.

More specifically, the list of recommended uses for the 21st Century Office Park includes:

1. Office Space: Labs, offices, data center
 - a. Industries: computing, software, robotics
 - b. Corporate/university training centers
2. Commercial Amenities
 - a. Sports/Entertainment Center
3. Housing
 - a. Restaurant/Tavern
 - b. Café
 - c. Health food store
 - d. Outdoor store
 - e. Progressive, Continuing Care Retirement Community

In our analysis, we make no distinction between type of industry (computers, robotics, what have you) or whether the space would be utilized for a lab, training, data center or other use. We lack the time and other resources to conduct extensive first-hand data collection, and most of the available research and data focuses on the overall market for commercial office space, regardless of the specific use or type of tenants.

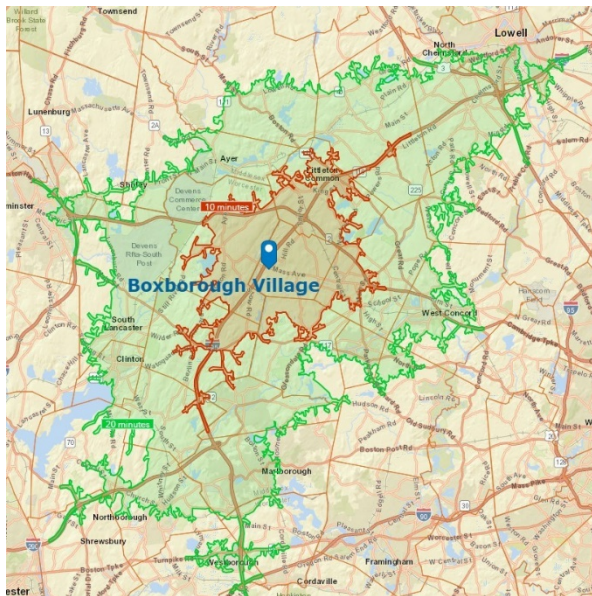
Methods and Data

Defining Market Areas

With the scope defined, our first analytical step is to define market areas for each site and activity type. Market areas represent a reasonable area wherein the business will draw most of its customers. They are also used to identify the location of existing businesses / potential competitors. We use approximate driving times from each site to define its potential market area.

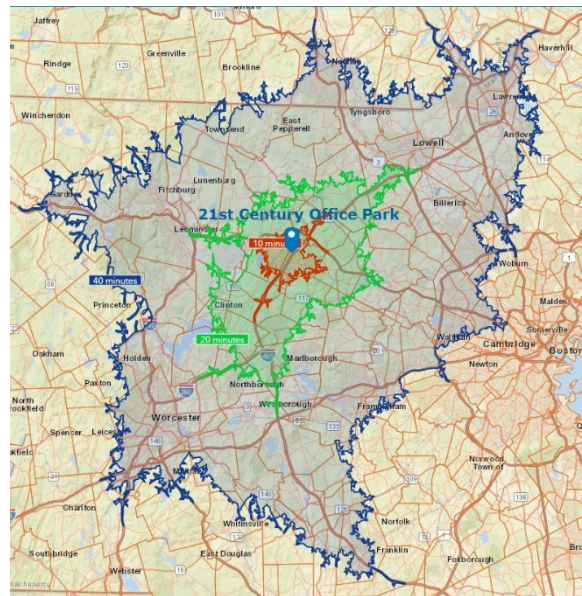
Different types of activities—specialty retail and services, commercial office space, and senior housing—typically draw from different sized markets. Retail and services are usually more local, while commercial and housing complexes tend to be larger. Figures 11 and 12 show the respective drive times for Boxborough Village (showing 10- and 20-minute drive times) and the 21st Century Office park (10, 20 and 40 minute drives). The drive times for both sites are very similar -- not surprising considering that the sites are barely a mile from one another. To keep things simple, we use a common set of local and regional market areas. We center all retail and service-related activities on Adams Place. Office and senior housing are centered on the Beaver Brook.

Figure 12: Boxborough Village Market Areas, Local and Regional



Source: ESRI Business Analyst Online and author's calculations

Figure 11: 21st Century Office Park Market Areas, Local and Regional



Retail, Entertainment, Personal Services

We measure the primary (i.e. local) market area for retail, entertainment, and services activities within a ten-minute drive from each site. We also define a secondary (regional) market area based on a twenty-minute drive time. While we expect most regular patrons to come from the local area, the secondary market is useful for identifying competing businesses that falls just outside of the primary market. There may also be some customers that are willing to drive from further away, although less frequently. The primary market covers all of Boxborough, much of the adjacent communities of Harvard and Littleton, as well as significant portions of Acton, Stow, and Bolton (Figure 11). Twenty minutes along the Interstate allows the secondary market area to draw as far as Lowell to the Northeast and through Marlborough to the south.

It is worth noting that the proximity of the both sites to Interstate I-495 puts them on the route of hundreds of thousands of travelers each day. However, the types activity favored by the community caters more toward the tastes of area residents than typical highway travelers. Therefore, we focus on area residents as the main patrons, but note that pass-through traffic might strengthen the client base.

Office Space

The market area for office space is larger. Corporations and other businesses seeking Class A office space usually engage in a multi-stage decision process when considering a move or an expansion (Salvesen & Renski, 2002). They first consider broad regions, such as states or metropolitan areas, that suits their most fundamental operational and profitability needs. These typically include things like access to critical markets, raw materials, or specialized labor. Only after settling on a region do they start comparing specific sites. So for Boxborough, we assume prospective businesses have already settled on locating somewhere along the outer loop of the Greater Boston region. Thus, the primary competition for Boxborough will be among similar sites within a twenty-minute drive from the 21st Century Office park site (Figure 12). At this range the primary market area spans along 495 from Lowell (to the North) to Westborough. We also define a secondary (regional) study area that is within 40 minutes of the site. This covers the near entirety of the 495 loop from New Hampshire to Rhode Island. The secondary area is mainly used for comparison and identify broader trends in the market.

Senior Housing

We also assume that the market for the proposed senior housing complex will potentially draw from a larger area than does the typical store or restaurant. Similar to office space, we assume a primary market area within a 20-minute drive of the 21st Century Office park. This area follows I-495 from roughly Chelmsford to Marlborough. This area coincides with work showing that many seniors tend to move into progressive housing relatively close to their previous residence in order maintain ties to friends and relatives.

Supply / Demand Analysis

The core of our analysis is estimating the demand for different types of businesses and comparing that to the prospective supply of existing businesses serving those needs. The allows us to identify potential market opportunities as areas where there is underserved demand. Each type of activity requires a distinct analytical approach to measuring local demand and supply. Because of this, it makes more sense to group activities by type than by site.

Retail, Dining, Entertainment and Personal Services

Demand Analysis: Household Expenditures

We measure the demand for retail, entertainment, and personal services by local household expenditures. This covers most of the activities proposed for Boxborough Village, plus several of the non-office supporting components proposed for the 21st Century Office Park.

While we lack information on specific purchases made by area residents, we can approximate demand by matching national household spending patterns to local data on the number of households within the study area. First, we gather information on how much different households spend on different commodities like groceries and pet supplies each year.³ We then match different commodities to specific business activities of interest. For example, the BEDC asked us to examine whether there is enough local demand to support a pharmacy at the hypothetical Boxborough Village site. There is no specific commodity class for pharmacy (a pharmacy is not a commodity, but rather a type of store), so we represent the prospective demand for pharmacies with spending on (legal) drugs, vitamins, dressings, and general medical equipment and supplies. This is an imperfect proxy, as some of these items are purchases from businesses other than pharmacies, and pharmacies sell much more than medical-related good (like chocolate). Yet, this is still adequate as a proxy for area demand.

The final step is to calculate total area spending for the different business activities. This is done by multiplying average household spending on relevant commodities by the number of households in the market area.⁴ The analysis also considers local differences in household characteristics, such as number of people in each household and annual income. The information that we present is based upon 2019 household spending patterns (pre-Covid).

Figure 13 summarizes total household expenditures by type of business activity for the local market (10-minute drive). Figure 14 does the same for the regional market (20-minute drive). Keep in mind that these numbers are not meant to be interpreted with precision – they are based on averages and do not include all relevant goods or services that may be offered by a particular business. Just those that are most often associated with a particular type of business.

³ This information originates in the Consumer Expenditure Survey produced by the U.S. Bureau of Labor Statistics and only reflects national spending habits for households of differing size and income levels. The data is provided through the proprietary ESRI business analysts database.

⁴ The original source of households is from the American Community Survey produced by the U.S. Census Bureau, as reported in the proprietary ESRI business analyst database.

Figure 14: Household expenditures in the local market area (2019)

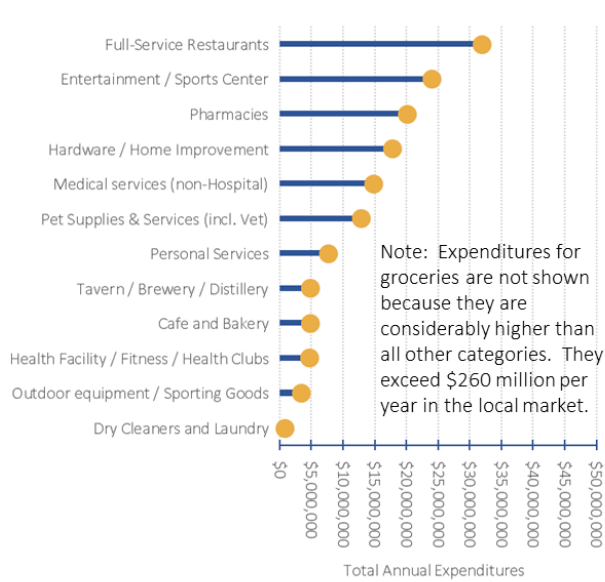
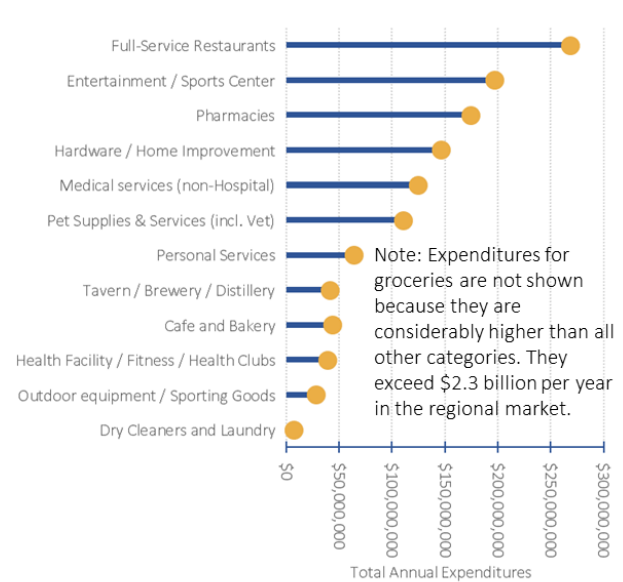


Figure 13: Household expenditures in the regional market area (2019)



At over \$260 million per year, local spending at grocery stores far outstrips all the other listed expenditures groups -- so much so that groceries could not be presented on the same graph as the other groups. This is followed by spending on full-service restaurants and entertainment, at roughly. At the bottom of the expenditure scale are specialized and rather infrequently purchased goods and services—dry cleaning and outdoor equipment.

Supply Analysis: Business Activity

We measure supply by first identifying businesses in the market area that provide a similar good or service to our desired activity groups. Ideally, one would like to have information on the location, product/service market, and sales of specific businesses. Unfortunately, this kind of detailed data on specific businesses is not available through public sources. Therefore, we conduct our analysis using a proprietary business listing database called InfoGroup, which we were able to access through UMASS's site license to the ESRI Business Analyst data engine.

Through a painstaking process of iterative searching, screening, and mapping we identified businesses located in the primary and secondary markets most closely related to the twelve requested activity categories - eliminating those that were less relevant.⁵ We used considerable

⁵ Because our identification is based purely on a variety of online searches and secondary business listings, we cannot guarantee that all of our information is completely up-to-date, particularly given the traumatic impact that the Covid19 pandemic has had on many small businesses but is not yet reflected in the available data. Even so, our analysis is meant more to reflect typical market conditions and not the atypical economic impact from the pandemic.

judgement in matching available industry categories to the desired activities specified by the BEDC. For example, prevailing industry categories do not distinguish full-service or family-style restaurants from other types of “eating places”. Therefore, we filter our searches to only include businesses with more than 10 employees, to eliminate most smaller take-out establishments, and then manually removed all listings of known fast-food chains. Similar procedures and decisions were applied to the other activity groups. The mapped results of our business inventories are included in Appendix C.

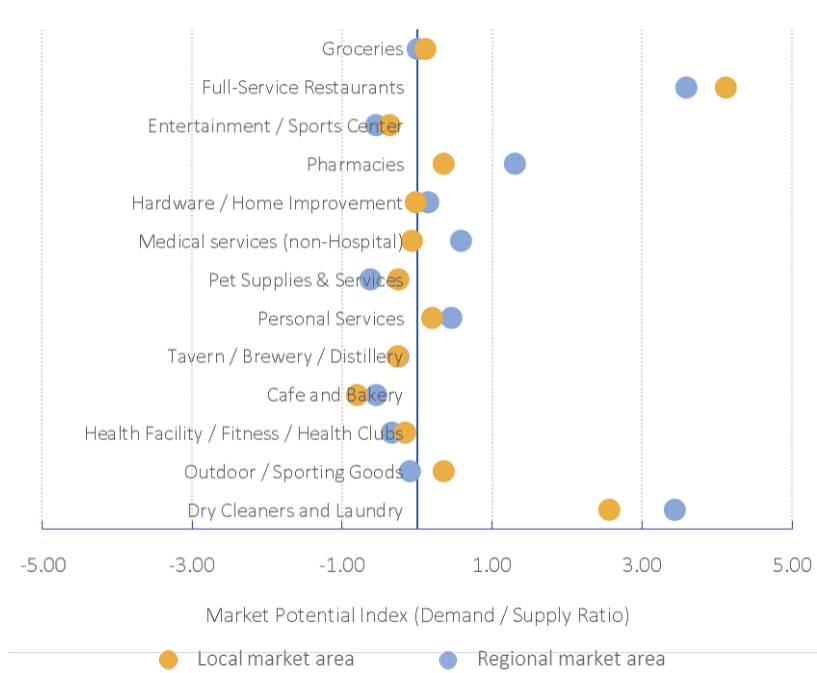
The final step in determining supply is to estimate the approximate sales of existing businesses in the local and regional Boxborough market areas. There is no reliable data source that reports sales for specific businesses. Instead, we estimated sales by calculating the average amount of household spending per business for a larger “reference area” that has similar household consumption patterns as the Boxborough market. The average household spending per business reflects the expected level of household spending needed to support a typical business in each commodity market. We designate the region spanning from twenty to forty miles beyond the site as our reference area. This covers most of the remaining Massachusetts portion of the I495 corridor.⁶ We then multiply the reference area spending average by the number of businesses in the Boxborough market area to approximate the amount of sales we would expect given the number of existing businesses in the region.

Results: Supply/Demand Matching, Commodity Basis

We compute a market potential index to help identify potential opportunities for local businesses. The index is calculated as the ratio of household demand to expected sales given the number of local businesses. We then subtract one from this ratio so that positive numbers reflect market opportunities, while negative number suggests potential market saturation whereby the success of any new business would likely be at the detrimental expense of another. The results from our supply/demand analysis is visualized in Figure 15 with tabular results provided in Appendix D.

⁶This approximation assumes that household consumption behavior and patterns in the larger reference area are similar to those in the market area. As a secondary check, we also conducted the analysis using the Commonwealth of Massachusetts as the reference area. While the results were generally similar, we feel that the remainder of the 495 corridor provides a better baseline.

Figure 15: Market potential, Commodity Basis



Sources: Author's calculations based on data from ESRI Business Analyst, U.S. Bureau of Labor Statistics Consumer Expenditure Survey, U.S. Census Bureau American Community Survey

The largest gaps in the local market area are for full-service restaurants, dry cleaning services, pharmacies, medical services, and other personal services. The maps in Appendix C support this conclusion, as there appear to be relatively few local businesses supplying these services. The regional market shows a broadly similar pattern, although there appears to be less room for additional medical and personal services. It may be more difficult for a local business to draw clients from outside the immediate area. However, we should also keep in mind that personal and medical services are very broad categories, there may still be room for specific niches. For example, while they may not be enough room for another hair salon, there may be room for a day spa. The data is not sufficiently detailed to differentiate between these two types of personal services. The most saturated markets appear to be those for pet supplies and services, as well as cafes and bakeries. However, given the relatively low operational costs and differences with other type so coffee shop, we feel there may be more room for a sit-down coffee shop than our results suggest, which is likely dominated by the existence of chains.⁷

⁷ For example, Starbucks is included in the list of café competitors although we did remove all the Dunkin Donuts because we couldn't distinguish sit-down shops from grab and go or drive through only.

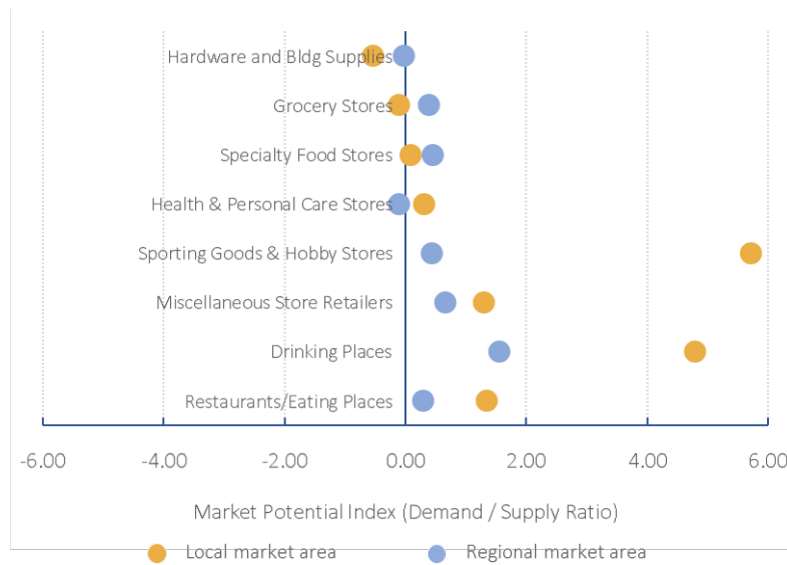
Results: Supply/Demand Matching, Industry Basis

This section presents the results for a slightly different approach to estimating market demand and supply. The previous section was based upon an analysis of commodities – actual items and/or services that are purchased. While it afforded considerable detail describing household consumption patterns, it was limited by assuming that demand for a specific type of business could be adequately represented by purchases of a relatively discrete number of commodities. For example, we proxied demand for a pharmacy by estimating spending on drugs, medical supplies – but not groceries, school supplies or greeting cards. There is also a secondary assumption that households will prefer to purchase a good from the closest vendor. Truth is most stores sell multiple types of goods, and that households will continue to purchase some good from further away (or online) even if there were a more local option.

To account for these limitations, we offer a second analysis based on *industry* purchases and sales. Industries account for multi-commodity purchases and thus may better reflect actual household spending patterns at particular types of stores. The major downsides are that the available industry data does not cover as much detail as that for commodities. For example, we cannot distinguish expenditures at full-service restaurants from limited service or major fast-food operations and things like pet stores get lumped in with a variety of other retailers in the “Miscellaneous Store Retailers” category. A second major limitation is that data on industry purchases and sales is only available for the retail sector. Things like medical and personal services are not covered.

On an industry basis, the largest opportunities in the local market are for sporting goods and hobby stores (the sector also containing outdoor equipment stores), drinking places (includes taverns and breweries), restaurants, and miscellaneous retailers (which includes many things, most notably pet supply stores (Figure 16). There may also be some space for health and personal care stores, which include pharmacies. The general patterns hold for the regional market, although the market potential is dampened because of higher competition.

Figure 16: Market Potential, Industry Basis

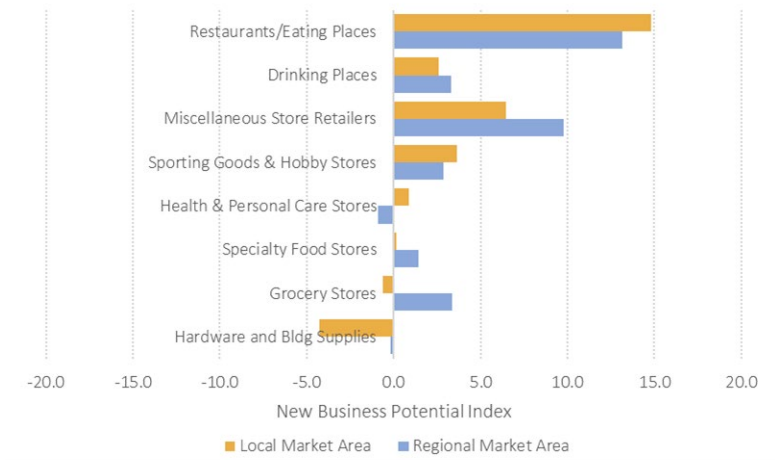


Sources: Author's calculations based on data from ESRI Business Analyst

One final issue with the results presented in Figures 15 and 16 is that they do not factor in that different types of business have a different efficient scale of operations. A coffee shop typically has relatively low overhead and therefore can survive in a smaller market. A grocery store, by contrast, needs a much larger number of customers to remain profitable. To account for this, we developed a “new business potential index” that divides the dollar gap between demand and supply by the average sales per business in the reference (40-minute radius) region. To make the numbers more comparable between the local and regional markets, we then divide both by the approximate area of their market areas.⁸ The result is presented in Figure 17.

⁸ It was not possible to do this for the commodity-based data because it does not contain an independent estimate of local sales, as does the industry data.

Figure 17: Potential Room for New Businesses



Sources: Author's calculations based on data from ESRI Business Analyst

The results are similar to our market potential index, except they indicate stronger local opportunities for restaurants and taverns. Miscellaneous retailers (which includes pet stores) also scores high in the potential for a new business, but the inherent diversity of stores falling into this group makes it difficult to truly determine opportunities. There may also be some room for a sporting goods or outdoor supply store as well as pharmacy (included in the Health and Personal Care industry).

Commercial Office Space

Directly quantifying the demand for office space is more difficult. The prospective buyers for Class A office space in the Greater Boston area could be regional, national or even international in scope. As such, one cannot easily put down a geographic boundary to delineate the number of qualifying businesses that might be searching for space. Business relocations and expansions are also as rare as they are idiosyncratic, and therefore inherently difficult to predict.

Instead, we gauge demand for office space by stitching together disparate pieces of evidence from a variety of qualitative and quantitative sources. We reviewed a variety of industry trade reports and recent studies of the commercial real estate market to get a sense of the general state of the market as well as where the experts think the market is going in the near future. We pay particular attention to studies of the market for suburban office space, especially case studies of recently redeveloped mixed-use business parks in New England. We also use proprietary data from Co-Star to get a local perspective on both demand and supply in the commercial office real estate market. Co-star compiles from a variety of online listing and other sources and includes information on vacancy rates, lease rates, changes in rentable building area, and other measures of regional real estate market.

Pre-Covid trends in Commercial Real Estate

Even before the COVID-19 global pandemic, the market for Class A suburban office space was coming off several lean years. By the 2010's many suburban complexes were now decades old and beginning to show their age (Read, 2019). They were developed at a time when white collar businesses were streaming out of central cities and fueling metropolitan expansion. In part, businesses moved to the urban-rural frontier to move closer to its professional talent while favoring sites with ample space, parking, and serenity and security of a greenfield campus.

But by the early 2000s the pendulum had begun to swing back toward cities, coinciding with a broader renaissance of the city and urban life (Malizia & Song, 2016). Crime rates were going down in many big cities and the rising millennial generation found itself increasingly drawn to the diversity and excitement of urban life and culture (Florida, 2005). In the innovation age, access to technical talent and knowledge workers became even more critical factor driving profitability, and businesses soon began re-establishing their presence in downtowns and newly founded "innovation districts", such as the South Boston Seaport (Drucker et al., 2019; Katz & Wagner, 2014). Planners and municipal officials tried to capitalize on this trend by promoting millennial-centric amenities – cafes, pocket-parks, micro-breweries, bike share kiosks and the like.

Cities themselves became relatively more productive and profitable after the turn of the century (Moretti, 2012). The continuing transition of the economy toward innovation favored dense areas where novel ideas spawn from the free and often informal exchange of ideas among people with different backgrounds and perspectives (Glaeser, 2011). This contrast with the suburban research park model, which favors a model of more specialized and incremental modes of technological change and knowledge exchange -- put a bunch of similarly-minded experts together where better protect trade secrets and proprietary knowledge (Saxenian, 1994).

The cost calculus that initially favored (cheaper) greenfield sites had also shifted, due primarily to the proliferation of information technologies and related shifts in corporate structure. Remote communications made it feasible to decouple front and back office operations. Back office and production and other less-knowledge intensive functions moved further into the periphery or were offshored. Needing less space, meant many headquarter operations, which still thrive on in-person interaction, could afford to move back downtown while R&D centers were drawn to increasingly to knowledge hubs near Universities or other sources of ideas and talent (Salvesen & Renski, 2002).

There were, however, signs that the corporate move back to cities was already beginning to slow, even before Covid19. There are several reasons for this. First, is cost. Lease rates in downtown commercial real estate had already begun to priced-out all but the major players in the nation's hottest markets, like Boston. Perhaps even more importantly, the overheated residential real estate market in big cities was beginning to force out talent - the key factor

driving business location decisions. Rents have just gotten too high for most young people and young families. There were also signs that many of the Millennial generation, now moving into its 30s, were beginning to settle down, build families, and seek more personal space. However, many younger families, by and large, still favor many of the trappings of urban life and are recreating dense activities centers in their new suburban environs (Dunham-Jones & Williamson, 2008). They crave walkable and bikeable communities with nearby entertainment opportunities -- while also wanting some personal space, access good schools and open public spaces.

In response, many began rethinking the suburban office park campus model by developing mixed-use facilities that combined office space with more flexible configurations that included on-site restaurants, shopping and entertainment experiences, while also proximate to (relatively) affordable housing of the kind promoted by new-urbanists and favored by younger knowledge workers (Dunham-Jones & Williamson, 2008). “Live-work-play” had become a common mantra for these emergent places where the lines between personal and professional spheres were increasingly blurred (Jansen & Ryan, 2019).

Among the most infamous case examples of the modern mixed-use office park, are the ongoing plans to add a village center to the Research Triangle Park (RTP) in the Raleigh-Durham-Chapel Hill region of North Carolina.⁹ The RTP was originally developed in the 1950s as the quintessential suburban research park, with long winding driveways leading to isolated and self-contained corporate campuses (Luger & Goldstein, 1991). Not part of a formal incorporated municipality, the RTP barred residential development and with them the need to provide costly household amenities, like schools and parks. By the 1990s the park had become a driving force behind the ascension of Raleigh-Durham as an emerging tech hub claiming home, claiming home to many marque tenants such as GlaxoSmithKline, Nvidia, and IBM. But by the 2000’s even the infamous RTP was feeling the pressure from tenants who were finding it difficult to attract young talent. HubRTP is their response, literally creating a downtown at the heart the RTP with over 1 million sq ft of Class A office space, 75,000 of restaurant and retail, a 150 room hotel and conference center, 13 acres of conserved green space, and 800 apartment units – all designed to cater to the sensibilities and interests of educated 20 and 30 somethings.

⁹ <https://hub.rtp.org/>

Figure 18: Artists' Visualization of Hub RTP



There are several examples of converted mixed-use office parks closer to home. The Phase I study profiles the nearby community of Marlborough as a comparison, especially relevant in its efforts to revitalize its office parks, such as the former HP campus that is undergoing transformation into a mixed-use community named Marlborough Mills.¹⁰ A recent paper by Jansen and Ryan (2019) that examines retrofitted suburban office space among communities along Boston's original tech beltway, the Route 128 / I-95 corridor. Along with interviews with area developers and municipal officials, Jansen and Ryan provide two detailed case studies: Burlington's North West Park and Needham Crossing in Needham. The two examples differ in that the

redevelopment of North West Park was initiated by the developer, while the master plan for Needham Crossing was orchestrated by the municipality itself. But beyond that, the two cases have many similarities that are relevant to Boxborough. Both were redeveloped amidst concerns over growing obsolescence, business needs for attracting talent and concerns over the erosion of the municipal tax base. Both are designed as "live-work-play" communities with a combination of retrofitted buildings and new construction which required revisions to the town's existing zoning and set-back standards. Both also faced challenges from area residents, who were mainly concerned that the multi-family housing components would potentially lead to overcrowded schools, increased traffic, and other threats to property values and community character. By the same token, affordable (not necessarily low-income) housing is key to the success of a mixed-use development, as it is a primary factor drawing office tenants as is necessary to support on-site commercial venues. Nevertheless, community leaders see both projects as successes that they attribute to dedicated leadership, ongoing and open dialog with the community, and a tight regional housing market.

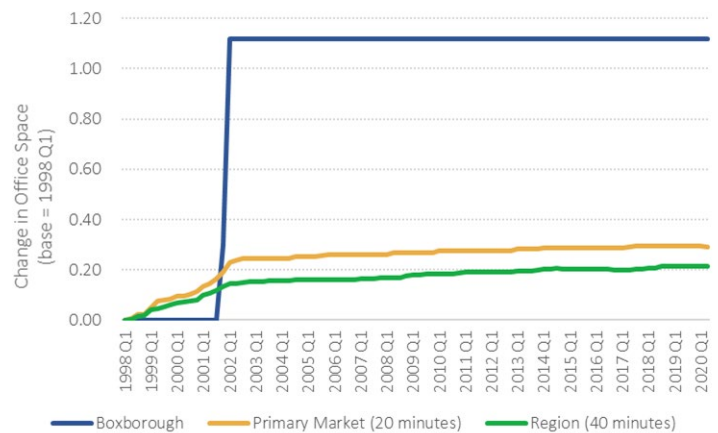
¹⁰ See Boxborough Economic Development Study: Phase 1, Technical Memo (Dec. 2019). Appendix D: Regional Context & Case Studies.

Regional Market Trends

Inventory

Our data on the local real estate market for office space largely mirror these national trends. There has been almost no growth in office space in the area since the early 2000s (Figure 19).^{11,12} The last time Boxborough added to its office inventory was 2002, when space nearly doubled with the addition of nearly 600,000 sq. ft. You do not see such dramatic swings in either the primary market (20-minute drive) or the region (40-minute drive), because their larger size tends to smooth over idiosyncratic events. Regardless, the basic story is the same, little new office capacity was added in the region since the turn of century. In fact, there was even a slight decline in the region's office inventory since 2018, which may be due to some older buildings being taken off the market or other being reconditioned or repurposed for non-office activities.

Figure 19: Inventory of Office Space, 1998 to 2020
Measured relative to inventory in the 1st quarter, 1998



Source: The CoStar Group, Inc.

Vacancy Rates

The next set of metrics considers how available office space is being utilized. First, we consider vacancy rates. CoStar defines a vacancy rate as the percentage of building area that while potentially usable, is not currently in use.¹³

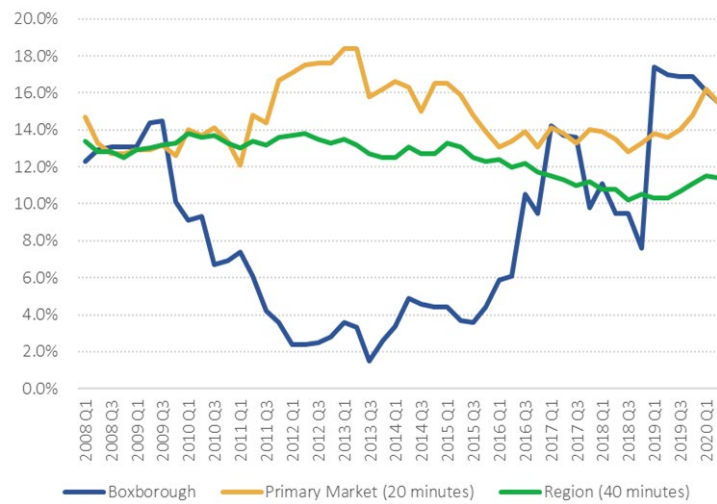
¹¹ The section makes extensive use of data from CoStar to provide information on conditions in the commercial real estate market in and around Boxborough. CoStar is a leading provider of real estate information, and data are available for most of Massachusetts on a quarterly basis from 2008 until the second quarter of 2020, with some limited data available from the late 1990s. For more information about CoStar Group Inc. and the CoStar database, please visit <http://www.costar.com/>.

¹² Office commercial real estate typically includes the offices of professional service firms, including lawyers, doctors, and government buildings, etc.

¹³ CoStar vacancy rates do not take into account abandoned buildings that are not on the market and thus may underestimate true vacancy rates in communities with considerable blight.

Vacancy rates in Boxborough were steadily rising even before Covid19 turned the real estate market on its head (Figure 20). Office vacancies in Boxborough bottomed out in 2013 at just below 2 percent. Just five short years later, nearly 200,000 square feet of Boxborough office space lie dormant -- over 17 percent of the town's total capacity. The vacancy rate has actually declined slightly since the start of 2020, both for Boxborough as well as for the primary market area and broader region. However, our data only covers up to the second quarter of 2020, and likely does not register the full impact of the Covid19 pandemic or its ensuing recession.

Figure 20: Vacancy Rates, 1st Quarter 2008 to 2nd Quarter 2020
(percent of total square footage)



Source: The CoStar Group, Inc.

Net Absorption

Net absorption measures the net change in occupied space in available building area from one quarter to the next. Net absorption is measured quarterly, so each point measures the net change in occupied building area during that quarter. Zero net absorption indicates no change from the previous quarter. Several consecutive quarters of positive net absorption indicate a shrinking supply of available space. This sends a signal to developers that the market may be ripe for investment.

Figure 21 report net absorption from 2008 (near the start of the Great Recession) until the second quarter of 2020.¹⁴ By late 2019, Boxborough was just beginning to emerge from several years of negative net absorption - implying excess supply. However, the emerging trend since has fluctuated around zero, indicating relative stability rather than a seriously tightening supply.

¹⁴ Although typically measured in square feet, Figure 21 measures net absorption in standardized units (i.e., each divided by its standard deviation) to allow for comparison across areas of fundamentally different sizes

But because Boxborough is such a small market, its trends are susceptible to idiosyncratic events. Better to consider regional trends as indicative of the overall health of the market, as investors and mobile businesses tend look at market areas as opposed to specific towns when making investment decisions.

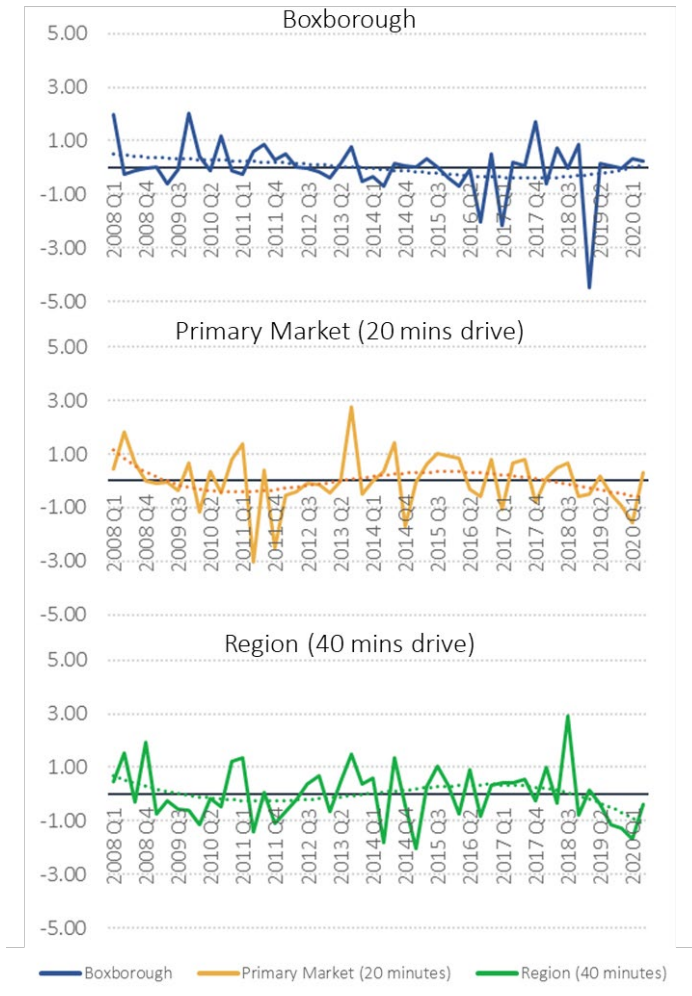
The primary and secondary market areas share a similar pattern to one another, but differ from Boxborough. The regional market was generally tightening in the wake of the Great Recession, with several notable quarters of positive net absorption. Since 2019, however, net absorption began to swing negative. This largely precedes the onset of Covid19 and may be indicator of a wave of office construction in the Boston core, which, while not included in our study area does exert competitive pressure on the outer beltway market. We expect the regional market to remain soft for the next several months and possibly years, as expansion and relocations are unlikely given the weak economy and general uncertainty.

Lease Rates

Price is another important factor in an area's real estate market. While there are many factors that determine what price property owners can charge, it stands to reason that those areas with higher lease rates are seen as more desirable by businesses and organizations seeking rental space.

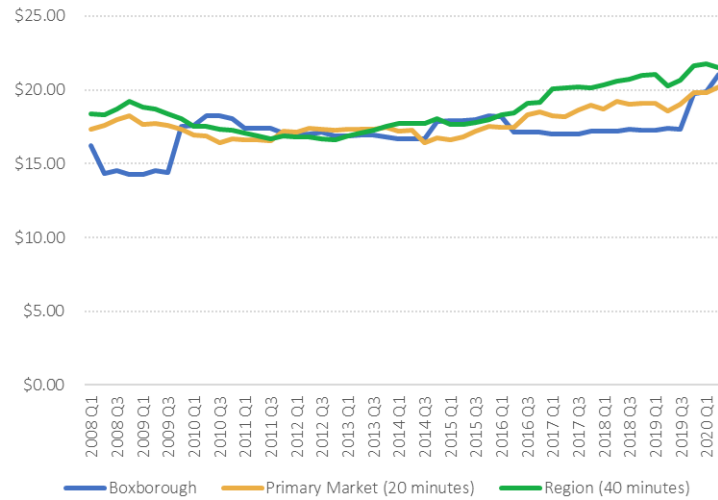
Office lease rates in Boxborough are generally on par with the broader region, although more erratic as is typical for small markets (Figure 22). Since the Great Recession, lease rates in the market and region have been rising, albeit at a gradual pace just slightly above the rate of inflation. Lease rates rarely go down, and thus a relatively flat trend is more indicative of lackluster demand.

Figure 21: Net Absorption, 2008 to 2020 (2nd Qtr) in standardized units, dashed lines = 4 qtr. moving



Source: The CoStar Group, Inc.

Figure 22: Gross Leasing Rates (Rent) in Office Space, per sq ft.



Source: The CoStar Group, Inc.

The Impact of Covid19

All forecasts rely, in one way or another, on examination of past events and using this understanding to make some prediction of the future. But there is no precedent for the truly monumental shift in human behavior and attitudes that followed the COVID19 pandemic and the ensuing global economic recession.

Covid19 has completely unrooted the real estate market, although nobody is quite sure how we will come out on the other end. A recent report from the NAIOP Research Foundation (the leading national association of commercial real estate developers), forecasts negative demand for office commercial until at least the 3rd or 4th quarter of 2021 based largely upon its experience with past recessions (Guirguis & Savage, 2020). Although they also warn that the fate of the recovery depends greatly on progress toward abating the virus, of which we have since seen very little.

There is also much speculation on how Covid19 may alter the type and location of office space demanded. Some predict a reversal of pre-Covid trends of increased urbanization, as the biggest and densest cities were among the worst-hit early in the pandemic. While these fears are likely to affect location choices for some, they should not be overstated. Fear itself does not change the economic logic of agglomeration that initially fueled re-urbanization, although it may cause some businesses to rethink which activities truly require density and face-to-face and which do not.

The more pertinent question to ask is how the pandemic may have influenced changes in how we work and whether these changes will be temporary or enduring? Some suggest that, at least

in the short-term, workers returning to the office will insist upon increased separation and more personal space, in contrast from the more open and communal office concepts that dominated design considerations pre-Covid. If true, this could increase the demand for larger office spaces. However, this also assumes that workers will indeed want to return to a physical office.

We believe the more enduring legacy of Covid19 will be its acceleration of remote and off-site work. Even before Covid, there was a steady increase in flexible work arrangements such as contract (i.e. gig) and remote workers (Wallace, 2019). Although many workers and companies remained skeptical, so adoption was slow. Almost overnight, remote work became the norm for white-collar workers and within a few months many have gotten used to it. Some hate it, with the distractions of home, children, pets and the troublesome bleeding of work into personal space. Others appreciate the convenience, flexibility, and autonomy. Businesses have also gotten more comfortable with remote work arrangements. Many have recognized that it can help their bottom line, by eliminating the costs of maintaining a large physical office and spreading these costs out over their workers. On the other hand, many of the advantages of face-to-face work remain, such as knowledge spillover and building interpersonal connections among workers and with clients.

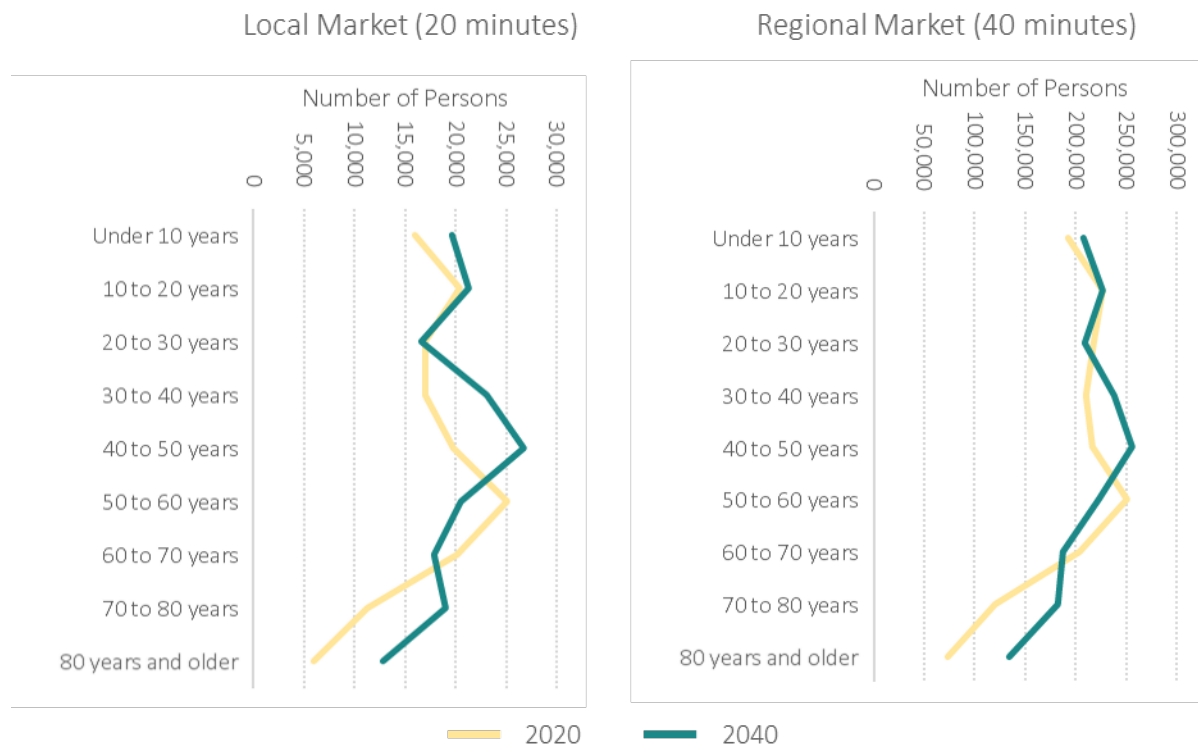
In the end, we do not think that remote work will entirely replace the need for in-person work. After the virus subsides, some people will return to the central office, while others will decide to remain working from home at least part-time. The need for physical space will not go away entirely. Businesses will still need space for their most innovative workers to brainstorm and collectively solve problems, while also having a separate office to retreat to when needed. Some businesses will still need facilities for work involving specialized equipment, such as lab work, as well as other forms of highly sensitive work where security and secrecy is paramount. Executives will still want to get together for in-person meetings with key clients and contacts, although perhaps with less frequency than before.

Even with a mass exodus from the cities, which is doubtful, there is unlikely to be much renewed interest in large box, single-use, vintage suburban office parks of the style built in the 80's and early 90's. While there may be willing buyers and tenants in isolated instances, the general trends are not favorable. Overall, companies will likely demand less office space than before, and the space they want will have a much smaller physical footprint than in the past. There are already signs that some larger businesses are exploring various hub-and-spoke models, with a string of small suburban satellites linked to the downtown HQ. Another trend may be the (re)emergence of co-working spaces or tele-commuting hubs. The communal model of the co-working space did not fare well under the Coronavirus, but after the virus subsides it is imaginable that remote workers might find these spaces a welcome respite from working from home, while still forgoing the dreaded hour-long commute to the office.

Senior Housing

Housing demand is typically estimated by examining forecasts of the resident population, with a keen eye towards specific demographic groups. For a senior housing complex, we are mainly interested in people that are now, or will be, over the age of 70 within the next several decades. We use a technique known as Cohort-Survival modeling to develop a short-term of population from the American Community Survey of the U.S. Census Bureau. Cohort-survival models use past and current trends on the age progression of the resident population to predict the future age profile of an area (Klosterman et al., 2018). This method is particularly valuable when there are strict data and other resources limitations that prohibit a more rigorous analysis of population trends. Figure 23 illustrates the current and anticipated age profile of the resident population, for both a local and regional market. We assume that the demand for a new senior housing complex in Boxborough will primarily come from area residents, and not from people currently living further away.

Figure 23: Age Profile of the Resident Population, Current and Future



Sources: Author's forecasts based on data from the U.S. Census Bureau American Community Survey and ESRI.

Two immediate trends stand out for the local market area. First, the resident population is expected to continue to age forward into the eldest age groups, namely those 70 and above. In 2020, there are just over 17,000 local area residents age 70 years and older. By 2040, this number will be above 31,000—a substantial increase of 84%. This is entirely consistent with what we have been seeing for the past several decades with the aging of the Baby Boomer generation dominating most regional and national demographic trends. We see a generally similar trend at the regional scale.

The second trend is perhaps even more revealing, if not as immediately apparent. We expect the fastest growing cohort in the next twenty years will not be the elderly, but rather middle-aged residents, those who will be between 40 and 60 years old within the next twenty years. This is the millennial generation who is currently the focus of much interest and focus of employers in their quest for talent and human capital. In the recent past, Boxborough has been relatively successful at attracting young families, in no small part because of the stellar reputation of its schools. But Gen X'ers (now in their late 30's through 50's) with families are a relatively small cohort, and thus their influence on population dynamics has been eclipsed by Boomers. Not so with millennials, who make up a sizable portion of the population and are only just now starting families and thinking about issues like schools and personal space that has generally attracted people to Boxborough in the past.

What this says for the anticipated demand for elderly housing is not entirely clear. There will be growth in the target demographic of elderly persons in the coming decades, with more and more baby boomers seeking to downsize and be in an environment with better access to medical care, focused activities, and paratransit services. However, the rate of growth of the elderly population will begin to slow over the next two decades, and there is a mild risk of over-building senior housing looking twenty to thirty years out. This of course depends upon the current and anticipated supply, of which we turn next.

We measure the supply of existing senior housing in the area via an inventory of senior living communities in the area. We developed this inventory by searching several web-based business directories using a variety of key terms such as senior, assisted, progressive care, and retirement in combination with secondary search terms such as housing, living and facilities. We then culled the list by removing other activities, such as senior centers, adult day care services, elderly companion services, geriatric care medical clinics, and the like. We caution that our analysis of the supply of senior housing is limited in several key respects. First, despite our comprehensive search efforts, we cannot guarantee that we identify every senior housing facility in the region and that all of those found are still in operation. We also could not find information on the age, capacity or quality of the senior housing stock. As such, we cannot tell how long different facilities may remain in use over the next twenty years, nor do we know the number of residents that they can serve. Our analysis also does not include unbuilt or planned facilities, such as the

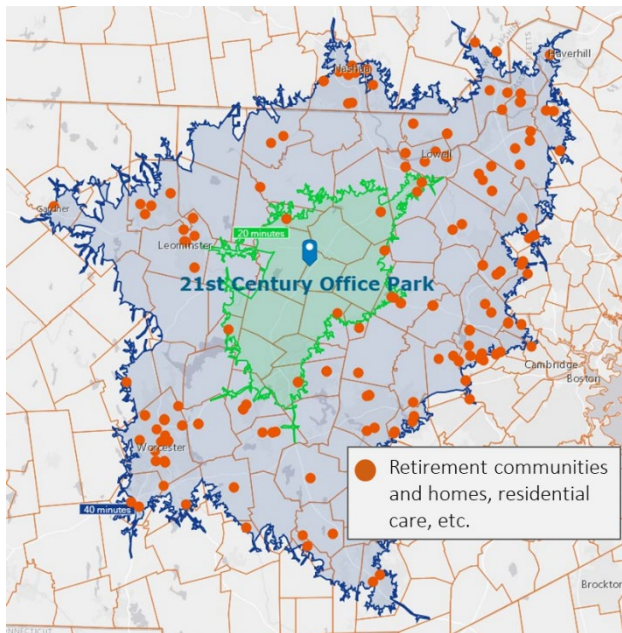
anticipated 50-unit development recently approved for the Town Center on Massachusetts Avenue. It also does not include residential developments and other active adult communities such as the 55+ Tisbury Meadow development on Stow Road, that, while catering to older residents, are not explicitly coded as such on available databases.

Given these limitations, we were able to identify 160 retirement communities, residential care homes, apartments, and similar residential developments focused on senior (Figure 24). Very few (nine) are within the local market area, and those are mostly on the outer fringe.

Although the 50 senior housing units planned for Mass Ave. will clearly cut into this, as do other known active adult communities such as Tisbury Meadow, Sheriff's Meadow, Summerfields and the Hill Road condominiums. So while there is still a market for some additional senior housing in Boxborough, at least in the near future, the long-term prospects for such targeted units is far less certain.

The more relevant question is not whether there is enough demand for more senior housing in Boxborough but whether senior housing is the right fit for the envisioned mixed-use office park. It is our professional opinion that a senior housing complex would do little to compliment either the office park or onsite restaurants, cafe, or other entertainment options. The live-work-play aspects of modern business districts are meant to be mutually reinforcing. The lure for many businesses in the knowledge and tech space is to have onsite housing options to help it attract the highly prized millennial and Gen Z workforce, who are, in-turn, drawn in by the prospects of living near both work and entertainment options. We understand that for many communities, it is typically the housing component that kills mixed-used development proposals, with concerns over impacts on schools, traffic and community character. However, for the developer, it is the inclusion of modestly-priced housing targeting toward younger workers and their families that completes the circle. And with many suburban properties on the market right now, it is hard to see why a developer would need to settle.

Figure 24: Location of Senior Living Facilities in the Region



Summary and conclusions

In this section we conduct a high-level analysis of potential market opportunities in a variety of retail, office, and residential activities. Because of Boxborough's unique quality as an affluent community with few commercial enterprises, there are many viable market opportunities for local goods and services. We conclude that there is sufficient room for a full-service or family-style restaurant and or breweries/taverns. This is critical, because good food and drink is at the heart of any successful commercial commons. They are the modern-day anchor tenants, which can draw people in, help establish a location as a community gathering spot and destination, while also supporting complementary businesses like specialty retail, small-form entertainment, and specialized personal services such as day spas and salons.

The suburban office market is not as favorable. Even before Covid, interest in traditional suburban office campuses was waning, with major tech and innovation-dependent companies shifting their focus back to the city to attract talent and benefit from knowledge spillover between people. The increased vacancies in Boxborough's office parks are a testament to this. In response, some developers began to successfully reimagine the suburban office complex as mixed-use "live-work-play" communities, with on-site housing, entertainment and more flexible office configurations to handle a larger number of smaller tenants with a greater variety of needs.

Covid19 has put the entire commercial real estate market on pause. Office tenants have, thus far, kept paying their rent. But few are moving and any pre-pandemic expansion plans are on indefinitely hold for most. No one is quite sure what the market will be like as we slowly begin to emerge from the pandemic and ensuing recession. Our prediction is that the lasting impact of the pandemic will be how it has accelerated and amplified remote work as a viable competitor to the traditional physical office. Workers may very well remain wary of closeness for some time and yearn for the less-dense settings and enough workspace to allow one to have an actual office again. However, the bigger trend will be less demand for office space overall and the spaces that will be favored are likely to be those that are flexible and can replicate some of the most desired traits of the urban locale, but without the urban locale.

Our housing analysis suggests that there will be sufficient demand for additional senior housing in the region, even with the prospect of 50 added units in Boxborough near the historic Town Center. However, the demographic trends of aging boomers that have fueled skyrocketing demand for senior housing are beginning to wane. There will still be a scores of seniors in the years to come, but they will soon be eclipsed by Millennials looking to start families and seeking areas with more space and good schools. We also question whether senior housing is the right fit for a mixed-use 21st Century Office park. Senior housing might seem like an acceptable alternative for Boxborough, which understandably worries about developmental impacts and the

loss of its unique character. However, senior housing has very little “synergy” with the entertainment and office functions that provide the other two pillars of a mixed-use office park. Businesses want on-site and nearby housing to help them attract workers. In the R&D and tech world the most desired workers are highly educated Millennials and Generation Zs.

D. Community Discussion Forums

UMASS Amherst’s partnership with Boxborough cumulated with two “virtual” community discussion forums. The first was held on a Thursday evening on September 24th, with nearly 80 community members in attendance. The second was held on the morning of Saturday, October 3rd, with nearly 50 participants.

The overall goal of the two forums was to have a wide swath of the Boxborough community (residents and businesses) discuss the economic challenges faced by Boxborough and chart a course forward to achieving a shared vision of the future.

The first session began with a summary presentation of the Phase I study and a review of the four development scenarios by Dr. Camille Barchers. This was

followed by presentation of the preliminary results of the market feasibility study by Dr. Henry Renski. Dr. John Mullin then set the ground rules and provided the instructions for dividing the audience into five breakout groups, one for each of the four phase 1 scenarios, plus a fifth to discuss the Cisco Beaver Brook campus. Graduate student volunteers from the UMass Masters in Regional Planning program staffed each breakout room, taking notes and helping to keep the discussion on track, if needed. Community participants were tasked with identifying the strengths, weaknesses, opportunities, and threats associated with each scenario. They were also asked to identify potential actions that the community could take within the next year to advance the desired outcomes from each scenario. A summary of the discussion topics from each of the topical breakout rooms is included in Appendix E.

Figure 25: Promotional Flyer for the Community Discussion Forums



Town-wide priorities

The Town should...

1. Protect and build-upon rural character
2. Encourage a village-style retail center and commons
3. Support re-use of vacant office parks
4. Update zoning bylaws

The second session convened a little over a week later, beginning where the first session left off. It began with a brief recap of the previous forum and an update from the Boxborough Economic Development Committee on the state of the Cisco Campus sale at Beaver Brook. Drs. Renski and Mullin then presented their assessment of town-wide priorities, based largely on their analysis of the discussions from the first community forum. Community members were asked to discuss these priorities in small group breakout rooms, with instructions to identify additional priorities that may have been left out from the preliminary list or identify others that did not belong.

The town wide priorities were organized into four general areas.

1. Protect and build-upon rural character

Boxborough residents love their community's natural places, farmlands, historic structures, and overall rural character and small-town feel. Many fear that allowing for further development will necessarily detract from their prized quality of life and may threaten their property values.

However, there is also a recognition that the town needs to adapt to the changing times. With big box stores filing for bankruptcy, shopping malls closing down, and suburban office parks emptying, communities like Boxborough face a different suite of development challenges that they did in the 1990s and 2000s when suburbanization along the I495 loop was rampant. Many wonder whether it possible to promote favored types of development in order to diversify the tax base, without the losing Boxborough's unique character? As one respondent put it, "can we have office parks and still be rural?"

In search of this balance, the townsfolk favor a suite of actions that protect and preserve existing open spaces, build upon existing natural resources and amenities, funnel development into existing sites closer to the highway where traffic impacts will be minimal. Some of the specific recommended actions include:

- Prepare an agricultural/local food systems marketing plan
- Favor re-use over new development
- Protect from further farm loss

- Look for ways to expand farmers markets, events and festivals, and support locally produced goods
- Develop and improve connections on the rail/trail system
- Maintain protections for, and expand, current recreational / cultural / natural systems – include recreational trails and historical features as assets in future economic development plans

2. Encourage a village-style retail center and commons

Preserving rural character does not, however, mean isolation. While they pride their pastoral quality of life, many Boxborough residents also yearn for more public and common spaces where they can gather with friends and neighbors and help build a sense of community and kinship among residents. Many would also like the convenience of having some commercial activities closer to home, so long as they are tasteful and in keeping with the community character. Survey results from Phase I indicate that residents regularly drive upwards of 20 minutes just to go out to eat. The lack of local services not only leads to more traffic on area roads, but also represents a lost opportunity to broaden the tax base and create a scale-appropriate commercial commons that would naturally serve as a hub for civic life. The lack of local amenities also makes it more difficult to attract new businesses to fill vacant office parks, as employees have few local options for lunch, filling errands, or unwinding after work.

The breakout room discussions of forming a Village Style center range from the aspirational to the highly practical. Concerns over traffic, the environment, and other development impacts are front and center, as limits to the town’s water and sewer capacity. Participants discussed possible locations, with many imagining the historic town center as the natural candidate for a Commons – despite noted infrastructure and environmental constraints. Others favor the prospects of re-developing parcels in the village-style, such as Adams Place, which has infrastructure in place, avoids the development of natural spaces, and has superior access to the Interstate that would reduce through-town traffic impacts. Of course, redevelopment is costly. Office parks are not designed to easily morph into modern retail centers and there are still unanswered questions regarding what uses could actually be supported by existing water and sewer systems? And while our analysis shows a sufficient local market to support a restaurant, cafe and other services, it is unclear whether a specific developer would see enough potential profit in developing a village-style commons in keeping with the Town’s rural character. One participant discussed the “chicken-egg” challenge of retail development – you need for a stable commercial base in place before launching retail but office parks will want to see retail in place before signing a lease.

Despite these potential challenges, there was ample support for the idea to warrant further consideration. Some specific recommendations include:

- Focus on small scale and local businesses (no big box)
- Look into the possibility of a ground floor restaurant at 1414?
- Study water/sewer capacity for specific sites.
- Minimize traffic and capitalize on existing infrastructure by favoring re-use of sites near highway
- Have the historic center redesigned as a space for ad-hoc events (such as festivals or farmers markets) that would not require major infrastructure upgrades. Pursue a commercial common elsewhere in town.

3. Re-use of Office Parks

As mentioned previously, the community generally favors the re-use of parcels over greenfield development. On the one hand, recently vacated office parks, such as Cisco's sites at 1414 Mass Ave. and Beaver Brook, both have onsite water, sewer and other critical infrastructure systems already in place – although no one we spoke to was quite sure of existing capacity at either site. On the other hand, many recognize that the demand for the traditional suburban office parks was waning, even before Covid19. Office park tenants are demanding less space than before, but more flexibility and a greater variety of on-site amenities. Many businesses also expect moderately affordable housing either onsite or nearby to satisfy the demands of the workers.

There does seem to be some support among residents to allow for mixed-use development options at existing office parks. Nevertheless, the overall tone is to proceed carefully and with caution. Any proposed re-use would need to be evaluated in terms of capacity limits, traffic impacts, and more general impacts on community character. To paraphrase one resident, "better to wait for the right buyer—one who shares and is willing to commit to the community vision." However, Boxborough would be wise to articulate a clear vision of what it would like for its office parks sooner rather than later, as the current owner is looking for a rather quick sale and the window for the community to influence the process may close quickly. Some of the specific recommended actions include:

- Improve mass- or para-transit connections with commuter line station, be cognizant that parking at the station is a major constraint
- Preserve on-site recreational trails
- Clarify the town's responsibilities and rights vis-a-vie any new owner/developer
- Check the feasibility of the town purchasing some of the (Beaver Brook) parcel, presumably to preserve some of the valued recreational features

- Study the revenue impacts from lost taxes from vacant office parcels
- Consider post-COVID opportunities resulting from changing nature of work, such as co-working spaces and housing options to attract younger workers, not just seniors
- Need to get the citizen's involved early and ramp up an educational campaign, as there will be Push-back from neighboring residents
- Find out why are CISCO employees choosing Waltham instead of Boxborough?

4. Update zoning by-laws

Zoning was another recurring theme that transcended the multiple breakout group discussions in both the first and session forums. Boxborough managed to largely avoid the rapid suburbanization experienced by other communities along the I495 ring by limiting development and codifying tight development restrictions into its zoning bylaws. The worry is that softening these zoning rules or other restrictions will necessarily lead to an influx of big box stores, fast food chains, traffic, noise, put excessive pressure on the schools, and the like. Nevertheless, others recognize that the current zoning by-laws are overly rigid and will need to be revised if the town desires to attract new commercial activities. Some of the specific comments and suggestions include:

- Re-examine zoning to make sure it protects rural character while allowing flexibility to encourage mixed-used and/or commercial activities in select locations, such as the village and office districts.
- Explore the possibility of instituting overlay districts, form-based zoning codes, and special permit granting authority.
- Compare Boxborough's zoning bylaws and set-back requirements to other communities that have successfully (and unsuccessfully) attracted the type of businesses that are appropriate for Boxborough.
- Does current zoning allow for maker spaces, co-working, or other changing needs of the market?

5. Additional priorities

In addition to the previous, forum participants offered a wide variety of other items as possible economic development priorities. These include:

- Sustainability and resilience of undeveloped lands - Boxborough strength
- Reduce tax burden – balance revenue and expenses
- Promote greater population diversity to support economy
- Improve walkability and pedestrian/bike safety, including sidewalks, bike paths / trails, and safety infrastructure

- Historic preservation as an economic asset
- Foster neighborliness and promote resident involvement in civic life
- Promote existing local businesses by conducting an inventory of existing businesses and making list available to residents and visitors

E. Recommended Actions

We conclude with a short list of recommendations for how Boxborough should proceed in the months ahead. These recommendations are a mix of actions recommended by residents at the conclusion of the second community discussion forum as well as several proposed during a recent brainstorming session involving the three principal investigators (Barchers, Mullin and Renski) who worked on both phases of this project.

- 1) The Town should be pro-active in articulating its preferred vision for the redevelopment of the office parks that are currently on the market. Waiting until after a sale may be too late.
- 2) Consider revising its zoning bylaws. However, from a practical standpoint, they could focus on the Office Parks and Town Center districts as opposed to a comprehensive overhaul. This might be the focus of a specific task force.
- 3) Any changes to the Town's zoning bylaws should allow for village zoning, special permit granting authority, and design controls.
- 4) The town should consider offering density bonuses and/or other strategic incentives to entice developers to redevelop parcels in ways consistent with the community's vision.
- 5) The town should consider easing parking and set-back requirements for the office parks slated for possible mixed-use.
- 6) It may be difficult to attract a successful coffee shop under the current drive-through ban, in a post-Covid world. Likewise, the prohibition on disposable flatware likely dissuades restaurants as take-out is likely to remain a vital lifeline for some time.
- 7) Consider inviting representatives (such as zoning board members) from other communities to review Boxborough's zoning and make recommendations.
- 8) The EDC, Planning, and possibly other community boards need to find common areas and speak with one voice. One possibility is to create ad-hoc focus-groups involving representatives from each of the relevant governance boards to develop recommendations in the following areas:
 - a. Office park redevelopment / Beaver Brook
 - b. Agricultural support and marketing
 - c. Recreational trails

The Town Planner can serve as the common technical resource and primary administrative contact for these committees and help them identify potential grant opportunities from supporting agencies such as CDBG, EDA, MassDevelopment and USDA Rural Development. A preliminary list is included in the Phase I technical report.

- 9) Continue outreach efforts and encourage community involvement with more a periodic series of outreach / planning events.

F. Appendices

Appendix A. Scenario Infographics (from survey)

Baseline or Current Course

The BAU scenario assumes that perceptions about development in the town remain unchanged. However, over the short-, medium-, and long-term, it is understood that in the course of accommodating economic, social, and housing trends some changes may be necessary.

Short term:

- Develop marketing strategy to attract appropriate businesses to Boxborough
- Create business association to support existing businesses
- Create scenic heritage guide to leverage conservation and recreation land

Medium term:

- Adjust municipal finances to support municipal services with declining or stagnant commercial tax base

Long term:

- Adjust zoning to support continued residential demand on limited space
- Conduct utility feasibility study to support demand on water and sewer or mitigate water quality impacts

Next Steps

Short-term:	Medium-term:	Long-term:
<ul style="list-style-type: none"> • Work to attract businesses to fill vacancies and support existing businesses • Develop strategy for leveraging existing assets 	<ul style="list-style-type: none"> • Investigate development of new municipal facilities • Investigate policies that support high quality municipal services 	<ul style="list-style-type: none"> • Revisit economic development strategies for next 15-20 years • Assess future growth and how to accommodate housing demand

Rural/Agricultural Heritage

The Rural Enhancement scenario proposes that Boxborough become a regionally unique destination by leveraging its agricultural, historic, and natural heritage and trail network to support small-scale economic development. Agriculture- and open space-related businesses and community spaces emerge through zoning overlays in select locations around town, creating destinations for travel on an improved, connected, regionally attractive trail network. Land protection focused in the northwest corner of Boxborough east of I-495 preserves the high ecological value of this area, limits the need for municipal services in this area, and offers additional opportunities for education and recreation. Improving utility capacity and amending zoning where office park infrastructure already exists creates opportunities for new kinds of businesses to set up, including facilities that supports the regional food system.

Short	Medium	Long
<ul style="list-style-type: none"> • Utility expansion feasibility study • Additional accessory use in A/R • Office Park Rezone for additional uses & reduce lot restriction • Trail improvement coalition 	<ul style="list-style-type: none"> • Increase conservation spending for trail extension & improvements • Context-sensitive design guidelines • Participate in regional conservation efforts • Regional Agricultural Network 	<ul style="list-style-type: none"> • Agricultural economic & feasibility study • Parks & Recreation Department • Public community spaces

Village Style: Community, Connection, Culture...



VISION

Our vision is to implement Village-Style Development in two areas of Boxborough—the existing Town Center District (“Town Center”) and Adams Place (“Village Green”)—that align with community interests, provide services to residents, and support the overall economic development of Boxborough.

The “Town Center” was identified as the most popular location for ‘village-style development’ in the 2019 Economic Development Survey; however, after considering the constraints on utility capacity and developable land, this location would be unable to support much of the commercial and dining amenities desired by Boxborough residents. Although, limited and controlled uses could be considered and supported in this location with minimal utility expansion (perhaps in the form of a cultural center or community gathering space), a second location would be needed to fully realize the town’s vision.

The “Village Green” was identified as the second most popular location for ‘village-style development’ in the 2019 Survey; and given the available utility capacity, developable land, and connection to the 2030 Master Plan this location proposes an attractive option for a more expansive, village-style commercial development. Adams Place could support a variety of uses, including a cafe, small-scale restaurant & retail establishments, a new public safety building, and a village greenspace.

RECOMMENDATIONS

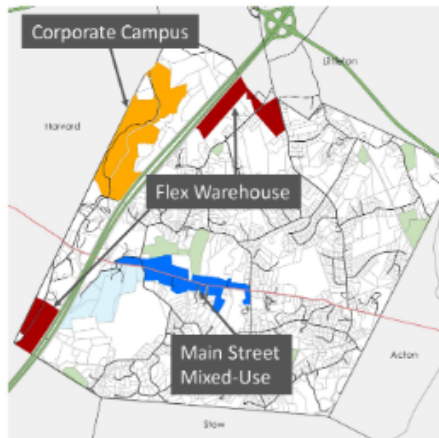
Town Center

- Consider Development of Indoor Community Gathering Space
- Restrict High-Utility Demand Uses
- Implement Form Based Code to Maintain Historic Character

Village Green

- Consider Commercial Overlay Zone Allowing Greater Variety of Uses
- Utilize Adams Place Available Water/Sewer Capacity
- Encourage Connectivity to Existing Office Park

Comprehensive Approach



Summary

This scenario aims to diversify land uses, tax base, and business activity through comprehensive zoning reforms, streamlined permitting, and new incentive strategies. Encouraging synergies between districts will create an economic development strategy that will attract new talent to Boxborough, by amplifying the efficiency and successful development of all districts. By encouraging appropriately scaled development, this strategy will preserve the character of Boxborough while creating amenities for town residents and the 21st century workforce.

Regulatory Changes

Corporate Campus

- **Mixed-use overlay in office park** to encourage diverse uses and revitalization of CISCO campus
- **Promote vitality, sustainability, and sense of place** to attract and retain 21st century workforce talent

Flex Warehouse

- Minimize impacts on Boxborough while allowing for adaptability that will accommodate flexible use for emerging industries through **performance zoning**
- Allow and incentivize **R&D and cold storage by right**, as well as **vertical farming uses by expedited permit**

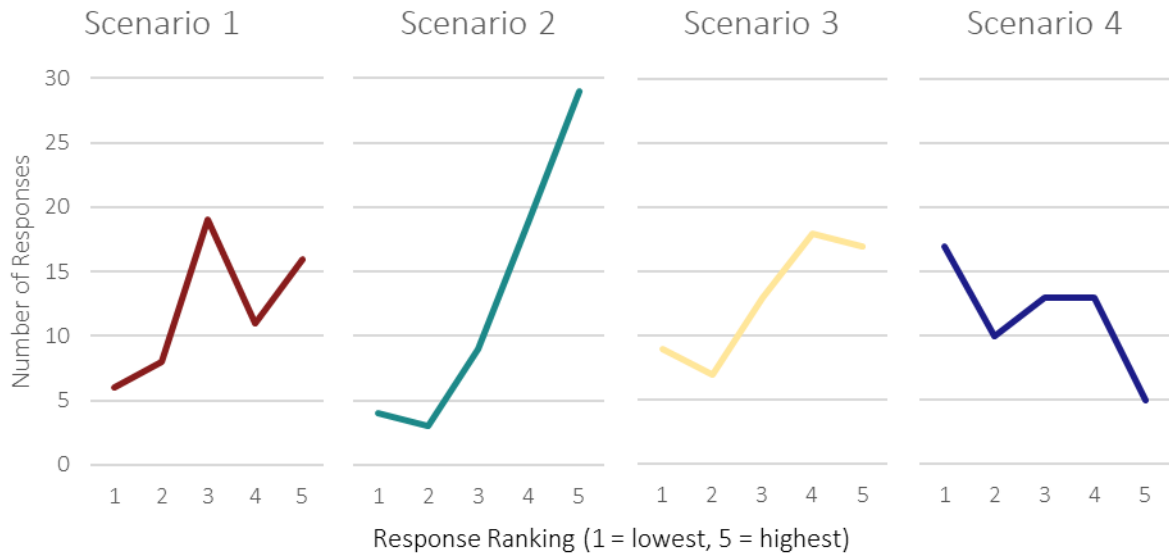
Main Street Mixed-Use

- Implement **Form-based code** that links Town & Village Center through infrastructure & design standards
- Allow and identify desirable uses identified by **Boxborough2030** to create a walkable, mixed-use neighborhood
- Allow for **micro-mixing and infill development** due to limited buildable land

Appendix B. Survey Response Distributions

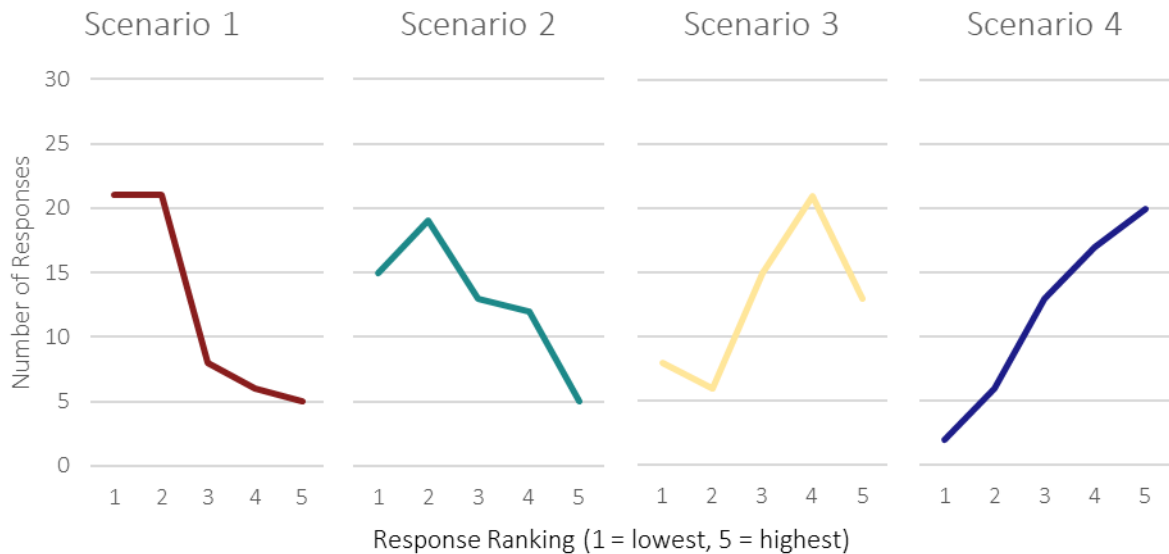
Question 1:

[To what extent do you think this scenario].. Fits the character of Boxborough?



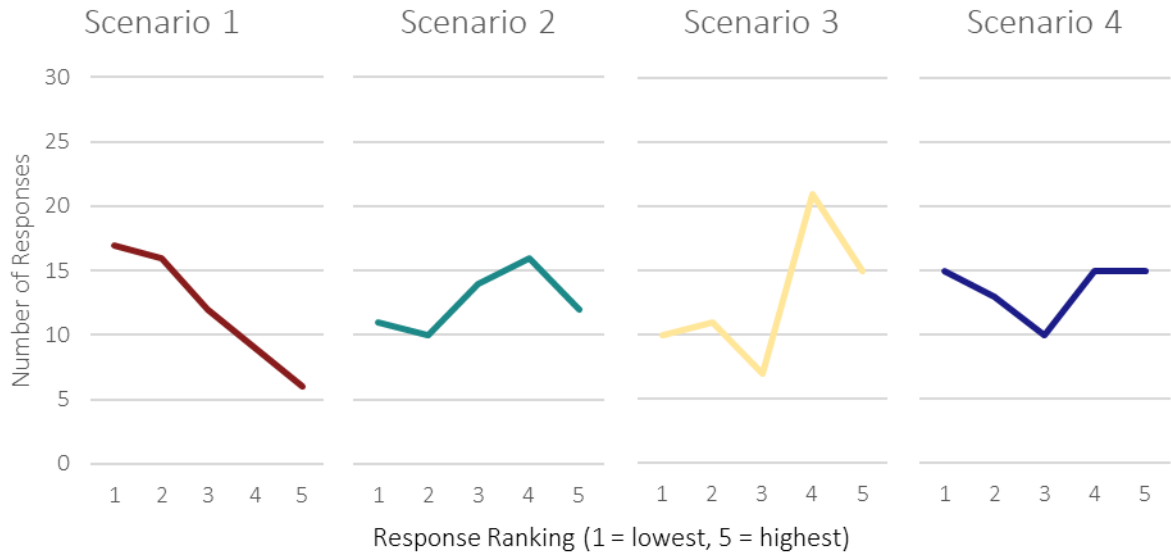
Question 2:

[To what extent do you think this scenario].. Supports Economic Development?



Question 3:

[To what extent do you think this scenario].. Aligns with my vision for Boxborough?



Appendix C: Location Maps for Existing Businesses

Figure C-1:
Location of Bars, Pubs, Taverns and Breweries

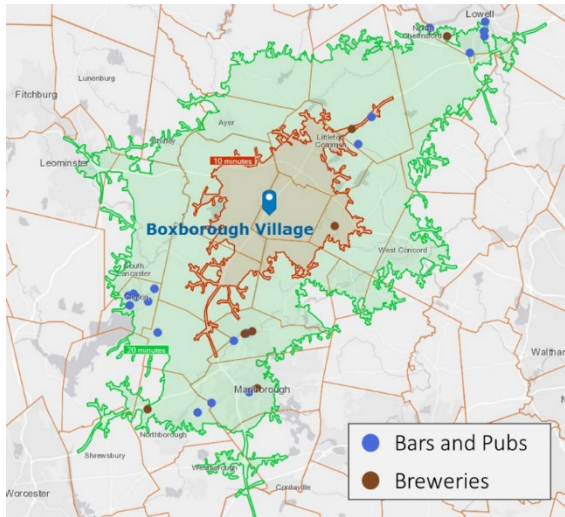


Figure C-2:
Location of Cafés, Coffee Shops and Bakeries

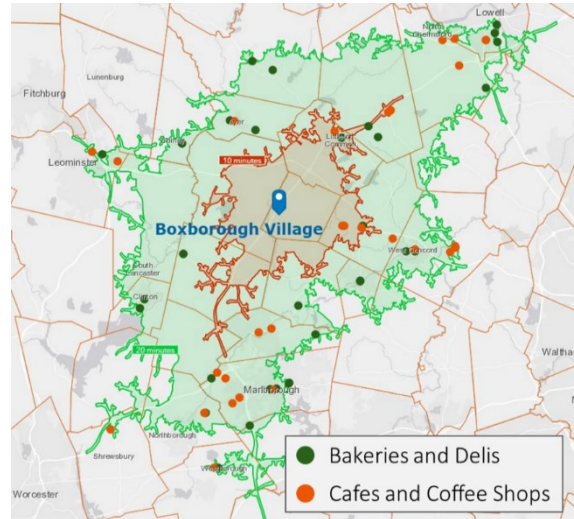


Figure C-3
Location of Dry Cleaners and Laundry

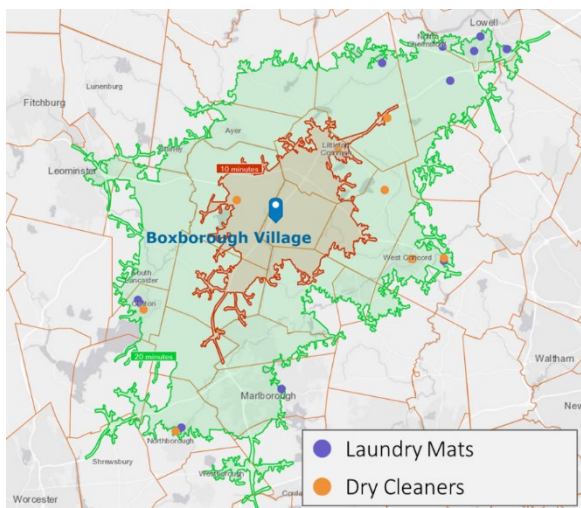


Figure C-4
Location of Entertainment, Arcades, Skating Rinks

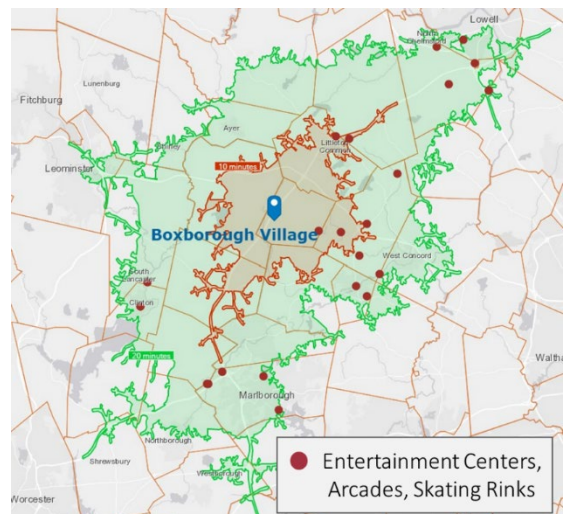


Figure C-5
Location of Grocery Stores and Food Markets

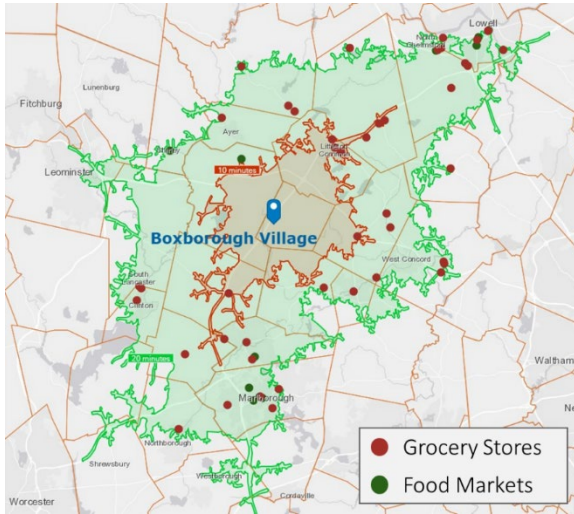


Figure C-6
Location of Hardware and Home Improvement Centers

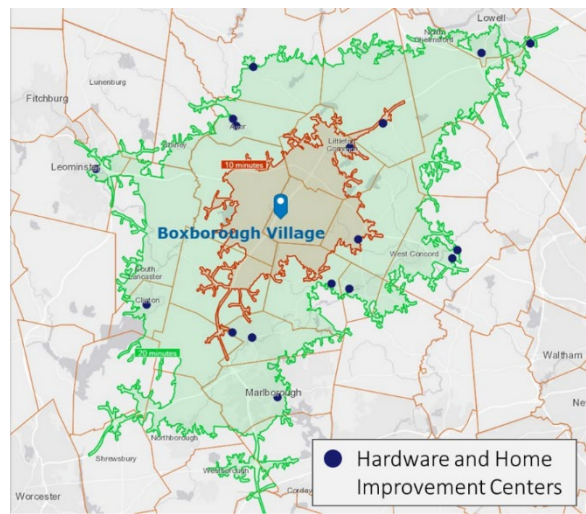


Figure C-7
Location of Health Clubs and Fitness Centers

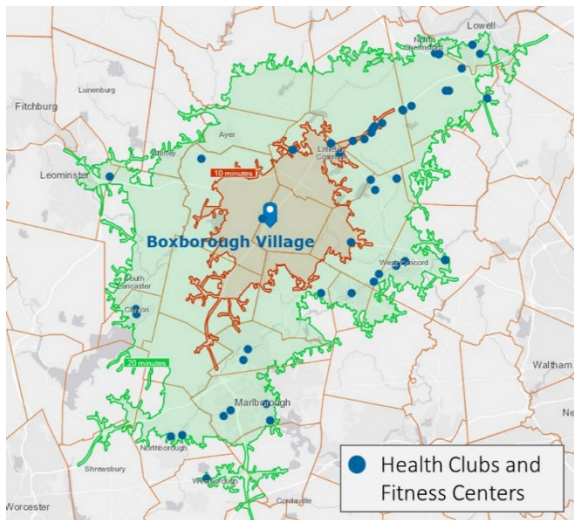


Figure C-8
Location of Personal Care Services

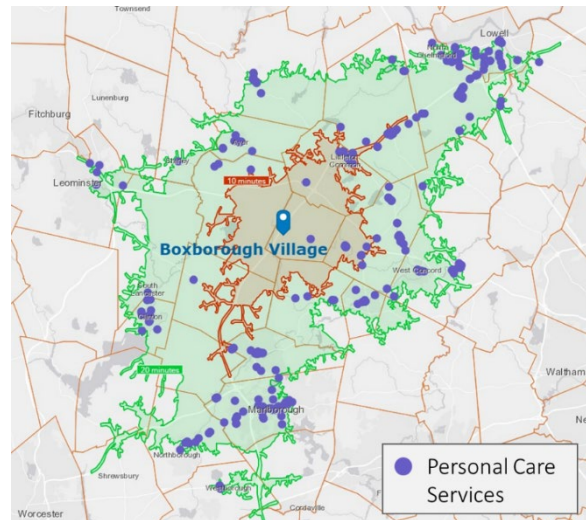


Figure C-9
Pet Services and Supplies

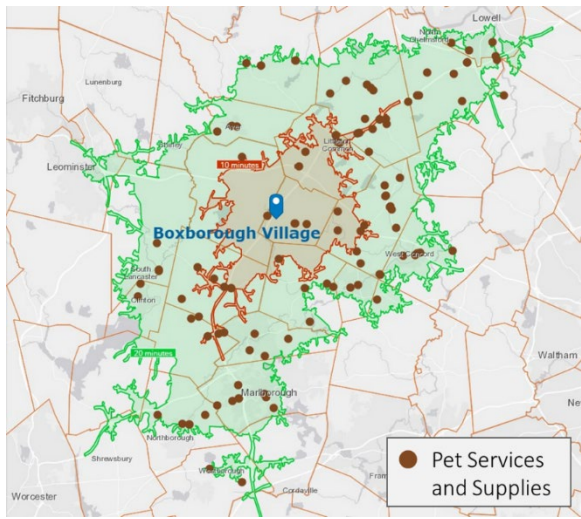


Figure C-10
Location of Pharmacies and Medical Clinics

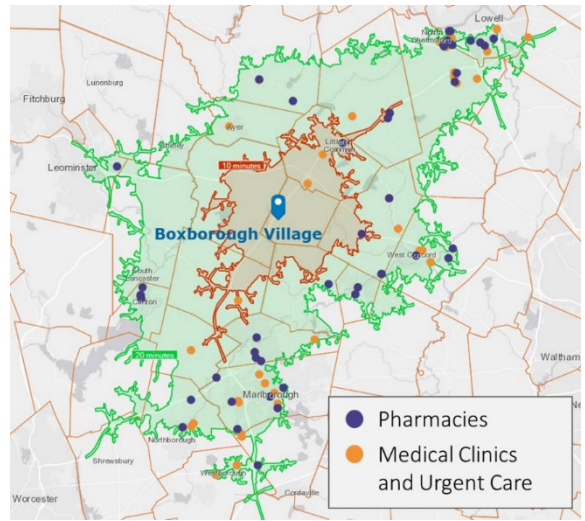


Figure C-11
Location of Full-Service Restaurants

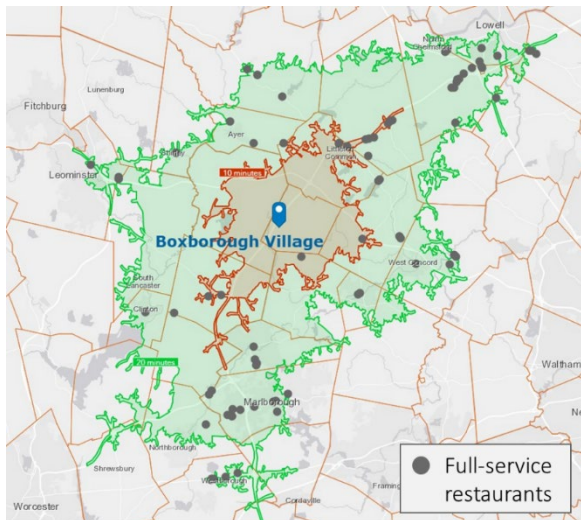
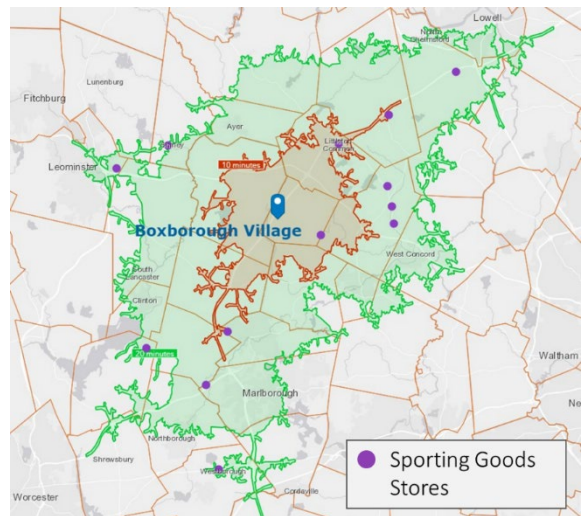


Figure C-12
Location of Sporting Goods Stores



Appendix D: Supply/Demand Analysis, Data Tables

Table D1: Supply/Demand Analysis, Local (Primary) Market Area, Commodity Basis

	Demand / Household Expenditures (millions)	Number of Businesses	Supply / Expected Sales (millions)	Retail Gap (millions)	Market Potential Index
Groceries	\$265.70	7	\$261.47	\$4.23	0.02
Full-Service Restaurants	\$32.01	11	\$6.96	\$25.05	3.60
Entertainment / Sports Center	\$24.12	4	\$51.48	-\$27.36	-0.53
Pharmacies	\$20.27	3	\$8.77	\$11.50	1.31
Hardware / Home Improvement	\$17.90	2	\$15.55	\$2.35	0.15
Medical services (non-Hospital)	\$14.93	4	\$9.38	\$5.56	0.59
Pet Supplies & Services	\$12.93	26	\$33.80	-\$20.87	-0.62
Personal Services	\$7.84	34	\$5.33	\$2.51	0.47
Tavern / Brewery / Distillery	\$4.95	3	\$6.55	-\$1.60	-0.24
Cafe and Bakery	\$4.94	8	\$10.55	-\$5.61	-0.53
Health Facility / Fitness / Health Clubs	\$4.86	8	\$7.33	-\$2.47	-0.34
Outdoor / Sporting Goods	\$3.47	2	\$3.80	-\$0.33	-0.09
Dry Cleaners and Laundry	\$0.89	2	\$0.20	\$0.69	3.44

Table D2: Supply/Demand Analysis, Regional (Secondary) Market Area, Commodity Basis

	Demand / Household Expenditures (millions)	Number of Businesses	Supply / Expected Sales (millions)	Retail Gap (millions)	Market Potential Index
Groceries	\$2,330.01	56	\$2,091.77	\$238.24	0.11
Full-Service Restaurants	\$269.15	83	\$52.52	\$216.63	4.13
Entertainment / Sports Center	\$197.52	24	\$308.87	-\$111.35	-0.36
Pharmacies	\$174.99	44	\$128.60	\$46.39	0.36
Hardware / Home Improvement	\$147.17	19	\$147.76	-\$0.59	0.00
Medical services (non-Hospital)	\$125.56	57	\$133.61	-\$8.05	-0.06
Pet Supplies & Services	\$111.64	113	\$146.90	-\$35.27	-0.24
Personal Services	\$64.30	338	\$53.00	\$11.30	0.21
Tavern / Brewery / Distillery	\$42.15	26	\$56.77	-\$14.62	-0.26
Cafe and Bakery	\$44.01	158	\$208.36	-\$164.35	-0.79
Health Facility / Fitness / Health Clubs	\$39.81	51	\$46.73	-\$6.93	-0.15
Outdoor equipment / Sporting Goods	\$28.46	11	\$20.92	\$7.54	0.36
Dry Cleaners and Laundry	\$7.52	21	\$2.11	\$5.41	2.57

Table D3: Supply/Demand Analysis, Local (Primary) Market Area, Industry Basis

	Demand (millions)	Supply (millions)	Retail Gap (millions)	Number of businesses	Market Potential Index	New Business Potential
Hardware and Bldg. Supplies	\$35.71	\$74.46	-\$38.75	12	-0.52	-4.28
Grocery Stores	\$88.92	\$99.20	-\$10.27	6	-0.10	-0.61
Specialty Food Stores	\$3.91	\$3.55	\$0.35	7	0.10	0.18
Health & Personal Care Stores	\$35.05	\$26.60	\$8.45	8	0.32	0.90
Sporting Goods & Hobby Stores	\$19.28	\$2.87	\$16.42	7	5.73	3.64
Miscellaneous Store Retailers	\$22.14	\$9.56	\$12.58	17	1.32	6.44
Drinking Places	\$3.54	\$0.61	\$3.54	1	4.80	2.60
Restaurants/Eating Places	\$57.31	\$24.33	\$32.98	34	1.36	14.82

Table D4: Supply/Demand Analysis, Regional (Secondary) Market Area, Industry Basis

	Demand (millions)	Supply (millions)	Retail Gap (millions)	Number of businesses	Market Potential Index	New Business Potential
Hardware and Bldg. Supplies	\$297.08	\$302.89	-\$5.81	103	-0.02	-0.16
Grocery Stores	\$787.00	\$560.77	\$226.23	110	0.40	3.35
Specialty Food Stores	\$34.59	\$23.53	\$11.06	41	0.47	1.41
Health & Personal Care Stores	\$305.93	\$340.05	-\$34.12	124	-0.10	-0.90
Sporting Goods & Hobby Stores	\$166.49	\$114.90	\$51.59	87	0.45	2.86
Miscellaneous Store Retailers	\$190.56	\$114.23	\$76.33	216	0.67	9.78
Drinking Places	\$29.69	\$11.59	\$18.11	19	1.56	3.33
Restaurants/Eating Places	\$494.85	\$377.88	\$116.97	501	0.31	13.14

Appendix E: Breakout Room (BR) Summaries, Community Discussion Forum #1

Breakout Room #1:

BR#1: Current Course

Strengths

- Cautious approach to development
- Preserve loved aspects, focus on weak spots
- Focus on filling vacancies first
- Works within infrastructure limits
- Multi-use places

Weaknesses

- Housing is too expensive
- Cannot afford the taxes
- Water and sewage limits
- Other restrictions (e.g. Board of Health)
- Strategy is reactive

BR#1: Current Course

Opportunities

- Housing and mixed use might compliment
- COVID19 – influx of new residents trying to escape the city and able to work from home?
- Office parks may accommodate new flex-work arrangements
- Land for local agriculture, hydroponics, etc.
- COVID19 – more focus on outdoor recreation and nature

Threats

- Vacant office parks – feels desolate
- Taxes / affordability
- Big boxes
- Financially sustainable?
- Feelings of uncertainty & stress
- Loss of sense of community
- Loss of community character and inconsistent “theme”
- Reactivity hurts our ability to pursue a vision
- Pandemic and recession
- Developers unwilling to make a move or take a chance, may need to wait

BR#1: Current Course

Comments

1. Feel there are a lot of great things about this town, how it feels to live here, and there are lots of great amenities 10-20 minutes away. Do they really need to bring those types of things here?
2. There is a need to create more income in town and grow long-term, but there needs to be some consensus on what that's going to feel like.
3. Need to move forward thoughtfully, give it time, have patience so they don't make terrible mistakes AND are able to find the kind of developer who is willing to put time into working with the town.
4. Want to keep that balance of urban setting and rural access, don't need to make any hasty decisions that will change that
5. What are the ways available to position the empty buildings that already exist in this town while still remaining a family setting? Over the next year focus primarily on finding uses for empty buildings.

Breakout Room #2:

BR#2: Rural and Agricultural Heritage

Strengths

- Conservation land / trails
- Space for animals
- Quality of life
- Less traffic and noise
- Relatively low water use
- Respects historic character and features
- Local and home-based food production
- Access to highways
- Great schools, kids can access nature
- Cheap electricity from Littleton

Weaknesses

- (Tax) burden on property owners
- No convenience of nearby stores
- Predators to livestock
- Not enough sidewalks, biking or other recreation options without driving
- Uncertainty about pandemic impact on real estate
- Commute times (pre-Covid)
- Small town communication issues - diverse competing priorities, few discussion opportunities
- Parking for commuting (train) is awful

BR#2: Rural and Agricultural Heritage

Opportunities

- Marketing plan for local travel connections
- Farm to table, orchards, other local ag.
- Made in Boxborough cooperative location - not just a once a week farmers market
- Country-themed recreation opportunities and special events
- Harness rural expertise to help the community, to maintain trails etc.
- Knowledge sharing events
- Redevelop CISCO w/ co-working space

Threats

- Loss of character & rural knowledge
- Water table/quality issues
- Lack of a town-center/gathering place
- Poor parking and difficult to locate local events
- Competition from Acton, other Farmers Markets and rural activities
- Senior housing will increase traffic on 111
- Lacking diversity of economic activity
- Lacking low income housing

BR#2: Rural and Agricultural Heritage

Actions

1. Promote locally sourced foods and products, identify and market, and make accessible
2. Welcome package/information about the area
3. Increase promotion and availability of recreation

Breakout Room #3:

BR#3: Village Style

Strengths

- Local restaurants / amenities
- Place to meet/mingle & build community
- Keeps \$\$\$ local
- Small scale good fit with current identity
- Good location re: minimal traffic & outside \$\$
- Small scale of the amenities is a good fit for town
- Proximity to schools

Weaknesses

- Zoning; too many hoops to accommodate desired outcomes (i.e. Restaurants)
- Water/sewer situation
- Town Center: Traffic issues.
- Need for parking balanced with sidewalks/foot traffic

BR#3: Village Style

Opportunities

- Connectivity & walkability & Bike paths
- Community building; meeting spaces
- Helps fill office vacancies by providing attractive nearby amenities
- Contain sprawl by focusing development
- Promotes a thriving atmosphere, desirability as a place to live; maintain/increase property values

Threats

- West Acton Village; could be a threat, but also potentially makes decision-making easier as far as what businesses should go in
- Is it enough? What do we do about the huge office parks?
- Existing, vacant buildings aren't addressed by this plan
- If a developer wanted to develop the back part of the Village Green, it has to be zoned accordingly
- Loss of creative enterprise due to zoning issues

Breakout Room #4:

BR#4: Comprehensive Approach

Strengths

- Mixed use - population support amenities, amenities attracts business, etc.
- Increases affordable housing and diversity
- Increases tax base & supports infrastructure
- Focus on filling unused office/commercial
- Balances commercial/tax interests while maintaining character
- Amenities (restaurants, cultural activity, gathering places) would be good for residents and workforce

Weaknesses

- Uncertainty in design & development process could deter developers or disappoint residents
- Stress on water - How to improve water quality before increasing development?
- Current lack of public transportation, concerns with increase in traffic

BR#4: Comprehensive Approach

Opportunities

- To attract businesses, adding amenities is important (more possible in corporate scenario?)
- Vacant office spaces that are currently restricted from redevelopment by zoning - freed up by this scenario
- Number of highways, entrances/exits that can be better used

Threats

- Losing special character may decrease attractiveness vis-a-vie neighboring towns
- Form-based code may lead to unpredictable results
- Stress on water and **traffic**

BR#4: Comprehensive Approach

Actions

1. Update zoning bylaws
2. Create use expectations through comprehensive planning

Breakout Room #5:

BR#5: Cisco / Beaver Brook

Strengths

- Existing onsite infrastructure – waste & water
- Accessibility to conservation land & natural rec opportunities
- High quality buildings that are already flexible and adaptable
- Foundations are in place and utilities have been extended
- location to major roadways
- Great school district
- Beauty
- Roadway accessibility

Weaknesses

- Difficult to subdivide into housing
- Lowered sewage capacity
- Vacant since COVID 19
- Systems need to be used frequently to stay fully functional for the future
- No demand for more offices
- Daylight for apt would be non-existent (in current buildings??)
- May not be large enough for manufacturing
- Traffic volume – depending on use

BR#5: Cisco / Beaver Brook

Opportunities

- Possibly apartments/condos
- Multi-purpose (gyms, restaurants) or multi use (artist studio, daycare, offices)
- Warehouse, lab, office, R&D
- Senior living, continued rec use and trails
- Capacity to haggle with developer because site is 'ready-to-go'
- Village style

Threats

- Zoning
- Unwillingness to change (zoning)
- Price of land, homes, housing market (Post-Covid)

BR#5: Cisco / Beaver Brook

Actions

1. continued recreational use
2. sell the property

Appendix F: References

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