

City of Cambridge

Richard C. Rossi • City Manager



Executive Department

Lisa C. Peterson • Deputy City Manager

September 12, 2016

To the Honorable, the City Council:

Please find attached a response to Awaiting Report Item Number 16-67, regarding a report on the Classification of Commercial Land Use and Recommendations study, received from Assistant City Manager for Community Development Iram Farooq.

Very truly yours,

A handwritten signature in black ink that reads "Richard C. Rossi". The signature is written in a cursive style.

Richard C. Rossi
City Manager

RCR/mec
Attachment(s)



IRAM FAROOQ

Assistant City Manager for
Community Development

Sandra Clarke

Deputy Director
Chief of Administration

CITY OF CAMBRIDGE

Community Development Department

To: Richard C. Rossi, City Manager
From: Iram Farooq, Assistant City Manager for Community Development
Date: September 7, 2016
Re: Council Order #14 dated 8/1/16, Classification of Commercial Land Use and Recommendations Study

Overview

In 2015, CDD engaged with the planning consulting firm Community Opportunities Group, Inc. (COG) to analyze the different commercial land use types in Cambridge and how they are classified in the Zoning Ordinance -- the *Commercial Land Use Classification Study*. The purpose of this study was to explore ways that the commercial use classifications in the Zoning Ordinance could better reflect current commercial use types and align with the expectations of the community. The study was not intended to produce a rezoning petition; however, it did produce recommendations that could inform future planning and rezoning.

The following specific tasks were performed as part of the study:

- Collection of data about businesses in Cambridge, including information about locations, types and sizes of businesses, from public and private sources.
- Interviews with Cambridge business owners and property owners to identify issues that have arisen from application of the current classification system.
- Development of recommended approaches to revise the classification system, including "targeted" revisions to the current system, as well as alternative approaches that could be used if an entire new system were incorporated.

Key findings of the study are summarized on the following pages. The study revealed that a comprehensive restructuring of the use classification system in the Zoning Ordinance could result in clearer and more effective tools for regulating commercial uses. However, such a fundamental restructuring could not easily be done in an isolated way. This fall, CDD anticipates starting a retail study that will look more deeply into best practice policies and programs that will support and enhance the ground level active use and retail environment in Cambridge. Additionally, the more multidisciplinary *Envision Cambridge* citywide planning process is underway. Given these related projects, the most practical approach would be to incorporate a revision of the commercial use classification system into a larger package of policy and zoning changes that may result from the *Envision Cambridge* process.

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Commercial Use Classification Study

Key Findings from Land Use Classification Study

Data Analysis

While data on commercial uses can be difficult to analyze given the lack of a single consistent data source for the entire city, COG collected and presented information from various sources (some of which rely on self-reporting) that revealed some findings about the commercial use landscape in Cambridge, including the following:

- Despite significant declines in some business sectors (construction, manufacturing) and significant increases in others (research & development, biotech), the overall number of businesses in Cambridge has continued to grow and diversify.
- The vast majority of businesses in Cambridge are small, occupying less than 5,000 square feet of space (often far less). This is particularly true in sectors such as personal services and professional services, but is also the case for many biotech and research & development businesses, and around half of manufacturing businesses.
- Home-based businesses make up a significant portion of the commercial activity in Cambridge, and provide a wide variety of professional, personal and other services.

Formative Issues

Based on analysis of data about commercial use types in Cambridge and interviews with business owners and property owners in the Cambridge community, COG identified the following formative issues with the current classification system for commercial uses:

- Defining and classifying uses: Some uses are specifically defined while others are more general, leading to confusion in determining the classification of a proposed use.
- Differentiation of uses by scale: The current use table classifies and regulates uses the same way, whether they are 1,000 square feet or 100,000 square feet, even though they might have very different operating characteristics or impacts based on their size.
- Differentiation of uses by mix: Many businesses perform a range of activities which make them difficult to classify in the current table. For instance, a local food or beverage company might include production, packaging, wholesale, retail and café operating within the same space.
- Missing or obsolete uses: Some common types of uses (e.g. yoga studios) cannot be clearly placed in the current table, while other uses (e.g. lamp shade manufacturing) are specifically enumerated despite being less relevant in the Cambridge economy today.
- Commercial activity on residential lots: The current zoning allows for some home-based occupations, but does not account for the full range of business types that are common today.

Commercial Use Classification Study

- Use conversions and pre-existing nonconforming uses: The current Zoning Ordinance does not provide flexibility to convert existing commercial space to different types of uses if the uses are non-conforming in the district where they are located.
- Fast order food cap: This is a provision unique to Central Square, but was raised as an issue by many in the local business community because it has resulted in the exclusion of many food-based businesses from an area where those businesses might otherwise thrive.

Targeted Approaches

The report recommended specific changes that might improve the current table of commercial uses while retaining its current structure. These targeted recommendations are organized into the themes listed below and are detailed in the study report. Nevertheless, amending use classifications could impact many existing properties and would affect other regulations within the Zoning Ordinance, therefore implementing these targeted recommendations would be a complex process.

- Add and define certain uses that are common in the city but not clearly enumerated in the current Table of Uses.
- Consolidate some uses that have similar characteristics into more general categories.
- Broaden some use types to encompass a wider range of activities with similar characteristics that are currently undefined or ambiguous.
- Delete some specific uses that are obsolete and/or overlap with other, broader categories of use.
- Provide guidance to classify certain uses that may incorporate a mix of different types of activities.
- Include “Other” use types in some use categories, so that some future uses that are not clearly defined could be regulated through discretionary review rather than prohibited entirely.

Comprehensive Approaches

The following suggested approaches would require changing the way the Zoning Ordinance is structured at a fundamental level, and therefore it would be impossible to institute these changes without other comprehensive revisions to the Zoning Ordinance.

- Reorganization of Use Categories: This would involve a complete reorganization of the Table of Uses, beginning with re-establishing top-level categories and defining specific use types within those categories, resulting in a similar but more modernized system to the one currently in place.

Commercial Use Classification Study

- Generalized Use Provisions: This would be a new approach where instead of having “line-item” use classifications, more general categories of use would be created and they would be regulated based on the way a particular space is being used rather than being based on an enumerated list of use types.
- Land-Based Classification Standards: This approach would also include more generalized use provisions, but could have different provisions targeted to specific areas of the City. The approach would be similar to what is currently used in PUD zoning districts and other special districts, but expanded to more areas of the city.
- Form-Based Code: This approach is similar to the land-based approach, but would focus more on the regulation of building forms than uses. This system raises issues far beyond use classification and would require a complete reformulation of the Ordinance.

Commercial Land Use Classification Study

Community Opportunities Group, Inc.

Prepared for the City of Cambridge
Community Development Department

July 13, 2015

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Executive Summary

Beginning in December, 2014, Community Opportunities Group, Inc. worked in partnership with the Cambridge Community Development Department staff to review the existing commercial land use classification system within the Cambridge Zoning Ordinance (CZO). Our study sought to establish baseline existing conditions for the economic context of the city, to understand how the current land use classification system in the CZO is working in practice to regulate modern types of commercial activities, and to identify targeted and comprehensive approaches to improving the commercial land use classification system.

The study involved assessing and cataloging existing issues and identifying potential regulatory approaches to ameliorate current issues and prepare for future changes in commercial land use. While the study recommends overall approaches to changing the classification system, the complexity of the CZO and the long history of permitting uses based on the current Table of Uses will require more detailed study in order to develop a specific set of changes and to understand the full range of impacts that might result.

Our process consisted of the following steps:

1. Project kick-off with CDD staff to establish project goals
2. Windshield survey to assess existing conditions of 10 primary commercial areas (provided in Appendix 1)
3. Stakeholder interviews and focus groups (described in Formative Issues section)
4. GIS Mapping of existing businesses by industry (provided in Appendix 2)
5. Existing Conditions and Land Use Interim Report
6. Formative Issues and Approaches Interim Report
7. Final Commercial Land Use Classification Study

Existing Conditions

In the existing conditions and land use report, we reviewed city-wide economic conditions and trends and did further study of the spatial needs, business activities, and location decisions of businesses in the following industries:

- | | | |
|-------------------------|-------------------------|--------------------------|
| ○ Biotechnology | ○ High-tech | ○ Research & Development |
| ○ Construction & Design | ○ Manufacturing | ○ Auto-Oriented Uses |
| ○ Restaurants & Food | ○ Retail | ○ Personal Services |
| ○ Professional Services | ○ Home-Based Businesses | |

Of the approximately 4,551 businesses in Cambridge, the largest share are involved in professional services (e.g., accountants, attorneys, financial planners, realtors and similar

occupations).¹ Over the past decade, health and education (largely institutional uses, which were not encompassed within this study) grew the fastest of all industries, and more than 6.5 million square feet of new commercial space was added to Cambridge's commercial building inventory – much of which was in large buildings occupied by biotechnology, high-tech, and research and development uses. However, over half of the commercial building stock in Cambridge was built prior to 1920, and over 80 percent of businesses within the city operate in spaces smaller than 5,000 square feet. Also, about 6 percent of all businesses are home-based.

Formative Issues

The mix of commercial businesses and operating characteristics have changed significantly since the commercial land use classification in the CZO was codified in the 1960s. The following formative issues were identified during the stakeholder engagement process:

- ❖ **Defining and classifying uses:** Some uses are specifically defined while others are more general, leading to confusion in determining the classification of a proposed use.
- ❖ **Differentiation of uses by scale:** The current use table classifies and regulates uses the same whether they are 1,000 square feet or 100,000 square feet, even though they might have very different operating characteristics or impacts based on their size.
- ❖ **Differentiation of uses by mix:** Many businesses perform a range of activities which make them difficult to classify in the current table. For instance, a local food or beverage company might include production, packaging, wholesale, retail and café operating within the same space.
- ❖ **Missing or obsolete uses:** Some common types of uses (e.g., yoga studios) cannot be clearly placed in the current table, while other uses (e.g., lamp shade manufacturing) are specifically enumerated despite being less relevant in the Cambridge economy of today.
- ❖ **Commercial activity on residential lots:** The current zoning allows for some home-based occupations, but does not account for the full range of business types that are common today.
- ❖ **Use conversions and pre-existing nonconforming uses:** The current CZO does not provide flexibility to convert existing commercial space to different types of uses if the uses are non-conforming in the district where they are located.
- ❖ **Fast order food cap:** This is a provision unique to Central Square, but was raised as an issue by many in the local business community because it has resulted in the exclusion

¹ Number of establishments provided by the Executive Office of Labor and Workforce Development, ES-202, 2013.

of many food-based businesses from an area where those businesses might otherwise thrive.

Some of these issues arise from the specificity of uses within the existing code, while others are reflective of a changing economy and a need to manage uses by impacts rather than just by activities occurring on site. Scale, customary exterior alterations, operating characteristics, and a growing presence of businesses that engage in multiple business activities have created new challenges for the existing code to address.

Suggested Approaches

Targeted Approach

In order to address these issues, we examined a targeted approach that consists of specific changes that could be applied to the existing code. Suggestions are included in the report, including sample language for new definitions to help address missing or obsolete uses. Some further detailed study would be required to refine these recommendations into a zoning amendment and to account for all of their possible impacts, but they could be considered without requiring a comprehensive reformulation of the Ordinance.

The targeted suggestions follow these major themes:

- Add and define certain uses that are common in the city but not clearly enumerated in the current Table of Uses.
- Consolidate some uses that have similar characteristics into more general categories.
- Broaden some use types to encompass a wider range of activities with similar characteristics that are currently undefined or ambiguous.
- Delete some specific uses that are obsolete and/or overlap with other, broader categories of use.
- Provide guidance to classify certain uses that may incorporate a mix of different types of activities.
- Include “Other” use types in some use categories, so that some future uses that are not clearly defined could be regulated through discretionary review rather than prohibited entirely.

Comprehensive Approaches

These comprehensive reforms would require larger scale changes to the CZO. Because an entirely new approach to land use classification would have far-ranging impacts on many other provisions throughout the Ordinance, these approaches should be considered as possible alternatives if a comprehensive planning and rezoning effort is undertaken in the future.

- **Reorganization of Use Categories:** This would involve a complete reorganization of the Table of Uses, beginning with re-establishing top-level categories and defining specific use types within those categories, resulting in a similar but more modernized system to the one currently in place.
- **Generalized Use Provisions:** This would be a new approach where instead of having “line-item” use classifications, more general categories of use would be created and they would be regulated based on the way a particular space is being used rather than being based on an enumerated list of use types.
- **Land-Based Classification Standards:** This approach would also include more generalized use provisions, but could have different provisions targeted to specific areas of the City. The approach would be similar to what is currently used in PUD zoning districts and other special districts, but expanded to more areas of the city.
- **Form-Based Code:** This approach is similar to the land-based approach, but would focus more on the regulation of building forms than uses. This system raises issues far beyond use classification and would require a complete reformulation of the Ordinance.

Introduction

Land use and commercial space allocation in Cambridge have significantly changed since 2000. Major new development, particularly within Kendall Square, provides evidence of the rapidly changing economic landscape of Cambridge. Technological advancements and changes in market conditions have brought substantial changes to the types of businesses that are attracted to locate within Cambridge, and have also impacted the types of businesses that can succeed in the city. For example, retail has been permanently altered by the advent of the internet and the explosion in e-commerce. While big-box retailers once threatened “mom and pop” business establishments and increasingly occupied larger and larger spaces, many of those same big-box retailers have seen their ability to compete decimated by the internet and consumer electronics (the book industry being a strong example) while many small retailers have survived because their respective niches are not as easily overcome by technological change. The same technological changes have also decreased some entry costs and generated hundreds of startups whose entrance to the market is no longer impeded by those costs, and instead face market related challenges due to the price of commercial space in Cambridge.

These changes and many others have altered the way space and land is used in Cambridge, and the ways in which businesses operate and people work. Cambridge possesses innate competitive advantages due to the proximity of world class universities, a well-educated and highly skilled workforce, and a very high quality of life that offers unique urban amenities and allows Cambridge to exist in not only a local and regional context, but also on the global stage. This report discusses Cambridge’s economic characteristics and establishes baseline conditions and trends for land use and the classifications of commercial enterprises within the City.

Economic Context

Business Establishments

Overall, the number of business establishments in Cambridge has increased significantly over the past decade, though that increase has not been uniform across all industries. Cambridge has seen a considerable decline in the number of construction and manufacturing establishments between 2005 and 2013 (the most recent year annual reports are available from the Executive Office of Labor and Workforce Development). While the city lost 19 percent of its establishments in the Goods-Producing domain overall, losses were particularly steep in manufacturing, which decreased by 27 percent over this period.

Growth in the Service-Providing domain has compensated for this decline, with an overall increase of 21 percent in the number of establishments within those industry sectors. Notably, education and health services have grown by 70 percent, from 380 to 645 establishments.

Professional and business services also saw significant growth, with 352 new establishments created between 2005 and 2013. Financial activities remained strong and grew during the recession while decreases in those types of establishments were seen in other locales. As expected, leisure and hospitality establishments also grew during the same time period. The only service-providing sector that declined was trade, transportation, and utility establishments (**Table 1**).

Table 1: Change in Number of Business Establishments (2005-2013)					
Industry Sector	Establishments			% Change 2010-2013	% Change 2005-2013
	2005	2010	2013		
Goods-Producing Domain	181	152	147	-3.4%	-18.8%
Construction	94	91	80	-13.8%	-14.9%
Manufacturing	85	60	62	3.2%	-27.1%
Service-Providing Domain	3,638	4,133	4,404	6.2%	21.1%
Trade, Transportation and Utilities	632	625	611	-2.3%	-3.3%
Information	194	191	208	8.2%	7.2%
Financial Activities	273	296	316	6.3%	15.8%
Professional and Business Services	1,108	1,308	1,460	10.4%	31.8%
Education and Health Services	380	410	645	36.4%	69.7%
Leisure and Hospitality	437	462	488	5.3%	11.7%
Other Services	581	801	632	-26.7%	8.8%
Public Administration	33	40	44	9.1%	33.3%
Total, All Industries	3,819	4,285	4,551	5.8%	19.2%

Source: Executive Office of Labor and Workforce Development, ES-202 (2015)

While most establishments constricted in employment during the recession, the manufacturing, transportation and warehousing, and public administration sectors did see growth in the number of employees per establishment since 2010 in spite of shrinkage in the number of establishments (with exception to public administration), which may have resulted in the surviving establishments increasing staffing levels to meet business demands. By 2013, many industries showed increases in the number of employees per establishment indicating that (re)hiring had begun to rebound, though many have not yet returned to 2005 employment levels (**Chart 1**).

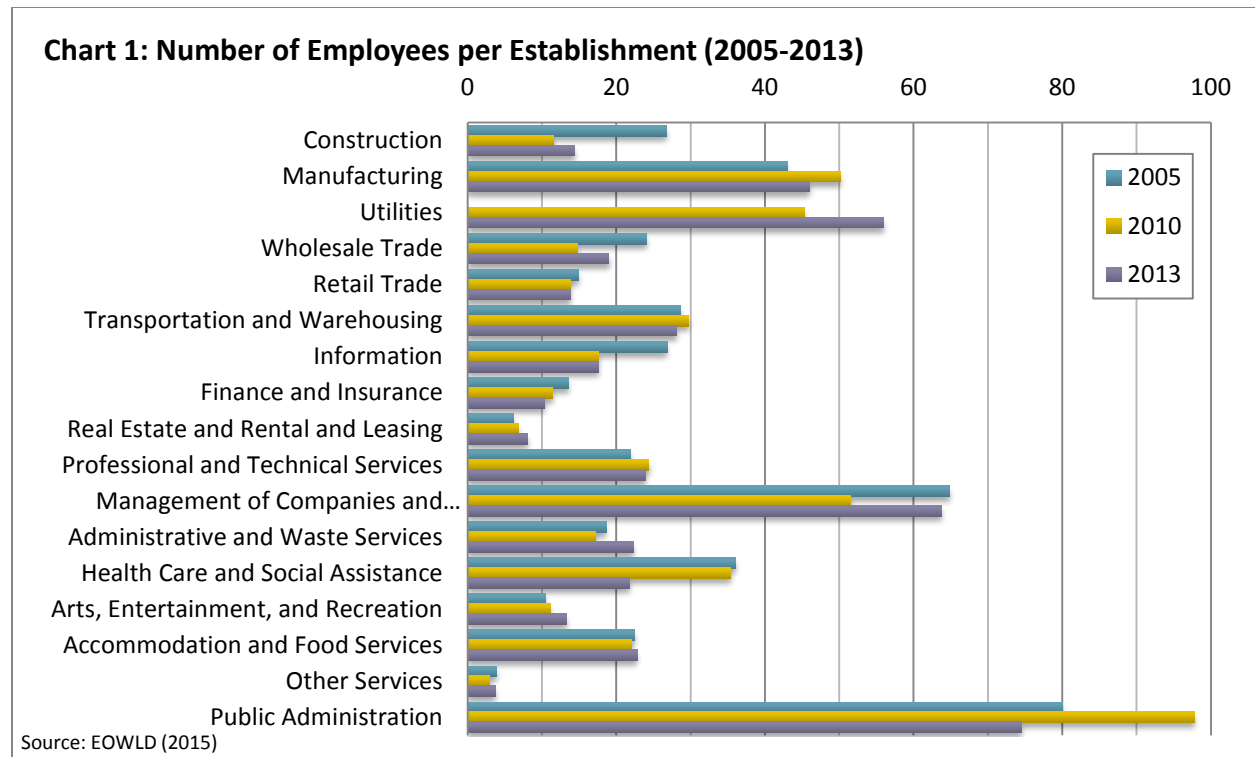


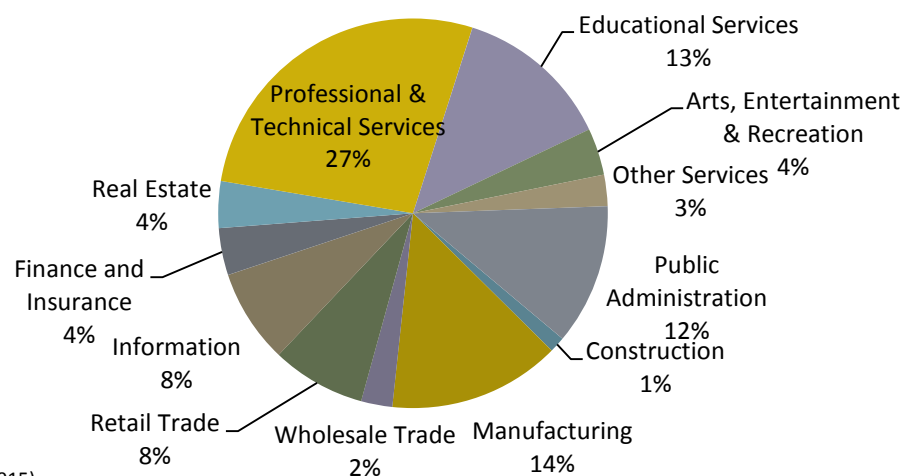
Table 2 shows the ten largest employers in Cambridge in 2015. The majority of these are located in Kendall Square or Harvard Square, and are associated with STEM (Science, Technology, Engineering, and Mathematics) related fields, health care, or educational services. Of the ten largest employers, all employ at least 1,000 people. Notably, five of the top ten employers are institutional uses (universities, hospitals, government) which are regulated differently than commercial uses. The remaining top employers are largely involved in biotechnology and other technology, several of which have ties to the educational institutions further highlighting their importance to the local economy. Further, Genzyme, IBM, and Vertex Pharmaceuticals are multinational corporations with locations in Cambridge, highlighting the city's position in the global economy.

Table 2: Ten Largest Employers in Cambridge (2014)

Company Name	Employees	Business
Harvard University	10,980	Higher Education
Massachusetts Institute of Technology	8,455	Higher Education
City of Cambridge	2,927	Government
Novartis Institute for Biomedical Research	2,704	Biotechnology
Biogen IDEC	2,660	Biotechnology
Mount Auburn Hospital	1,922	Healthcare
Cambridge Health Alliance	1,704	Healthcare
Sanofi/Genzyme	1,640	Biotechnology
Cambridge Innovation Center	1,574	Start Up Incubator
Akamai Technologies	1,367	Internet Technology

Source: City of Cambridge, 2014

Of the employers in Cambridge with more than 100 employees, 27 percent fall within the professional services sector, representing the largest sector of major employers. The next largest sectors are manufacturing, educational services, and public administration; together with professional services these sectors represent 66 percent of the largest employers in Cambridge. The so-called FIRE industries (Finance, Insurance, and Real Estate) combined comprises 8 percent of the largest employers, as do the information and retail trade sectors.

Chart 2: Industry Sectors of Employers in Cambridge with >100 Employees

Source: EWOLD (2015)

Industrial and Occupational Forecasts

Cambridge is located within the Metro-North Workforce Investment Area (WIA), the geographic area for which the Executive Office of Labor and Workforce Development provides long-term industrial and occupational projections. The Metro-North WIA also includes the following municipalities: Arlington, Belmont, Burlington, Chelsea, Everett, Malden, Medford, Melrose, North Reading, Reading, Revere, Somerville, Stoneham, Wakefield, Watertown, Wilmington, Winchester, Winthrop, and Woburn.

Tables 3 and 4 show long term occupational and industrial forecasts for the Metro-North WIA to predict growth and decline over the ten year period between 2012 and 2022. Professional, scientific, and technical services industries are expected to provide the largest share of employment and are anticipated to continue to grow by 21 percent by 2022. Health care and social assistance and education services, the next largest categories of job providing industries, are also projected to grow at 22 percent and 9 percent respectively. As these industries already have a strong presence in Cambridge and represent the largest number of business establishments, it can be anticipated that similar growth trends and land use patterns that have been seen in the previous decade will continue into the next.

Manufacturing is expected to decline, which may have some broader impacts in the city as 14 percent of establishments employing more than 100 workers are in the manufacturing industry, and declines in that sector could impact significant numbers of workers. Accommodations, food services, drinking establishments, amusement, arts, and recreation are also expected to grow throughout the Metro-North WIA.

A large number of the fastest growing occupations are anticipated to be within health care, STEM fields, and service industry positions. Many areas of health care are anticipated to grow from administrative support positions to patient care oriented positions. The growth in STEM fields is further supported by the high concentration of universities, skilled workers, start-ups, and global organizations in Cambridge, which provide an environment for such occupations to thrive. Service industry jobs including cooks, servers, bartenders, employees at entertainment related businesses, hair stylists and cosmetologists, and fitness and aerobics instructors are also forecasted to expand, as the growth in higher wage jobs such as those related to STEM and health care industries drives demand for services to fulfill local needs.

Industry	Employment		Change (#)	Change (%)	Mean Annual Wage (2013)
	2012	2022			
Construction of Buildings	2,417	3,265	848	35.1%	\$84,234
Construction	13,040	17,139	4,099	31.4%	\$68,056
Specialty Trade Contractors	9,807	12,755	2,948	30.1%	\$64,898
Amusement, Gambling, and Recreation	2,873	3,671	798	27.8%	\$36,696
Ambulatory Health Care Services	16,656	21,189	4,533	27.2%	\$73,369
Arts, Entertainment, and Recreation	3,492	4,372	880	25.2%	\$39,467
Social Assistance	9,576	11,925	2,349	24.5%	\$36,369
Personal and Laundry Services	4,901	6,030	1,129	23.0%	\$31,655
Religious, Grantmaking, Civic and Similar Org.	3,632	4,432	800	22.0%	\$46,415
Health Care and Social Assistance	51,021	62,116	11,095	21.7%	\$58,305
Accommodation, including Hotels and Motels	3,596	4,362	766	21.3%	\$36,587
Professional, Scientific, and Technical Services	52,593	63,647	11,054	21.0%	\$99,338
Publishing Industries (except Internet)	8,648	10,402	1,754	20.3%	\$97,243
Nursing and Residential Care Facilities	8,534	10,253	1,719	20.1%	\$36,821
Other Services (except Government)	11,712	13,774	2,062	17.6%	\$39,603
Motor Vehicle and Parts Dealers	3,096	3,582	486	15.7%	\$53,238
Accommodation and Food Services	28,495	32,896	4,401	15.4%	\$29,710
Hospitals	16,255	18,749	2,494	15.3%	\$62,398
Food Services and Drinking Places	24,899	28,534	3,635	14.6%	\$28,469
Information	15,931	17,902	1,971	12.4%	\$88,873
Transit and Transportation	2,954	3,291	337	11.4%	\$33,492
Management of Companies and Enterprises	5,924	6,577	653	11.0%	\$78,394
Educational Services	46,877	51,021	4,144	8.8%	\$72,455
Retail Trade	38,584	41,304	2,720	7.0%	\$32,443
Health and Personal Care Stores	2,968	3,167	199	6.7%	\$36,577
Finance and Insurance	13,195	14,059	864	6.5%	\$72,332
Food Manufacturing	4,181	4,443	262	6.3%	\$36,182
General Merchandise Stores	5,265	5,583	318	6.0%	\$28,188
Administrative and Support and Waste Mgmt.	23,499	24,872	1,373	5.8%	\$44,116
Real Estate and Rental and Leasing	4,612	4,857	245	5.3%	\$62,146
Administrative and Support Services	22,446	23,581	1,135	5.1%	\$43,653
Merchant Wholesalers, Nondurable Goods	5,524	5,800	276	5.0%	\$61,542
Repair and Maintenance	3,179	3,312	133	4.2%	\$43,913
Food and Beverage Stores	12,887	13,212	325	2.5%	\$28,736
Wholesale Trade	16,580	16,983	403	2.4%	\$68,839
Insurance Carriers and Related Activities	5,349	5,464	115	2.1%	\$74,019
Clothing and Clothing Accessories Stores	3,945	3,932	-13	-0.3%	\$29,692
Manufacturing	23,808	22,212	-1,596	-6.7%	\$63,722
Total All Industries	402,290	451,058	48,768	12.10%	\$63,066

Source: Executive Office of Labor and Workforce Development (2015)

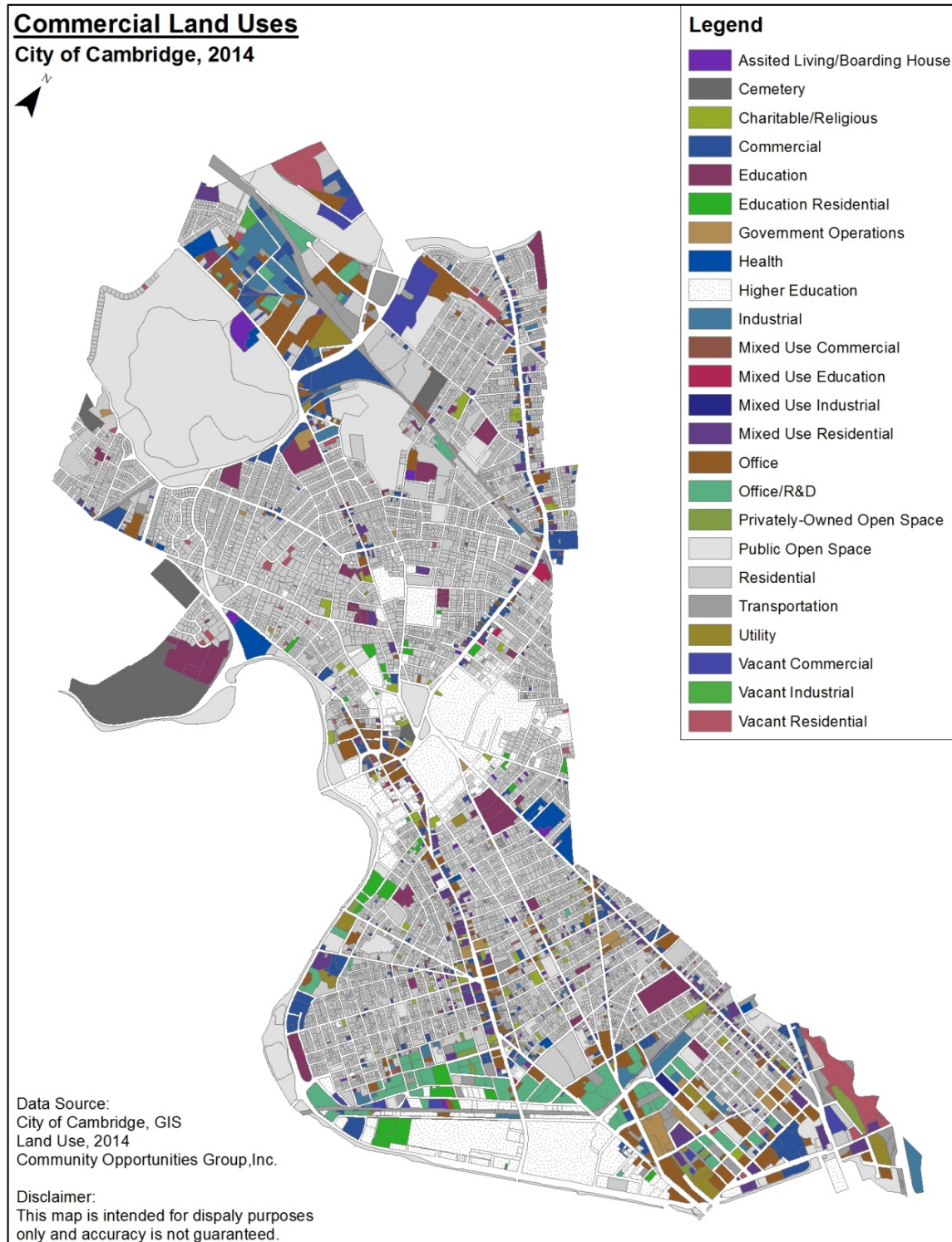
Table 4: Occupational Projections for the Fastest Growing Occupations in Metro North WIA

Occupation	Employment		Change (#)	Change (%)	Mean Annual Wage (2013)
	2012	2022			
Personal Care Aides	2,328	3,299	971	41.7%	\$24,832
Statisticians	470	637	167	35.5%	\$102,534
Market Research Analysts and Marketing Specialists	2,626	3,470	844	32.1%	\$70,035
Medical Secretaries	1,935	2,500	565	29.2%	\$37,892
Physical Therapists	727	938	211	29.0%	\$82,375
Cost Estimators	596	762	166	27.9%	\$72,441
Operations Research Analysts	556	709	153	27.5%	\$78,240
Hairdressers, Hairstylists, and Cosmetologists	2,045	2,580	535	26.2%	\$32,754
First-Line Supervisors of Construction Trades	1,431	1,804	373	26.1%	\$79,455
Computer User Support Specialists	2,976	3,749	773	26.0%	\$64,468
Fitness Trainers and Aerobics Instructors	919	1,150	231	25.1%	\$44,570
Computer Systems Analysts	2,072	2,591	519	25.0%	\$85,743
Occupational Therapists	735	919	184	25.0%	\$74,845
Licensed Practical and Licensed Vocational Nurses	1,674	2,087	413	24.7%	\$49,714
Emergency Medical Technicians and Paramedics	1,123	1,398	275	24.5%	\$35,038
Software Developers, Applications	4,939	6,140	1,201	24.3%	\$97,361
Amusement and Recreation Attendants	771	957	186	24.1%	\$23,014
Software Developers, Systems Software	5,416	6,709	1,293	23.9%	\$112,679
Electricians	1,536	1,896	360	23.4%	\$61,584
Management Analysts	2,983	3,670	687	23.0%	\$95,932
Medical and Clinical Laboratory Technicians	582	715	133	22.9%	\$45,048
Construction Laborers	1,551	1,905	354	22.8%	\$51,518
Cooks, Restaurant	2,811	3,446	635	22.6%	\$30,098
Mental Health Counselors	1,003	1,229	226	22.5%	\$36,870
Painters, Construction and Maintenance	871	1,067	196	22.5%	\$49,479
Plumbers, Pipefitters, and Steamfitters	1,194	1,462	268	22.4%	\$68,637
Food Servers, Non-restaurant	834	1,020	186	22.3%	\$23,041
Civil Engineers	1,352	1,648	296	21.9%	\$82,978
Carpenters	3,005	3,660	655	21.8%	\$61,439
Bartenders	2,691	3,263	572	21.3%	\$25,217
Nursing Assistants	4,180	5,062	882	21.1%	\$31,403
Medical and Health Services Managers	1,272	1,538	266	20.9%	\$119,398
Environmental Engineers	603	729	126	20.9%	\$80,404
Medical Assistants	1,356	1,639	283	20.9%	\$39,217
Web Developers	1,362	1,644	282	20.7%	\$77,899
HVAC Mechanics and Installers	1,584	1,903	319	20.1%	\$60,611

Source: Executive Office of Labor and Workforce Development (2015)

City-Wide Existing Conditions and Land Use

Land Use



Although the City of Cambridge is host to a wide array of economic activity, commercial uses are largely concentrated along major thoroughfares, in historically industrial districts in East Cambridge, Cambridgeport and in the Alewife area, and in the five major squares: Central, Harvard, Inman, Kendall, and Porter. The above map displays primary commercial land uses throughout the city; however, due to the number of lots that are primarily residential and secondarily commercial, the full scale of commercial uses is not quite represented. In the Appendix, please see the City's Zoning Maps which show the locations of commercial districts as well as maps indicating all business locations by type and area.

Building Types

Use	2005		2015		Percent Change	
	# of Buildings	Est. Square Footage	# of Buildings	Est. Square Footage	# of Buildings	Est. Square Footage
Auto	61	259,505	49	167,810	-19.7%	-35.3%
Bank	11	107,132	11	106,170	0.0%	-0.9%
Hotel	15	1,570,452	19	1,874,742	26.7%	19.4%
Industrial	36	4,495,837	55	730,616	52.8%	-83.7%
Medical Office	6	501,891	5	45,749	-16.7%	-90.9%
Mixed Use Com.	*	*	2	757,053	*	*
Mixed Use Res./Com.	351	3,423,651	395	4,918,063	12.5%	43.6%
Office	469	14,166,119	520	14,635,583	10.9%	3.3%
Parking	150	173,375	127	78,409	-15.3%	-54.8%
R&D/High-Tech	91	3,164,910	94	9,653,663	3.3%	205.0%
Recreation	4	94,539	4	94,539	0.0%	0.0%
Res. Congregate	39	670,443	35	978,242	-10.3%	45.9%
Restaurant	54	250,717	48	200,362	-11.1%	-20.1%
Retail	241	3,248,467	276	4,010,812	14.5%	23.5%
Warehouse	78	1,050,791	88	1,356,948	12.8%	29.1%
Total Commercial Use	1,569	33,181,501	1,728	39,644,680	10.6%	19.5%

* Data not collected in FY 2005

Data Source: City of Cambridge, Assessing Building Information Database 2005, 2010, and 2015

The Building Information Database, maintained by the City of Cambridge Assessing Department, provides data on taxable properties within the city. Because many buildings in Cambridge are mixed-use, the classification of each building is based on what the Assessor considers the primary use for the building. For this reason, some retail space is likely counted as mixed-use commercial or mixed-use residential because those types of uses tend to be located within mixed-use buildings, which may include upper story residential or office, or commercial strips with multiple tenants, rather than within standalone buildings. Naturally, there are more than 48 buildings with restaurants in them; however, there are far fewer buildings whose

primary use is as a restaurant and many restaurants are located in strips that are predominantly retail or on the ground floors of residential and office buildings. For that reason, the mixed-use categories capture space and buildings that may fall within some of the use categories in Table 6. In addition, certain data categories were more recently created, such as Mixed Use Commercial, and data points from prior years are not available for those categories. This may, in part, explain why the number of commercial buildings increased during this time frame, but the amount of square footage overall fell as space previously classified as industrial fell into new categories. In addition, the square footage estimates are based on “living area” and may not be inclusive of the total gross floor area as it is defined in the Zoning Ordinance.

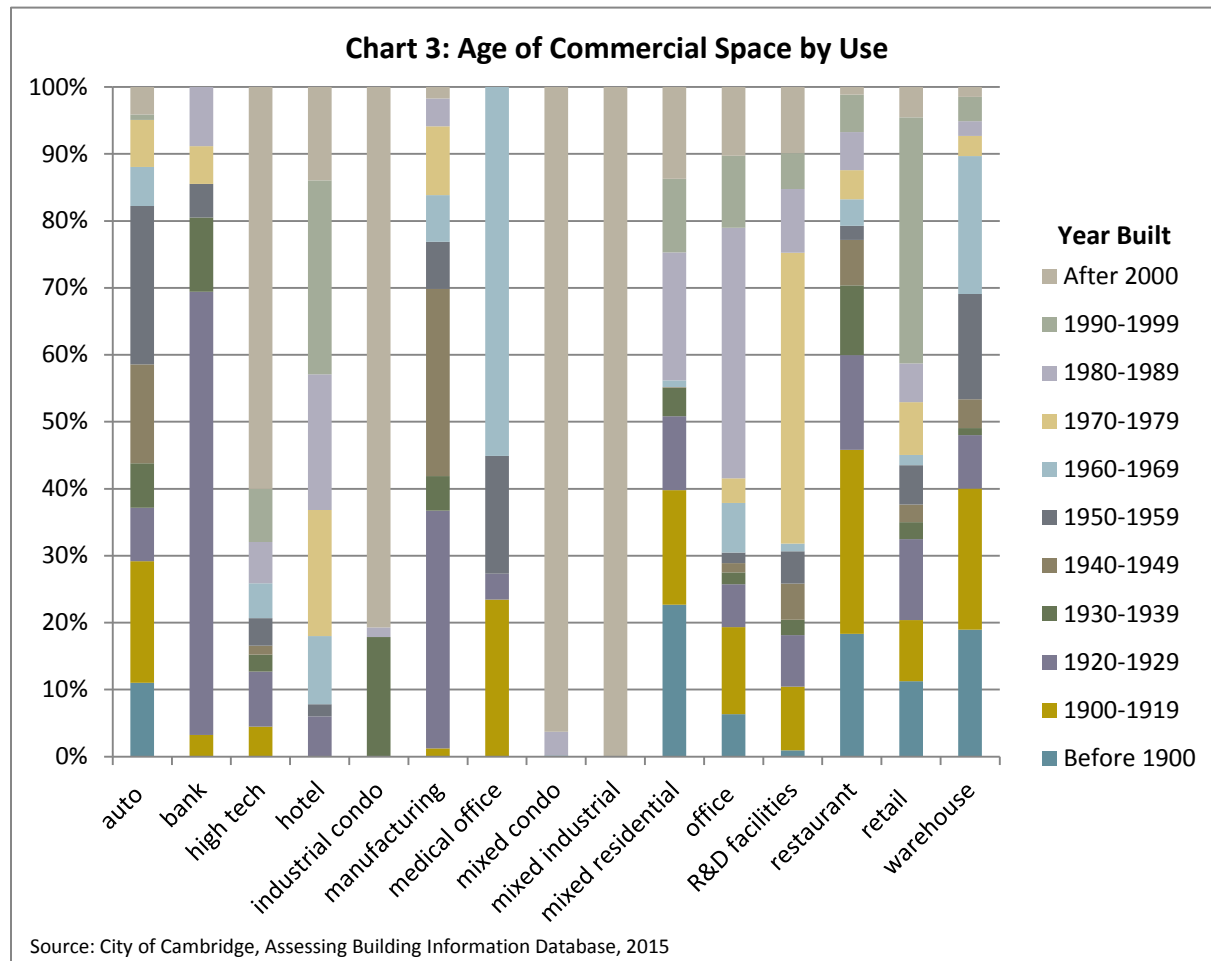


Chart 3 shows the ages of the buildings by general industry categories. The uses that most heavily locate in the oldest buildings tend to be used as mixed residential, warehouses, and restaurants, while uses like retail, industrial condos, mixed industrial, mixed condo, high tech, and R&D tend to be located in the newest structures. Restaurants, auto related uses, office, and warehousing tend to represent the widest range in the year of construction. **Table 6** shows the

ages of all commercial space by the time period during which it was constructed. Over half of the commercial space in Cambridge was constructed prior to 1920.

Year Built	Count	Percent
<1900	7,900	28.3%
1900-1919	7,056	25.2%
1920-1929	3,604	12.9%
1930-1939	1,243	4.4%
1940-1949	424	1.5%
1950-1959	226	0.8%
1960-1969	999	3.6%
1970-1979	1,146	4.1%
1980-1989	2,288	8.2%
1990-2000	1,100	3.9%
>2000	1,972	7.1%

Source: City of Cambridge, Assessing Building Information Database, 2015

the tax base. There was also a fairly sizable increase in the amount of square footage dedicated to hotel uses, mixed use, retail, and warehousing.

There were significant losses in space allocated within buildings that were primarily used for medical office and industrial activity (anecdotally, the decline in medical office space is likely attributable to the closure of the Marino Center). The number of lots and structures used primarily for parking and auto related uses also declined.

Industry Conditions

Overview

Using a database of 6,700 businesses and institutions in Cambridge that includes business data such as addresses, employment figures, square footage, revenues, sales growth, and NAICS codes for up to ten activities conducted by the business, some conclusions can be drawn about where certain types of businesses locate, what types of space they occupy, and what types of potential impacts their particular activities may have. The database, A to Z Business Database, is a proprietary database that aggregates data from the following sources: annual reports, SEC filings, corporate registers, public records, national directory assistance data, business directories, Secretary of State filings, state license filings, new phone connects, and Registry of Deeds Records. For the purpose of this study, the database was further refined to analyze only non-institutional and non-governmental related commercial uses resulting in approximately 4,350 records and representing a large sample of businesses in Cambridge.

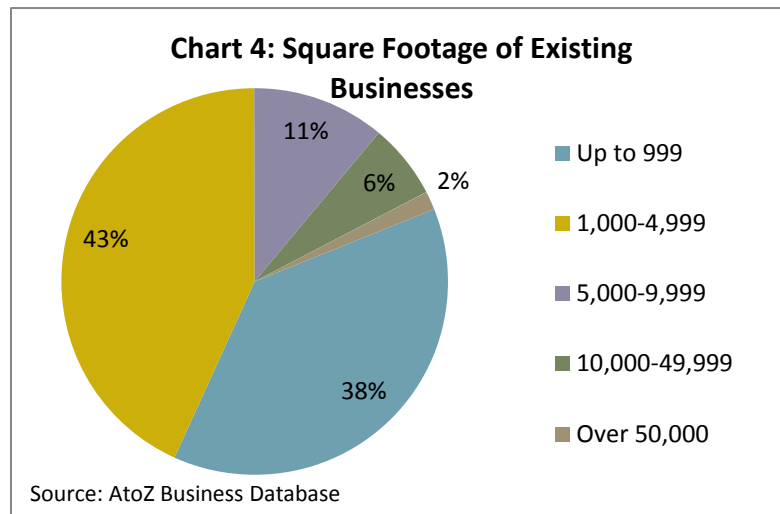
Although only 7 percent of commercial buildings were constructed within the past 15 years, the City of Cambridge has added approximately 6.5 million square feet of commercial space since 2005, representing a nearly 20 percent increase in square footage. During the same time, there was a 10.6 percent increase in the number of commercial buildings, generally indicating that the construction or conversion of new space generally occurred within larger buildings. The largest growth in commercial square footage was seen in buildings used for research and development (R&D) and for high-tech uses, which grew by 205% and added roughly six million square feet of commercial space to

Some general patterns emerged from the data. For example, larger and higher-impact businesses tend to locate in Alewife, East Cambridge, and on Memorial Drive. As expected, high tech, biochemistry, R&D, and support services are clustered in Kendall Square and to a lesser extent East Cambridge and Cambridgeport. Creative office-type businesses tended to cluster around Harvard and Central Squares, while most retail is located near Harvard Square and the Cambridgeside Galleria Mall. The data also confirms that storefront spaces of around 1,000 square feet or less tend to be personal services and smaller scale convenience food or retail.

For the purposes of this study, the database was broken into eleven broad industry categories. It should be noted that these categories are not mutually exclusive; therefore some overlap does occur. For example, some businesses classified as “biotechnology” may also be considered “R&D” businesses if they contain either component as a subsidiary activity. The eleven categories that were studied are: auto-related uses, biotechnology, construction & design, high-tech, home-based businesses, manufacturing, personal services, professional services, R&D, restaurants (full service), restaurants (short order), and retail and will be described in full in the following subsections. The prevalence of these industries, based on our classifications (which are different from those used in **Table 1**) is represented in **Table 7**.

Table 7: Share of Businesses by Industry			
Auto	3.7%	Personal Services	8.1%
Biotech	4.0%	Professional Services	26.0%
Construction & Design	6.7%	Research and Development	3.5%
High-Tech	7.5%	Restaurants - Full Service	7.2%
Home Based	6.7%	Restaurants - Short Order	2.6%
Manufacturing	4.9%	Retail	19.1%

Source: AtoZ Business Database, 2015

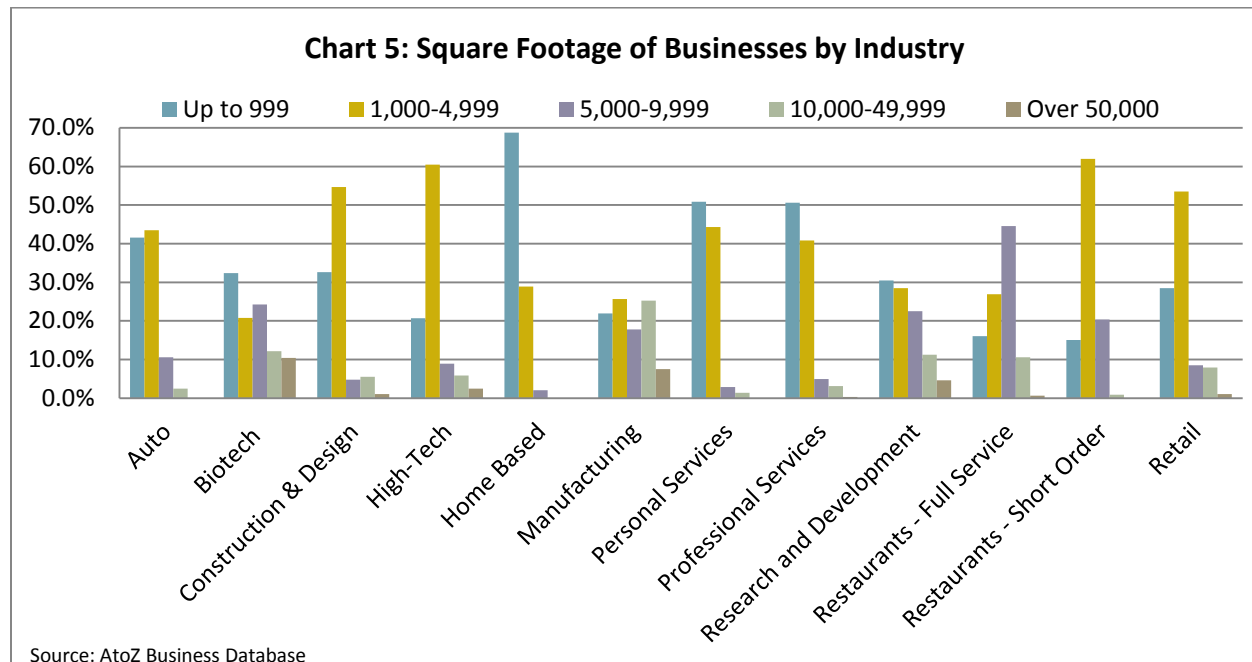


Of all businesses in Cambridge, four out of five occupy less than 5,000 square feet (see **Chart 4**). Nearly 43 percent occupy spaces that are 1,000-4,999 square feet and 37.6 percent occupy spaces smaller than 999 square feet.² Although there are examples of older structures that contain large spaces and new construction that contains small spaces, it is

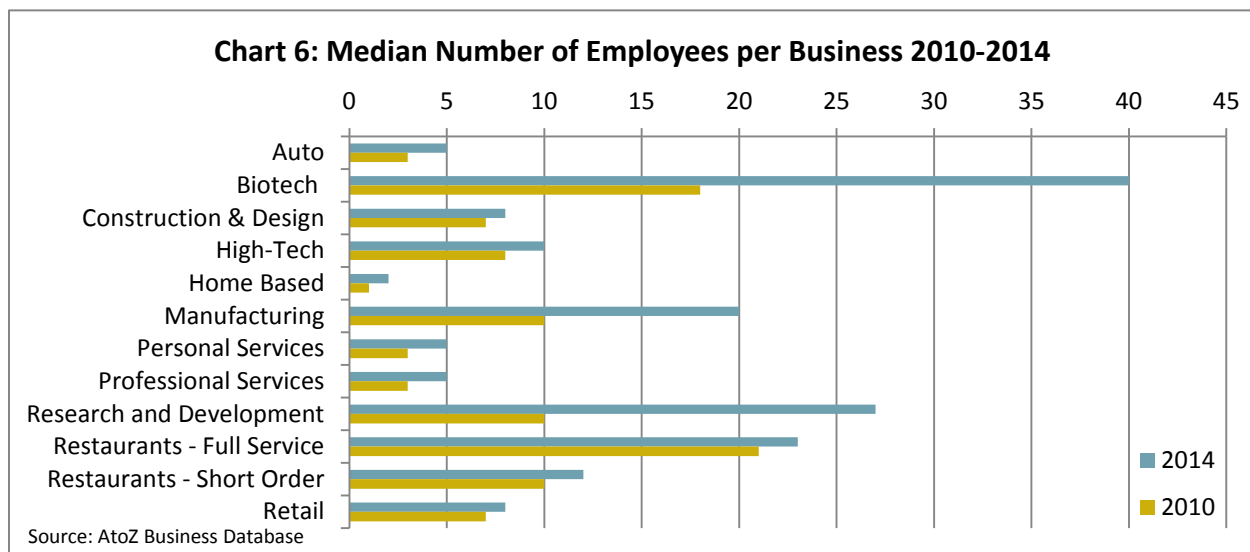
² A to Z Business Database, 2015.

generally the case that older buildings tend to yield smaller spaces, whether commercial or residential. The median year of construction for buildings with commercial space within them is 1923, which likely contributes to the prevalence of 1,000-4,999 square foot commercial spaces, in addition to that size being sufficient to support small professional offices, startups, retail, short order restaurants, and other activities that are commonly found in Cambridge. Of the remaining 19 percent of businesses, the majority occupy spaces sized 5,000-9,999 square feet, and just 1.5 percent of businesses occupy spaces larger than 50,000 square feet.

However, while the dominant space size is less than 5,000 square feet, spatial needs vary by industry. For example, full service restaurants most frequently locate in spaces that are 5,000 to 9,999 square feet and are one of the more notable users of spaces larger than 10,000 square feet (see **Chart 5**). Manufacturing, as expected, also tends to require larger spaces with 32.7 percent of those businesses occupying spaces larger than 10,000 square feet (of those, 7.5 percent occupy more than 50,000 square feet). Manufacturing businesses notably also occupy as many smaller spaces as they do larger spaces, which may be reflective of the presence newer small-scale and boutique manufacturing uses. Older manufacturing uses (such as candy manufacturing) tend to occupy larger spaces, as do some of the biotechnology and pharmaceutical manufacturers. In addition to manufacturing, the most common users of larger spaces exceeding 10,000 square feet tend to be biotechnology, high tech, R&D, and retail businesses. Smaller spaces, particularly those under 999 square feet, tend to be occupied by home based businesses, auto related, personal and professional services, and retail businesses.



There are a number of factors that determine the size of a space a business requires, ranging from activities performed, price and spaces available. The number of employees can also be a factor. **Chart 6** displays the median number of employees per business establishment by industry in 2010 and 2014. In all industries, the number of employees per establishment increased between 2010 and 2014, in large part due to improving economic conditions. Biotechnology and research and development saw the largest increases in median number of employees, which is largely related to the fact that several biotechnology and research and development companies are major employers with large workforces. Their relatively high numbers employees correlate with the relatively large number of businesses occupying more than 50,000 square feet.



Biotechnology

Locations

Biotechnology businesses are predominantly located in Alewife, East Cambridge, and Kendall Square but also interspersed throughout the Cambridge Triangle area and near Harvard. See the Biotechnology Business Locations Map in the Appendix for more information.

Activities

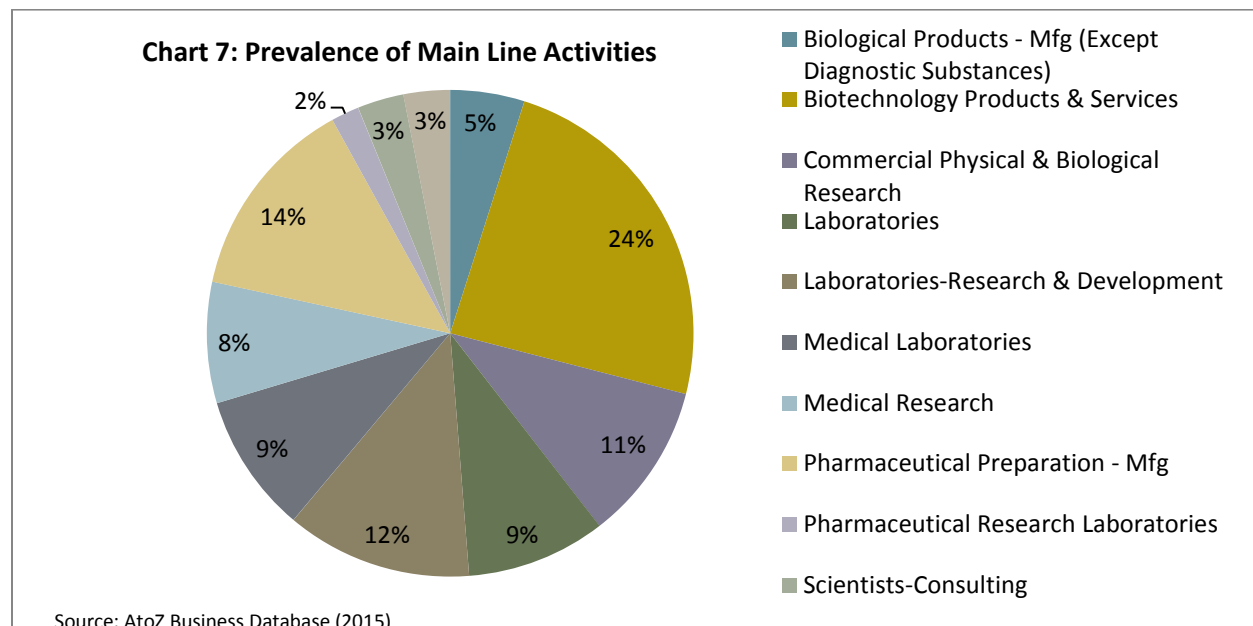
Biotechnology businesses are those that create technological applications for living systems and organisms. These businesses predominantly perform research, testing, and/or manufacturing of biotechnology products as a main line of activities. Few perform one activity, and nearly all perform ancillary activities related to office occupations (human resources, accounting, management, etc.). In addition, many have secondary components such as retail or restaurant

activities to support the needs of their employees. **Table 8** shows the activities that generally occur within a single biotechnology business.

Table 8: Biotechnology Business Activities Ranked by Prominence	
Main Line Activities	Secondary Activities
Testing Laboratories	Medical Laboratories
Scientists-Consulting	Pharmaceutical Preparation Manufacturing
Pharmaceutical Research Laboratories	Testing Laboratories
Pharmaceutical Preparation - Mfg	Research and Development in Biotechnology
Medical Research	Medical Manufacturing
Medical Laboratories	Biological Products Manufacturing
Laboratories-Research & Development	Retail/Office/ and/or Restaurant Activities
Laboratories	
Commercial Physical & Biological Research	
Biotechnology Products & Services	
Biological Products - Mfg (Except Diagnostic)	

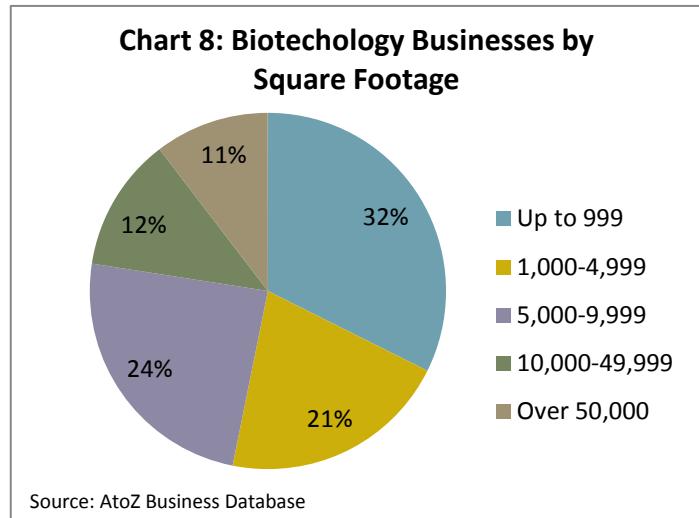
Source: AtoZ Business Database (2015)

Chart 7 shows the prevalence of main line activities within the dataset. Research (combined categories of commercial physical & biological research, laboratories – research and development, medical research, and pharmaceutical research) represents one-third of biotech businesses and make up the largest segment of main line activities. Biotechnical products and services represents nearly one-quarter of the businesses identified as biotech businesses, combined laboratory categories encompass 22 percent of businesses, while combined manufacturing (biological product except diagnostic substances and pharmaceutical preparation) represents nearly 20 percent of biotech businesses.



Space and Employment

In addition to performing a wide range of activities, biotechnology businesses also range significantly in size. While much of the new construction that is and has been occurring in Kendall Square is to accommodate large biotechnology companies who occupy spaces in excess of 50,000 square feet, those businesses are largely fed by a large network of small startups and local universities. The vast majority of biotechnology businesses utilize smaller spaces, with 43 percent of



biotech businesses occupying spaces that are smaller than 5,000 square feet and nearly one quarter of biotechnology businesses are in spaces that are 5,000 to 10,000 square feet. However, biotechnology businesses occupying spaces in excess of 10,000 square feet have become increasingly dominant between 2010 and 2014, as the average employment in biotechnology businesses rose from 121 to 401 employees, while the median employment rose from 17 to 40 employees during the same time period.³

Potential Impacts

Although biotechnology is credited for having a generally positive impact on economic development, there are certain negative impacts that can also occur. Large facilities with high employment can generate transportation and parking impacts as well as circulation difficulties related to parking, loading, waste management, and delivery needs. In addition, many facilities can require additional HVAC and other mechanical equipment to accommodate laboratory needs. While these conditions can cause neighborhood impacts, many of them can be successfully ameliorated with adequate site plan and design reviews and appropriate height, setbacks, and screening (acoustical or otherwise) requirements for mechanical equipment.

High-tech Development

Locations

High-tech businesses are located throughout Cambridge with concentrations along Massachusetts Avenue, East Cambridge, Harvard Square, and Alewife. See High-Tech Business Locations Map in the Appendix for more information.

³ AtoZ Business Database (2015).

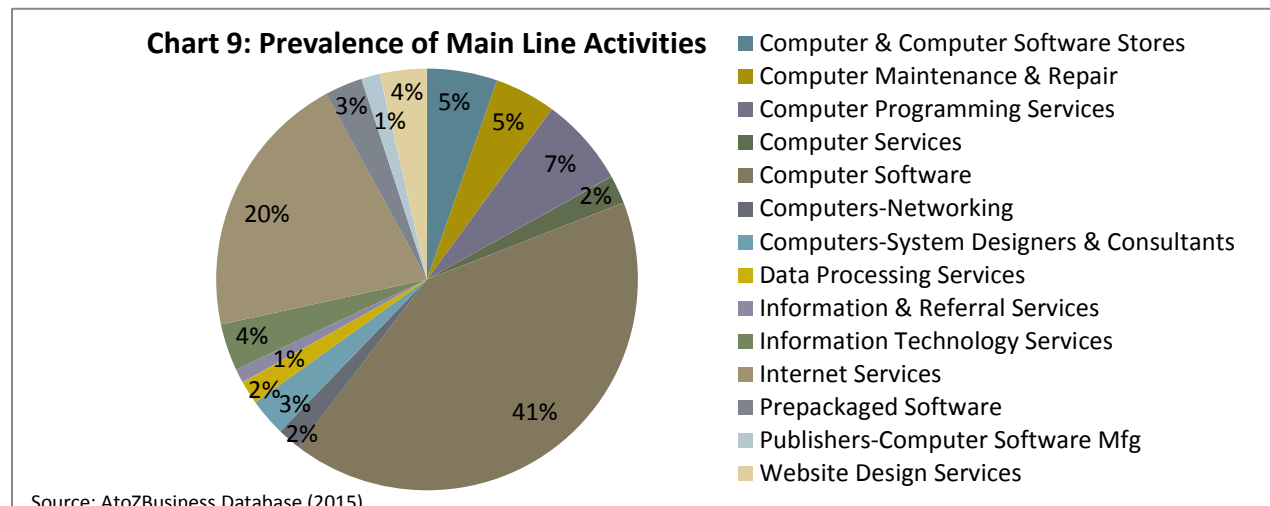
Activities

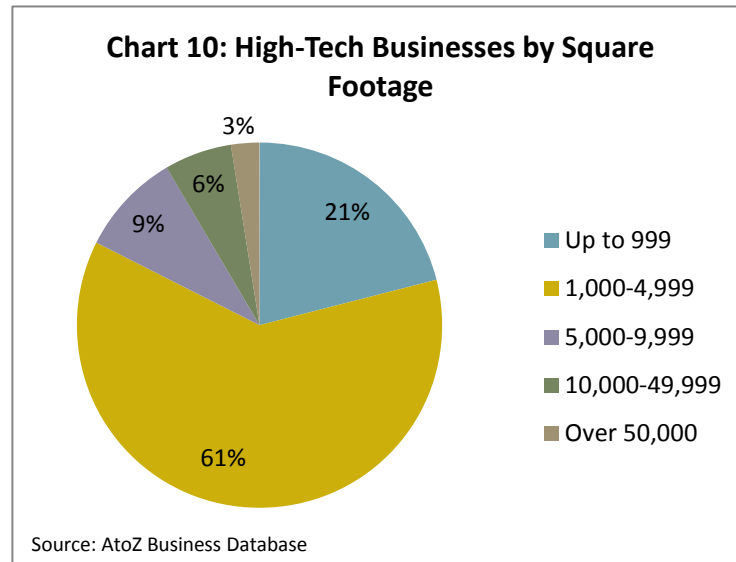
High-tech businesses are defined as those that work with computers, software, and data processing. High-tech businesses in Cambridge encompass a variety of activities from design services to manufacturing to sales (retail or wholesale). In addition, many high-tech businesses engage in more than one activity and perform related secondary activities, such as design services, data processing, software publishing, etc. **Table 9** shows the primary main line and secondary business activities of high-tech businesses in Cambridge. **Chart 9** further depicts the prevalence of main line activities for high-tech businesses, with computer software and internet services representing the most common activities by far.

Table 9: High-Tech Business Activities Ranked by Prominence

Main Line Activities	Secondary Activities
Computer Software	Custom Computer Programming Services
Internet Services	Data Processing, Hosting, and Related Services
Computer Programming Services	Computer and Office Machine Repair and Maintenance
Computer & Computer Software Stores	Software Publishers
Computer Maintenance & Repair	Electronics Stores
Information Technology Services	Computer Systems Design Services
Website Design Services	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers
Computers-System Designers & Consultants	Electronic Computer Manufacturing
Prepackaged Software	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
Computer Services	Other Computer Related Services
Computers-Networking	Other Electronic Component Manufacturing
Data Processing Services	
Publishers-Computer Software Mfg	
Information & Referral Services	
Computer Software	

Source: AtoZ Business Database



Space and Employment

High-tech companies tend to occupy medium-sized spaces, with 70 percent of businesses of this type locating in spaces that are between 1,000 and 10,000 square feet. However, while many of these businesses occupy mid-size or small spaces, there are several notable large data and software development companies within the City of Cambridge and 13 percent of high-tech businesses occupy spaces in excess of 10,000 square feet (3

percent occupying spaces larger than 50,000 square feet). High-tech businesses employed an average of 43 workers in 2014, up from an average of 30 in 2010. However, the median number of employees is much smaller, at 10 employees per business in 2014, up from 8 in 2010. The relatively small number of employees is consistent with the majority of high-tech businesses occupying smaller office space or former industrial spaces, and reflects the relatively large number of startups that engage in high-tech business activities.

Potential Impacts

Impacts from high-tech businesses vary by the types of activities that are performed on-site. Those that engage in manufacturing may have a more noticeable impact than a small startup that uses their space primarily as office space and has few employees, depending on the type of loading and delivery facilities a manufacturing business utilizes. In addition, some high-tech businesses can require additional HVAC equipment for cooling, depending on the type of equipment that is stored indoors. Finally, like any other large office use, for those high tech businesses employing several hundred workers there is the potential for impacts to transportation networks and public transit during core working hours when employees begin and end their workdays. However, overall, given the relatively small size of most high-tech related businesses and the relatively quiet pursuits of software development, many businesses of these types have very marginal if any impacts on their surrounding neighborhood.

Research and Development

Locations

The majority of R&D related businesses are located near MIT, Kendall Square, and within East Cambridge, with smaller concentrations near Central Square, the Cambridge Triangle, and scattered around the Alewife area. See Research and Development Business Locations map in the Appendix for more information.

Activities

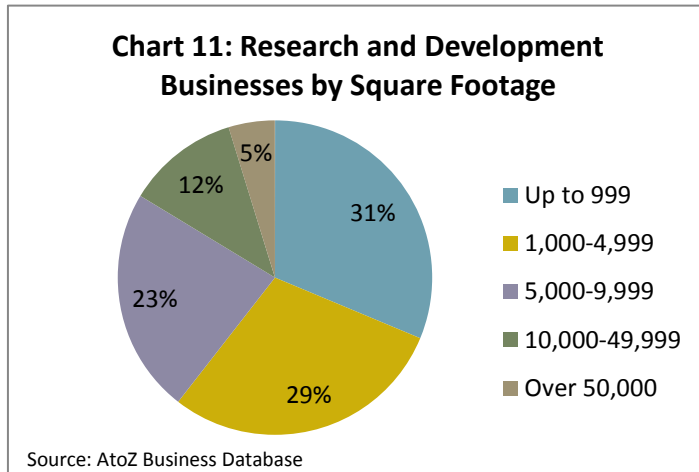
Table 10: Research and Development Business Activities Ranked by Prominence	
Main Line Activities	Secondary Activities
Biotechnology Products & Services	Medical Laboratories
Laboratories-Research & Development	Full-Service Restaurants
Laboratories	Other Personal Care Services
Medical Laboratories	R&D in Biotechnology
Medical Research	R&D in Physical, Engineering, and Life Sciences
Commercial Physical & Biological Research	R&D in Social Sciences and Humanities
Educational Research Agency	Offices of Physicians
Environmental & Ecological Services	Other Scientific and Technical Consulting Services
Scientists-Consulting	
Educational Research	
Noncommercial Research Organizations	
Historical Research	
Industrial Developments	

Source: AtoZ Business Database

As previously stated, there is a fair amount of overlap between Biotechnology, High-tech, and Research and Development businesses as many of the former perform R&D functions, and the categories were not made mutually exclusive for the purposes of this study. However, as shown in **Table 10**, there are a number of businesses that have research interests in the social sciences, humanities, education, and other areas that were not otherwise captured within the categories of high-tech or biotech. In addition, a number of businesses perform secondary activities, such as providing offices for physicians or consulting services, and again, some provide on-site food service for employees.

Space and Employment

R&D businesses occupy a variety of spaces ranging from small – with 31 percent occupying spaces smaller than 1,000 square feet – to large – with 17 percent occupying spaces in excess of 10,000 square feet (see **Chart 11**). Further, the distribution of businesses between small, medium, and large spaces is nearly even and it is reasonable to conclude that R&D businesses are a fairly diverse group with respect to activities and operating characteristics. Additionally, the employment characteristics have been changing as well. In 2010, the average number of



employees in a research and development business was 43, by 2014, that number grew to 70. When looking at median number of employees, that number grew from 10 to 27 during the same time period.

Potential Impacts

Please see the impacts of biotech and high-tech businesses for discussion related to R&D uses associated with those businesses. Impacts related to

businesses that provide research functions within the humanities, education, or social sciences tend to be fairly limited and are more typical of “office” occupations. However, as there are several large employers within research and development, the same potential for parking, circulation, and transportation impacts do exist, but are somewhat unlikely when looking at the average and median employment numbers.

Construction and Design

Locations

Due to the size of the construction/property development industry in Cambridge, construction and building/landscape design-related businesses were isolated as a separate category in the database, though these services would largely also qualify as professional services. Businesses of this type are dispersed through the city, but have larger concentrations in Harvard Square, along Massachusetts Avenue, around Alewife, near Porter and Central Squares, and scattered through East Cambridge. See Construction and Design Related Businesses map in the Appendix for more information.

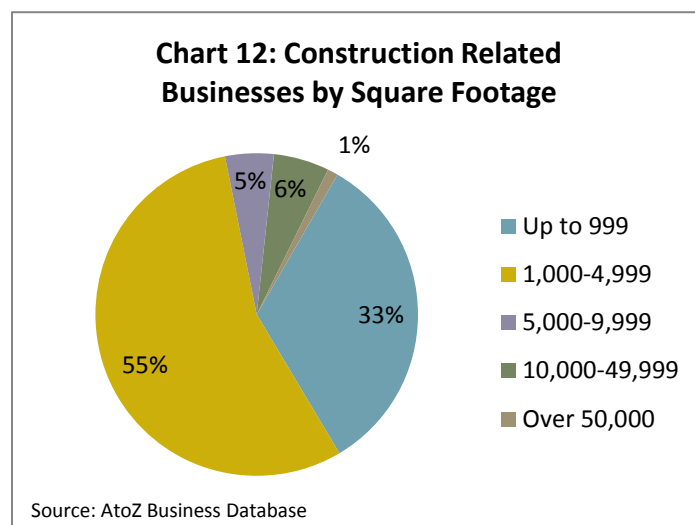
Activities

As show in **Table 11**, there are a variety of different businesses related to construction ranging from professional offices for architects, engineers, and landscape designers (some of which are home-based businesses), to tradesmen such as electricians and plumbers, to general contractors and construction companies.

Table 11: Main Line Activities for Construction Related Businesses Ranked by Prominence

Engineers	Environmental & Ecological Services
General Contractors	Plumbing Drain & Sewer Cleaning
Architectural Services	Energy Conservation & Management Consultants
Plumbing Contractors	Designers
Landscape Designers	General Contractors-Residential Buildings
Electricians	Plumbing, Heating & Air-Conditioning
Engineering Services	Contractors-Garage Doors
Landscape Contractors	Concrete Breaking, Cutting, Drilling & Sawing
Construction Companies	Concrete Contractors
Building Contractors	

Source: AtoZ Business Database

Space and Employment

Nearly 90 percent of construction and design related businesses occupy spaces that are smaller than 5,000 square feet (see **Chart 12**). The relatively small spaces are consistent with the median employment figures which have remained constant at 7-8 employees for the past four years. However, the presence of several large businesses brings the average number of employees in construction or design related businesses to 31 (in 2014), which

has grown slightly since 2010, when the average number of employees was 28.

Potential Impacts

Impacts from construction and design related businesses vary. While many of the businesses exhibit characteristics of office space, some businesses related to the building trades and construction can have somewhat atypical characteristics and require the parking of fleet vehicles (such as vans and trucks characteristically used by plumbers, electricians, and other contractors) and/or the storage of building materials (indoor or outdoor). The impacts of the latter types of businesses tend to be primarily visual and are best managed through careful attention paid to screening. Sites where building materials are stored, however, often require the use of heavy trucks and these businesses tend to exist more harmoniously away from residential abutters due to noise from idling or backing trucks as they load or unload.

Manufacturing

Locations

Manufacturing businesses are most commonly found in East Cambridge, Kendall Square, and Alewife with additional concentrations near Harvard Square and MIT. While standard manufacturing activities tend to be limited to industrial districts, the rise in manufacturing as an accessory use to research and development, as well to retail in the case in food and beverage manufacturing (such as baking, brewing, and gourmet foods) has allowed it to spill over into districts where it historically was not as common of a land use. See the Manufacturing Businesses Map in the appendix for more information regarding manufacturing business locations.

Activities

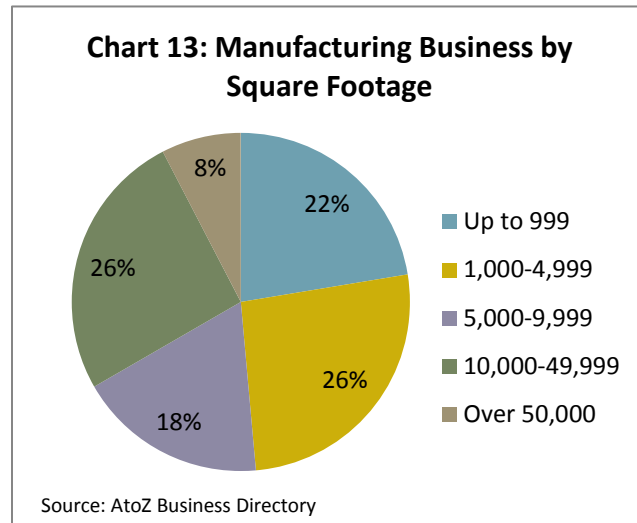
Table 12: Main Activities of Manufacturing Businesses Ranked by Prominence
Biological Products (Except Diagnostic)
Publishing & Printing
Other manufacturing industries
Pharmaceutical Preparation
Laboratories-Research & Development
Food preparations
Instruments and machine manufacturing
Drapery Hardware & Window Blinds & Shades, Picture Frames, Furniture , and Signs
Computer and computer peripherals, other electronic components
Surgical & Medical Instruments & Apparatus
Computer Software, pre-recorded music, and multimedia publishing
Chemicals & Chemical Preparations
Building materials manufacturing
Optical Instruments & Lenses, Glass
Plastics Materials, Synthetic Resins & Nonvulcanizable Elastomers
Aerospace Industries and Aircraft

Source: AtoZ Business Database

There are a wide range of manufacturing businesses located in Cambridge, which has long been a manufacturing center. Food items, ranging from baked goods, candies, fruits and vegetables, nuts, and prepared foods have long been a part of Cambridge's manufacturing tradition, though many of the newer food-related manufacturing businesses have taken on slightly different configurations, and many also have a retail component in addition to a wholesale component. High-tech and biotech manufacturing is also well represented amongst manufacturing business, and are supported by the research and development industry. Older industrial-type manufacturing businesses such as printing, tool and dye and machine shops, and building materials manufacturing also remain in Cambridge, though the longevity of some of those businesses operating within Cambridge may become less viable in the upcoming years due to land values, taxes, obsolescence, and transportation access issues, as trucking within the

City of Cambridge poses certain challenges that are not as pronounced in less urbanized areas. **Table 12** shows the range of aggregated manufacturing activities occurring within the city. For example, biological products manufacturing encompasses a variety of different manufacturing processes, but are considered in this report under the same umbrella.

Space and Employment



Manufacturing exists on all scales within Cambridge ranging from small-scale boutique manufacturing to large scale industrial manufacturing. Nearly half of all manufacturing shops are less than 5,000 square feet while over one third occupy spaces larger than 10,000 square feet. This is not surprising due to the wide array of manufacturing businesses. The average employment in 2014 was 393 workers; this number is likely high due to the relatively large numbers of employees of some of the

biotech and high-tech companies. During the same year, the median employment in manufacturing businesses was 20, which, less skewed by the largest employers, gives a more realistic figure of how many people are employed in the typical manufacturing business.

Potential Impacts

The potential impacts of manufacturing businesses vary significantly by industry, scale, and location. Many manufacturers are most appropriately located within an industrial district where noise, dust, vibration, and other objectionable impacts will be less likely to create a nuisance for abutters. However, there are some manufacturers, like craft brewers who also serve food and/or offer tours and tastings, that do well outside of industrial districts until their production levels dictate that additional space and loading facilities are needed. In other cases, small boutique manufacturing shops of certain types of specialty goods can also exist in storefront spaces with minimal impacts on residential abutters. Impacts of manufacturing businesses tend to be specific to each business and highly varied, thus there is no one-size-fits-all approach in mitigating their potential impacts.

Auto-oriented Uses

Locations

Naturally, auto related uses are concentrated along main thoroughfares such as Massachusetts Avenue, Cambridge Street, Fresh Pond Parkway, Prospect Street, Broadway, and Concord Avenue. See the Auto-Related Businesses Map in the Appendix for more information.

Activities

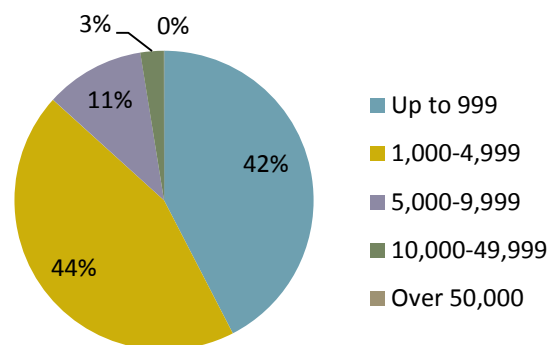
Table 13: Main Line Activities of Auto-Related Businesses Ranked by Prominence

Taxis	Parking Attendant Services
General Automotive Repair Shops	Automobile Parts & Supplies
Automobile Towing Services	Automobiles & Other Motor Vehicles
Gas Stations	Automobile Appraisers
Parking Stations & Garages	Automobile Insurance
Glass-Auto Plate & Window	Automotive Alternators & Generators
Automobile Body-Repairing & Painting	Automotive Exhaust System Repair Shops
Driving Instruction	Automotive Glass Replacement Shops
Automobile Renting	Automotive Repair Shops
Limousine Services	Automotive Services (Except Repair & Carwashes)
Transportation Services	Automotive Transmission Repair Shops
Truck Rental & Leasing, Without Drivers	Tire Dealers
Automobile Parking	Truck Dealers
Used Car Dealers	Truck-Repairing & Services
New Car Dealers	Car Washes

Source: AtoZ Business Database

Table 13 shows the range of activities auto related businesses perform; most of which are related to maintenance and service stations, transportation services (taxis, limousines, etc.), parking, and sales.

Space and Employment

Chart 14: Auto Related Businesses by Square Footage

Source: AtoZ Business Database

Most auto related uses occupy smaller spaces, with 86 percent of such businesses located in buildings smaller than 5,000 square feet. To a certain degree, as auto related uses tend to have an outdoor component (such as fueling or parking), the space needs are typically fairly small, with exception to car dealerships with maintenance facilities, large mechanics, and indoor parking facilities. In addition, auto related businesses tend to employ relatively few people. The average employment in

2014 was 9 employees per business, which had grown from 5 employees in 2010. The median number of employees in 2014 was 6, doubling from the 2010 level of 3 employees.

Potential Impacts

Auto related uses tend to have impacts that are visual and acoustical. Some of these impacts are inherent to the nature of the businesses and can be mitigated through landscaping and screening, while other issues, such as noise, can be less easy to manage if the business has a significant open air component (including open garage doors). While many residential structures exist side-by-side with auto mechanics, car dealerships, and gas stations, conflicts between the uses tend to be more pronounced where there are management issues. For example, a gas station can generate a fair amount of litter if it has a convenience store – adequate trash management and waste barrels that are routinely emptied can help ameliorate those types of issues.

Restaurants and Specialty Foods

Locations

Restaurants and specialty food businesses are located almost exclusively in the squares and along major thoroughfares in Cambridge. As both generally benefit from foot traffic, they are most prominently located in mixed use districts that provide multiple destinations for visitors, whether food is the primary destination or secondary to other activities. See the Restaurant Business Locations Map in the Appendix for additional information.

Activities

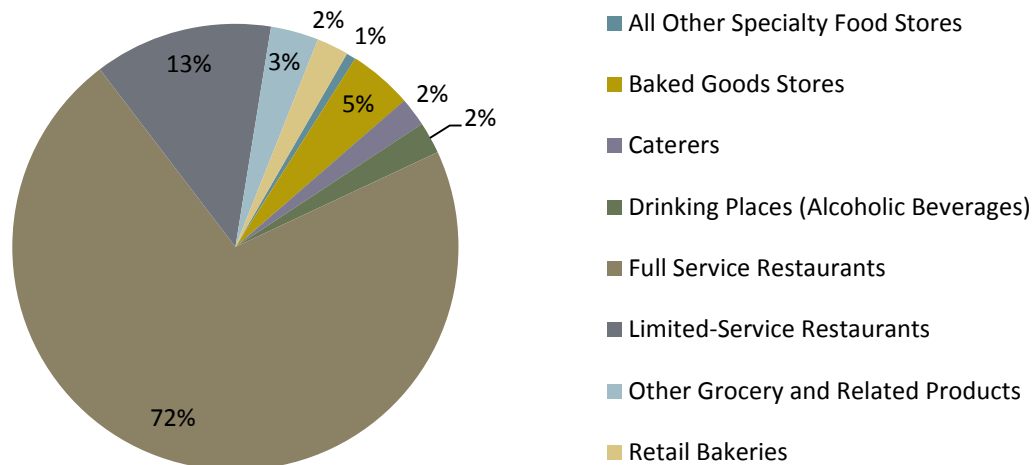
Table 14: Business Activities of Restaurants and Specialty Foods Ranked by Prominence	
Main Line Activities	Secondary Activities
Full Service Restaurants	Confectionery Merchant Wholesalers
Limited-Service Restaurants	Other Snack Food Manufacturing
Baked Goods Stores	
Other Grocery and Related Products	
Drinking Places (Alcoholic Beverages)	
Retail Bakeries	
Caterers	
All Other Specialty Food Stores	

Source: AtoZ Business Database

Restaurants and specialty foods tend to be self-explanatory in terms of their activities, except those specialty foods operations that have a wholesale or manufacturing component. Otherwise, most businesses are either full- or limited-service restaurants (short order), or grocers, bakeries, coffee shops, bars, cafes, and so on, and all are primarily involved in the production, sales and/or serving of food. **Chart 15** shows the prevalence of main line activities. Full service restaurants represent nearly three-quarters of food related establishments, and

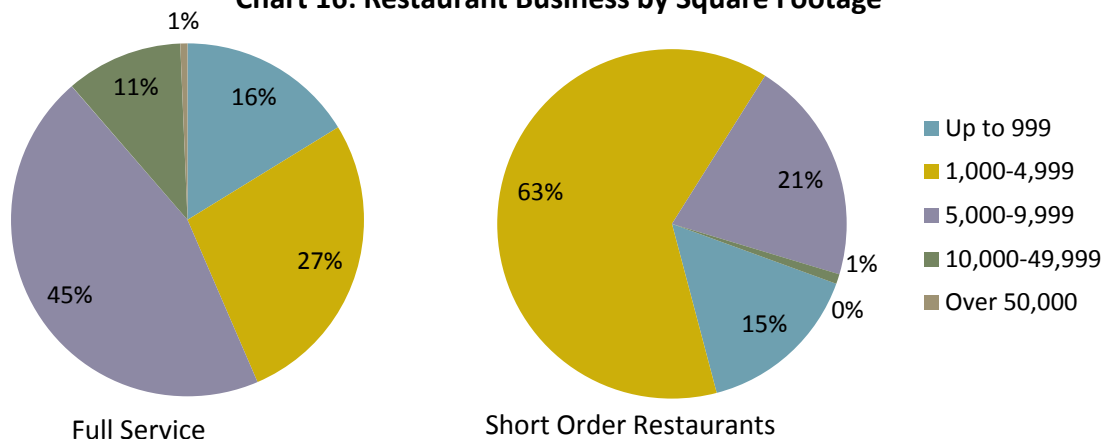
limited service restaurants represent an additional 13 percent of food businesses. Baked goods stores and bakeries are main line activities for 5 percent of food related businesses. Grocers, drinking places (only), caterers, and specialty foods make up the last 10 percent of food related businesses. However, it has been observed in recent years that specialty foods, particularly those with a principal manufacturing component and a small accessory retail component, have become more commonplace, which can create some regulatory challenges due to that particular combination of uses having presumed disparate impacts.

Chart 15: Prevalence of Main Line Activities



Space and Employment

Chart 16: Restaurant Business by Square Footage



Source: AtoZ Business Database

Full service and short order restaurants tend to have different spatial needs. Full service restaurants are generally 5,000-10,000 square feet, in order to accommodate full commercial kitchens, food storage and rest rooms, in addition to seating, while short order restaurants overwhelmingly occupy spaces smaller than 5,000 square feet, as they generally have limited

seating and small kitchens (or no kitchens, as may be the case with restaurants and cafes that sell foods that are prepared off-site). Short order restaurants also tend to employ fewer people than full service restaurants. In 2014, full service restaurants employed 25 workers on average while short order restaurants employed 20. During the same time period the median employment figures were 12 and 8 respectively. Restaurant employment figures have remained relatively constant since 2010, with only minimal upticks of 1-2 employees in the median and average employment figures.

Potential Impacts

The primary impacts associated with restaurants are related to odors, noise (primarily due to patrons but occasionally from rooftop fans and other types of mechanical equipment), loading and deliveries, and potential traffic and parking demand. Odors can generally be addressed through charcoal filters and similar type mechanisms. Noise, if the result of mechanical equipment, can generally be addressed through acoustical screens, appropriate setbacks, and appropriate maintenance. Noise related to patrons is a management issue as well as a police concern, and is not generally best regulated through zoning. Loading facilities for deliveries remains a challenge as many restaurants have delivery vehicles that double park. Regulating hours for deliveries and the size of delivery vehicles is often the most successful way to mitigate those impacts and addressing any issues related to those activities can frequently be done successfully through the license renewal process. Finally, the problem of parking impacts varies depending on the location and whether patrons tend to be in walking or biking distance or have access to convenient public transportation. It is also to a certain extent self-correcting, as the more difficulty patrons have with parking, the more likely they will choose a different mode of transportation.

Retail

Locations

Retail is most pronounced along Massachusetts Avenue and Cambridge Street, within each of the squares (Harvard, Central, Inman, Porter, and Kendall to a lesser extent), near Alewife, and within residential districts. For more information, please see the Retail Business Locations Map located in the Appendix.

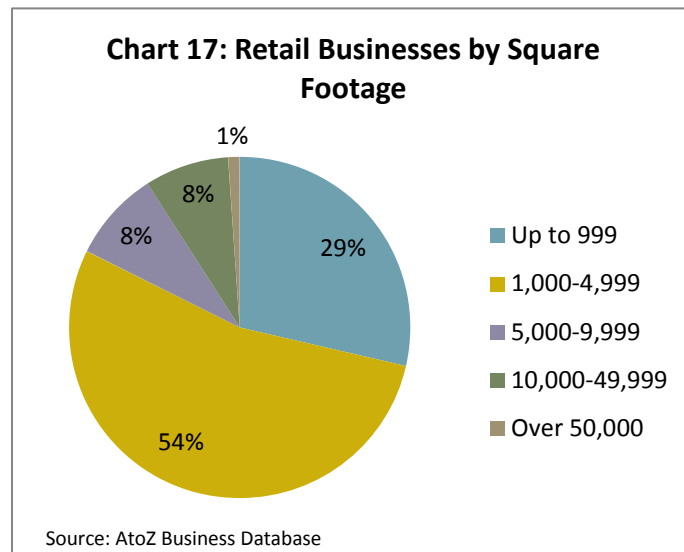
Activities

There is an extremely wide array of retailers located within Cambridge listed in **Table 15**. As Cambridge is home to a variety of building forms, including single story “taxpayer strips”, mixed use buildings with housing or office space over storefronts, the Cambridgeside Galleria Mall, post-war strip commercial development, and small big-box development, most types of retailers are represented within the city limits. In addition, because Cambridge has a diverse

and unique population and also a significant amount of foot traffic generated by tourism, transit hubs, and employment centers, it is also home to niche and/or destination retailers who sell products not otherwise commonly obtained in most municipalities.

Table 15: Main Line Business Activities of Retailers Ranked by Prominence	
Banks	Comic Books
Family Clothing Stores	Gift Baskets & Parcels
Convenience Stores	Greeting Cards
Grocery Stores	Health & Diet Foods
Art Galleries & Dealers	Lingerie
Book Stores	News Dealers & Newsstands
Furniture Stores	Paint Stores
Computer & Computer Software Stores	Video Games
Florists	Beds
Pharmacies	Candy, Nut & Confectionery Stores
Jewelry Stores	Childrens & Infants Wear Stores
Women's Clothing Stores	Commercial Banks
Locks & Locksmiths	Craft Galleries & Dealers
Shoe Stores	Discount Department Store
Gift, Novelty & Souvenir Shops	Garden Centers
Food Markets	Housewares
Cosmetics & Perfumes	Musical Instrument Stores
Credit Unions	Pottery
Liquor Stores	Tobacco Stores & Stands
Physical Fitness Facilities	Used Merchandise Stores
Toys & Games	Apparel Accessories
Cellular Telephones-Equipment & Supplies	Beddings & Linens
Misc General Merchandise Stores	Candles
Arts & Crafts	Costumes-Masquerade & Theatrical
Department Stores	Counter Tops
Sporting Goods Stores & Bicycle Shops	Dollar Stores
Theatres-Movie	Drapery & Curtain Fabrics
Food Products	Exercise Equipment
Gourmet Shops	Formal Wear-Rental
Hardware Stores	Fruit Baskets-Gift
Household Appliance Stores	Hobby, Toy & Game Shops
Mattresses	Invitations & Announcements
Music Dealers	Lumber
Thrift Shops	Quilting Materials & Supplies
Wines	Spices & Herbs
Boutique Items	Stationery Stores
Clothing-Used	Windows
Men's & Boys Clothing & Accessory Stores	Women's Shoes
Office Supplies	Antiques
Optical Goods	Audio-Visual Equipment
Shopping Centers & Malls	Bicycles
Artists Materials & Supplies	Carpet & Rugs

Source: AtoZ Business Database

Space and Employment

Nearly $\frac{3}{4}$ of all retail businesses in Cambridge occupy spaces smaller than 5,000 square feet (**Chart 17**). Larger retailers are less common and tend to be located predominantly near Alewife and within North Cambridge, while smaller retailers are housed in the older buildings within the mixed use squares, generally on the first floor and occasionally garden level. The average number of employees per retail establishment is somewhat skewed due to the presence of several large retailers,

and the 2014 and 2010 figures are 20 and 18 respectively. The median number of employees, which may give a better view of how many employees the typical retailer employs, was 8 in 2014 and 7 in 2010.

Potential Impacts

Retail tends to have relatively few impacts and has been commonly co-located with residential uses for many decades.

Professional Services**Locations**

Professional services are the most widely represented business category within Cambridge. These types of businesses are located virtually everywhere, as they occupy office spaces of all varieties, including office parks, mixed use buildings, or even private residences as home occupations. See the Professional Services Business Locations Map in the Appendix for more information.

Activities

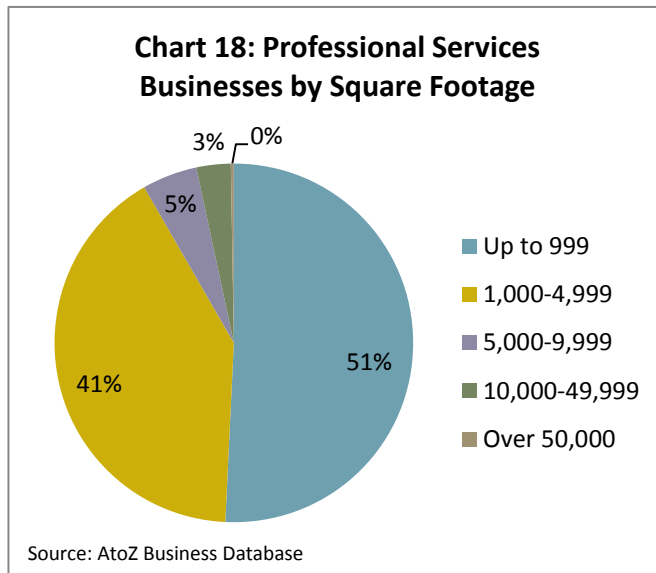
Traditional professional services such as accountants, attorneys, financial planners, marketing, and realtors are well represented in addition to businesses that are oriented to servicing a community with significant educational institutions (such as career counseling, resume writing assistance, and other career services), and businesses that service a robust business community (growth management consultants, health care consultants, executive search consultants, etc.).

Table 16 shows the array of professional services businesses operating in Cambridge.

Table 16: Main Line Activities of Professional Services Businesses	
Abuse Information & Treatment	Health Care Management
Accountants	Insurance Agents, Brokers & Service
Accounting, Auditing & Bookkeeping Services	Interior Decorators, Designers & Consultants
Adoption Agencies	International Affairs
Animal Hospitals	International Consultants
Arbitration Services	Inventors
Attorneys	Investigators
Business Brokers	Investments
Business Consultants	Management Consulting Services
Business Management Consultants	Management Services
Business Services	Management Training
Business Support Services	Marketing Consultants
Career & Vocational Counseling	Office & Desk Space-Rental
Commercial Art & Graphic Design	Property Management-Commercial
Commercial Banks	Public Relations Services
Commercial Photography	Publicity Services
Commercial Printing	Real Estate Agents & Managers
Commercial Real Estate Agents	Real Estate Appraisers
Communications Consultants	Real Estate Consultants
Communications Equipment Wholesale	Real Estate Developers
Communications Services	Real Estate Inspection
Consultant Referral Services	Real Estate Investment Trusts
Consulting Services	Real Estate Investments
Economic Research & Analysis	Real Estate Loans
Editing & Research Services	Real Estate Management
Editorial Services	Real Estate Rental Services
Educational Consultants	Research Services
Employee Benefit Consultants	Restaurant Management Services
Employment Agencies	Resume Services
Employment Contractors-Temporary Help	Services
Executive Search Consultants	Tax Return Preparation Services
Finance Services	Training Consultants
Financial Advisory Services	Translators & Interpreters
Financial Planning Consultants	Transportation Consultants
Financing	Transportation Services
Financing Consultants	Travel Agencies
General Management Consultants	Venture Capital Companies
Graphic Designers	Veterinarians

Source: AtoZ Business Database

Real estate professionals and attorneys are the most prevalent professional services offered in Cambridge; both categories represent 21 percent of professional businesses apiece and nearly half of all professional businesses combined. The third most common activity were business services (brokers, consultants, management consultants, services, and support services) representing 14 percent of professional services businesses.

Space and Employment

Most professional services businesses occupy spaces smaller than 5,000 square feet, and more than half occupy spaces smaller than 1,000 square feet. A very small percentage of businesses exceed 5,000 square feet. Corresponding to the relatively small foot print of professional services businesses are relatively small average and median employment numbers. In 2014, the average employment per establishment was 11 (down from 12 in 2010) and the median number of employees was 5 (up from 3 in 2010).

Impacts

Similar to retail, professional services businesses tend to have relatively few impacts as evidenced by the fact that many of them can be conducted as home occupations.

Personal Services**Locations**

Personal services businesses tend to be concentrated within the primary retail corridors and are largely located within the retail districts in Harvard, Porter, Central, Kendall, and Inman Squares. See the Personal Services Businesses Locations Map in the Appendix for more information.

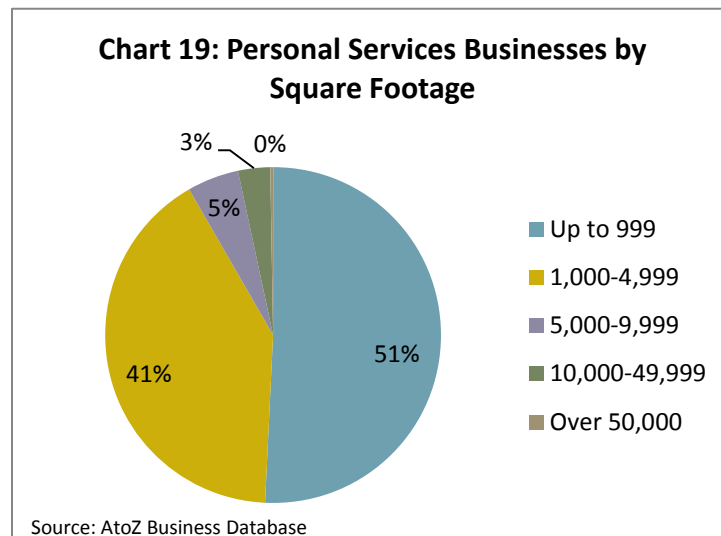
Activities

Personal services businesses deliver services rather than goods to clients or customers in support of their day to day activities. For purposes of this study, personal services include childcare, beauty services, home maintenance, fitness, pet care, and other services that residents use as a matter of necessity, entertainment, health, personal enrichment, and/or luxury. Personal care businesses vary widely in their purposes but tend to have a lot of commonalities with respect to their operations, spatial needs, and potential impacts. **Table 17** shows the main lines of business of a variety of personal services businesses within the City of Cambridge.

Table 17: Main Line Activities of Personal Services Businesses Ranked by Prominence

Beauty Salons	Pet Boarding & Sitting
Cleaners	Social Services
Child Day Care Services	Designers
Barber Shops	Health & Fitness Program Consultants
Florists	Pet Training
Manicuring	Pet Washing & Grooming
Painting & Paper Hanging	Senior Citizens Services
Physical Fitness Facilities	Electrolysis
Bed & Breakfast Accommodations	Lawn & Garden Services
Spas-Beauty & Day	Skin Treatments
Tutoring	Snow Removal Services
Yoga Instruction	Astrologers
Tattooing	Babysitters
Exercise & Physical Fitness Programs	Day Care Centers-Adult
Individual & Family Social Services	Gymnastic Instruction
Language Schools	Health Spas
Personal Services	Tanning Salons

Source: AtoZ Business Database

Space and Employment

Over half of personal services businesses are located in spaces smaller than 1,000 square feet. Few of them operate as home occupations, due to the nature of the businesses not being permissible under zoning or other codes as a home occupation (for example, beauty salons have health code requirements that prevent them from locating as a home occupation). They tend to be small businesses and have few employees (9 employees

were the average in 2014 and 5 was the median during the same year). Those that are larger tend to be in the realm of health clubs, which tend to have fairly large footprints and employ more people; to a lesser extent the same is true of beauty spas.

Impacts

Personal services businesses tend to be low-impact uses. However, those servicing pets may have noise impacts and may not be appropriate in all commercial districts. Another key exception with respect to impacts is day care, which can be highly impactful during pickup and drop-off hours and potentially stress parks and recreational opportunities. Finally, spas, health

clubs, and other similar uses can create demand for parking, although many of them can be accessed by walking, biking, or public transportation.

Home Occupations

Locations

Home-based businesses are scattered throughout residential districts all over Cambridge. Refer to the Home Based Businesses Location Map in the Appendix for more information.

Activities

Table 18 shows the most common lines of business for home-based businesses. Many home-based businesses are operated by professionals who practice out of their home either entirely, primarily, or occasionally. The zoning ordinance places limitations on the amount of space that can be devoted to a home occupation, the types of occupations that are allowed to practice within a residential district, the number of employees, and other common metrics to limit potential impacts on neighboring properties.

Table 18: Main Line Business Activities of Home Based Business	
Business Consultants	Candles
Architects	Career & Vocational Counseling
Business Management Consultants	Carpenters
Graphic Designers	Ceilings
Real Estate Agents & Managers	Child Day Care Services
Interior Decorators, Designers & Consultants	Chimney Builders & Repairers
Services	Clubs
Computer Software	Computer Maintenance & Repair
Attorneys	Computer-Software Developers
Engineers	Construction Companies
Real Estate Management	Cosmetics & Perfumes
Accounting, Auditing & Bookkeeping Services	Dancing Instruction
Bed & Breakfast Accommodations	Editorial Services
Commercial Art & Graphic Design	Educational Research Agency
Computers-System Designers & Consultants	Employee Benefit Consultants
Financial Advisory Services	Financial Planning Consultants
Landscape Designers	Fund Raising Counselors & Organizations
Painting & Paper Hanging	Handyman Services
General Contractors	Home Design & Planning Services
Government-Contractors	Home Improvements
Special Trade Contractors	House Cleaning
Training Consultants	Insurance Agents, Brokers & Service
Tutoring	Internet Services
Building Contractors	Lawn & Garden Services
Commercial Photography	Life Insurance-Underwriters
Designers	Marketing Consultants
Educational Consultants	Martial Arts Instruction

Table 18: Main Line Business Activities of Home Based Business (continued)	
Energy Management Systems & Products	Massage Therapists
Human Resource Consultants	Party Planning Services
Investments	Pottery
Photographers-Portrait	Publishing
Plumbing Contractors	Real Estate Buyers & Brokers
Public Relations Services	Real Estate Inspection
Real Estate Appraisers	Remodeling & Repairing Building Contractors
Scientists-Consulting	Speech Pathologists
Travel Agencies	Studio Rental
Website Design Services	Talent Agencies & Casting Services
Writers	Technical Writing
Advertising-Computer	Television Program Producers
Artists-Fine Arts	Translators & Interpreters
Astrologers	Yoga Instruction

Source: AtoZ Business Database

Space and Employment

By their nature, nearly all home based businesses occupy less than 1,000 square feet of space, as they are limited to occupying no more than 25 percent of a dwelling unit. They also tend to be sole proprietors or businesses with 1-2 employees at a maximum.

Impacts

Permitted home occupations are allowed only because their impacts are so minute that they will not be detrimental to the character and quality of life within a neighborhood. If a business grows to the point that their activities would create an impact, they typically would no longer qualify as a home occupation and would need to relocate to a commercial space.

Formative Issues

Introduction

At the onset of the process to examine the commercial use classification system within the Cambridge Zoning Ordinance (CZO), a series of interviews and focus groups were conducted with frequent users of the CZO. The interviews were conducted primarily in-person throughout March, 2015, by Courtney Starling, AICP, and Roberta Cameron, AICP, from Community Opportunities Group, Inc. Interview subjects were identified by the Cambridge Community Development Department staff and primarily included members of local business associations, business owners (mostly of locally-owned and operated establishments), real estate professionals, legal professionals, and commercial landlords. Approximately 30 individuals representing a wide variety of organizations and institutions were invited to participate in discussions and interviews; of those, approximately half (representing roughly 2/3 of invited organizations) were responsive and participated in the interview process.

The purpose of the interviews was a basic assessment of the user experience under the current use classification system, to discuss what elements of the CZO were working well, and to identify where some improvements could be made with respect to commercial uses (broadly considered those uses that are neither residential nor institutional). Through this process, a series of formative issues were identified based on the frequency with which those issues were raised by participants. CDD staff provided significant institutional history and regulatory knowledge, and gave valuable input regarding the permitting and zoning issues surrounding the formative issues identified by interview participants. While all issues raised are not inherently a result of the use classification system, all have an impact on future considerations of commercial uses and how they are regulated.

Identified Issues

Defining and Classifying Uses

Article 4 in the CZO currently covers all use classifications, with the exceptions of the Mixed Use Overlay district, which is handled separately in Section 14.20, and Planned Unit Development (PUD) uses, which are regulated both within Article 4, and Articles 12.00 and 13.00. Within the Table of Uses, uses are broken into the following categories: Residential Uses; Transportation, Communications and Utilities Uses; Institutional Uses (also regulated under Section 4.50); Office and Laboratory Uses; Retail Business and Consumer Service Establishment Uses; Open Air or Drive-In Retail and Service Uses; Light Industry, Wholesale Business and Storage Uses; and Heavy Industry Uses. Within those categories are line item uses that identify specific types of businesses. However, within the Table of Uses there are a few exceptions where categories also utilize more general business use classifications. For example, under

office uses, Section 4.34(b) identifies the “offices of an accountant, attorney, or other non-medical professional person (includes properly licensed massage therapists)”, Section 4.34(c) identifies “real estate, insurance or other agency office,” while Section 4.34(d) identifies “general office use.” All three of these line item uses are permitted identically across all zoning districts.

Difficulty can arise when attempting to classify a business that does not fit neatly into one of the specifically identified uses, or a business encompasses a mix of principal uses that are found in more than one section of the Table of Uses, or the mix of those uses negates its qualification to be defined as one of the more general use categories where they do exist. Further, as many of the specific line item commercial uses within the Table of Uses are not defined within Article 2 of the CZO (with some exceptions), ambiguities within the regulations leave much to interpretation. For example, under light industry, wholesale business and storage use, Section 4.37(a), lists “Assembly or packaging of articles” as a use, which is then subject to Footnote 33 under Section 4.40 which says, “Provided that no such article exceeds two hundred (200) pounds in weight and provided that no manufacturing or processing is carried out.” It is not immediately clear what type of good would be qualified as an “article” or what inherently separates “assembly or packaging” from “manufacturing or processing.”

While these are specific examples, the overarching finding is that it is a difficult task to determine what specific use category to apply to a particular business, which can be further exacerbated by the fact that many of the categories of uses do not contain a general use category (“General Office” use is an exception that is included). An absence of a line item pertaining to a specific type of business can frequently be the result of new businesses that have been generated by technological and industry change and were not foreseen when the CZO was originally drafted, rather than the use itself being objectionable. This creates a situation where a potential business must seek either a use variance or go to a different municipality where their use is permitted. The latter situation represents an economic loss to the City and potentially a loss of cultural or economic resources to residents.

Differentiation of Uses by Scale

Much of the purpose in establishing where certain types of business can locate by use and by zoning districts is to mitigate impacts from conflicting or incompatible uses (e.g. piggeries adjacent to residential neighborhoods). However, in many instances, impacts are more strongly correlated to the scale of the use rather than the use itself. For example, the impacts of a mega-store like Ikea tend to be more strongly felt than those of a small storefront retailer. While both are retail uses, they create disparate traffic, parking, and delivery impacts. The CZO makes no differentiation between those two types of retail uses in the Table of Uses, although there are other regulations in the CZO that necessitate the need for Special Permits and other types of review based on dimensions, project size, or locations of new development.

This can be particularly problematic with manufacturing uses, which can range from craft based business and manufacturing to confectioners, tool and dye shops, or full scale factories. Few regulations pertaining to manufacturing uses address the scale of production or facility. While there are many manufacturing businesses within Cambridge, the majority occupy spaces smaller than 10,000 square feet, and nearly half are located in spaces smaller than 5,000 square feet and have very limited exterior impacts. Yet manufacturing uses are prohibited in many areas throughout the city. Further, due to land costs in Cambridge, much of the manufacturing that occurs (aside from biotechnology and pharmaceutical development) is largely boutique manufacturing. Certain manufacturing uses, like microbreweries, would have impacts that are not particularly different from those of a restaurant or other retail establishment and might even offer similar benefits such as public tours and food service. In a similar scenario, a confectioner would be limited to locating within existing industrial areas due to being classified as a manufacturing use, even though it would likely require a small space and benefit from the addition of a gift shop where their products or related merchandise could be sold on site – something that would benefit from locating in a retail area with foot traffic.

Differentiation of Uses by Mix

A related issue is the mix of functions within a business. In the aforementioned examples of a brewery that does facility tours and offers food (which is not an unusual business model) or a small confectioner that sells their products on site, the use might be classified as manufacturing or retail and is often assigned the more restrictive classification. Another area where this can be an issue is a restaurant that offers entertainment that would be considered “commercial recreation” such as pinball or pub games, as well live entertainment. These types of businesses are becoming more common, but there is no way to classify such a mix of uses occurring within one business. In yet another example, despite an increased demand for gourmet foods, small businesses that entail food preparation typically require commercial kitchens that meet health code regulations, which are also classified as industrial uses and tightly restricted by zoning. While the CZO handles co-shared office and lab spaces with a fair amount of ease, there are no provisions for co-shared kitchens, maker spaces, or other fabrication oriented uses which could host a mix of businesses and uses.

Missing or Obsolete Uses

Although the CZO was recodified in 2001, the Table of Uses has not been significantly updated since the 1960’s. There are uses in the table that are now obsolete as well as modern uses the ordinance is silent on. For example, under Section 4.37 (Light Industry, Wholesale Business, and Storage), lamp shade, leather goods exclusive of footwear and saddlery, and umbrellas, parasols, and canes are all listed as permissible to be manufactured in some districts, whereas medical device manufacturing, a growing industry within the region, is not.

In addition, urban agriculture uses including farmer's markets as well as other open air markets (craft fairs, art markets, etc.) are also missing from the Table of Uses in spite of the fact that these activities do occur (typically after the granting of a variance from the Board of Zoning Appeal) and are generally well enjoyed by the public. While these uses are all impacted by multiple layers of local regulations, zoning remains a barrier to allowing these activities to occur in a streamlined fashion.

Another example of a common use that is not included in the use table is fitness centers or studio spaces for activities such as yoga, dance, gymnastics or other athletic activities. Those might be classified as commercial recreation (one of the uses includes many specific restrictions in the zoning ordinance) or even educational uses, if classes are offered. It is therefore difficult to predict where they might be allowed.

Overall, using highly specific uses and use categories carries the risk of obsolescence and regulatory silence on modern uses. Due to the high legal threshold for the granting of a variance, maintaining a more flexible and adaptable Table of Uses is necessary to maintain and foster economic growth.

Commercial Activity on Residential Lots

Although residential uses were not within the scope of this study, a recurring theme was the various ways in which residential units are accommodating commercial activities – some of which are permissible under the CZO while others are either in a legal gray area or are not permitted. Examples range from home occupations as an accessory use (which are generally permissible depending on the type and characteristics of the business), to the anecdotal rumors of residential units being rented and illegally used as small office spaces instead of dwelling units, to the increase of residential units being used as short term rentals (typically via online services such as Airbnb or VRBO.COM).

There are currently several hundred home-based businesses in Cambridge that coexist more or less peacefully with residential uses. The storage or sale of merchandise is not allowed on premises, signage is very limited and the allowed uses are generally limited to offices or other professional businesses. Home occupations are regulated as an accessory use under Section 4.20 which allows for the following, "A customary home occupation or the office of a resident physician, dentist, attorney-at-law, architect, engineer, properly licensed massage therapist, or member of other recognized profession shall be considered as an accessory use, provided that no more than three persons shall practice or be employed on the premises at any one time. In the case of a massage therapist, no more than one person shall practice or be employed on the premises at any one time." There was some discussion of expanding the types of businesses that could be allowed as home-based occupations (particularly with respect to web-based or tech

businesses or even small scale yoga studios which may not be considered “recognized professions”). These businesses play a critical role in the local economy as they allow for small businesses to get started and continue to operate until their spatial or employment needs dictate relocation into commercial spaces.

Instances of residential units being rented to serve as commercial space were brought up anecdotally, but there is no data to suggest how prevalent this issue is. In most cases it would be clearly prohibited by zoning, and enforcement can be a fairly straightforward matter if it is reported by neighbors, which does happen. However, it is reasonable to believe that in a number of instances other residents simply may not know that it is occurring or do not object to it.

The rise in dwelling units being used for short-term lodging, typically through online rental services, is an extremely complex issue. This kind of activity can take a range of forms, including homeowners accommodating guests in a spare bedroom, renters using online sites to sublease apartment units for short periods of time, or landlords deciding to rent entire apartment buildings as short-term lodging accommodations instead of family dwelling units. Although these short term rental arrangements meet a regional demand for lodging, there can be objectionable impacts from what are essentially hotel uses operating within residential structures.

In some cases, this kind of activity can be permitted as an existing category of use such as a tourist house or lodging house, but the issue is not fully addressed because the distinctions in the CZO between dwelling units and transient accommodations are not precise, and there are few specific provisions related to guest accommodations. However, the regulatory issues extend beyond zoning. In some cases, this activity occurs despite prohibitions in condo regulations or rental lease terms. Moreover, this occurs without the licensing, taxation, and inspectional requirements to which hotels, bed and breakfasts, and lodging houses are subject. There are a number of policy implications and regulatory barriers in addressing such uses due to the many variations of the structure of the rental agreements and the personal situations of those who are executing such agreements. Cambridge’s Inspectional Services Department (ISD) has taken enforcement action in a number of instances where the use of a dwelling unit as guest accommodations has violated the CZO; however, enforcement action is typically taken only when there is a complaint from a neighbor.

Short term online rentals are an issue many municipalities are struggling to address while trying to balance a need for diverse housing opportunities with the objections of residents adversely impacted by such uses. Currently, there are few municipalities that have attempted to address this issue. Because these issues relate to larger issues such as taxation and health and

safety codes, it is also an issue at the state level. Notably, New York State Attorney General Eric Schneiderman has deemed most short term rentals illegal and has been prosecuting the most problematic owners (typically those who have multiple listings and/or are using the rentals for illicit purposes) for tax evasion. As another example, the City of Boston has opted against issuing citations to homeowners for such uses while they complete an ongoing study examining the issue. Given the complexity of this issue and the lack of clear data available, it is suggested that this issue be studied separately to determine what types of residence-based commercial activities are acceptable to the community. More importantly, it is prudent to examine other matters of state law beyond zoning regulations, and to determine if there are statewide changes that would need to occur in order to create a workable system for regulating such activities.

Use Conversions and Pre-Existing Nonconforming Uses

The need to convert spaces from one use to another is an unavoidable issue that occurs over time as uses become obsolete, businesses close or relocate, and/or market conditions change. Retail, for example, has been heavily impacted by changes in market conditions. Local retail has been subject to different types of new competition over time due to the development of suburban shopping malls and the rise of “big-box” retailers; anecdotally, the preponderance of online retailing along with high brick and mortar rents has caused a decline in traditional retail businesses. With this decline comes a need to re-tenant a number of spaces, frequently requiring a change in use. In some districts, these changes of use occur with ease because the base and/or overlay zoning allows a sufficient diversity of uses to allow a new business. In other districts, this transition is less smooth when the list of allowed uses is limited, and most particularly where the use is pre-existing nonconforming and there are no other viable or allowed commercial uses. The issue of pre-existing nonconforming uses is most common in residential neighborhoods that have been traditionally anchored by small corner stores, hardware stores, or small eateries that are not currently allowed uses. Due to the structure of the Table of Uses by line item, it is difficult to substitute one nonconforming use for another if they are not the exact same type of business because they fall under different line items.

Further, an existing source of conflict in Cambridge has been related to the conversion of space from one type of use to another when both are allowed uses but the change can generate exterior alterations. Most frequently these conflicts occur due to office uses adjacent to residential areas being converted to lab uses, resulting in impacts that may arise from the installation of rooftop mechanical equipment to serve the new lab uses, which can have visual, auditory, and traffic impacts on the abutting properties. As many of these alterations do not trigger design review and are not subject to height limitations under the CZO, impacts that could be better managed through design solutions receive less attention.

The Fast-Order Food Cap

Finally, although a very specific issue, the cap on fast-order food was raised in every interview conducted for a multitude of reasons. Part of the issue with the cap in Central Square arises from how fast-order establishments are defined. Currently, they are defined under Article 2 by meeting any of the following conditions: the type of cutlery used (i.e. disposable), availability of printed menus, the percentage of sales attributed to food consumed on-site, and the percentage of seating provided at tables. Further, fast order establishments are limited to 14 in the Central Square area. Although the regulation was intended to preclude the location of certain types of fast food establishments, in practice, it is precluding a host of other small restaurants. As other forms of retail become less viable, food will remain a viable use of the smaller storefronts that characterize Cambridge's inventory of commercial space, particularly for operations that do not require full size commercial kitchens. Further, as cultural preferences shift, full-scale restaurants will become more of a destination while small scale restaurants offering quick (and typically healthy) meals are likely to increase in popularity as they fit into the increasingly busy lifestyles of urban Americans. It is possible the cap on short-order food is arbitrarily limiting business opportunities in spite of the fact that such businesses are evolving with market conditions and changes in culinary preferences.

Potential Adjustments to the Table of Uses

Land use classification systems typically establish a hierarchy of uses within zoning districts consisting of the following elements: principal and accessory uses, allowed uses, conditional uses (typically requiring special permits or some other additional level of approval), and prohibited uses. The approaches we recommend for adjusting the Table of Uses are both targeted, to address specific issues in the use classification system while retaining the existing framework, and comprehensive, intended to reconsider the existing framework and identify alternative methods to regulating use.

Targeted Approach

A targeted approach to updating the ordinance would involve making minor changes to line items in the zoning ordinance to address either issues of scale, obsolescence, or missing uses in Article 4. As the targeted approach is in keeping with the framework of the existing ordinance, the existing land use categories, groupings, and specific uses are retained with specific recommendations for text amendments that can be considered in whole or in part.

Aside from specific changes to the table, one overall suggestion is to include "General" use categories for all use types to provide a mechanism for permitting unanticipated uses or mixes

of uses. There could be criteria created to consider such uses through a conditional use special permit process to address and mitigate potential impacts to abutting properties.

Following is text excerpted from Cambridge's Zoning Ordinance, with recommended changes for each section. Subscript footnotes are included as they appear in the ordinance.

4.34 Office and Laboratory Uses

Uses	Suggestions
a. Office of a physician, dentist, or other medical practitioner not located in a clinic listed under Subsection 4.33(d)	
b. Office of an accountant, attorney, or other non-medical professional person (includes properly license massage therapists)	Consolidate office uses b & c into a single line item under professional office and add definition of professional office to Article 2. Definition should be inclusive of financial offices not open to the general public (see use e).
c. Real estate, insurance, or other agency office	
d. General office use	
e. Bank, trust company, or other similar financial institution	Remove use e, transfer retail banks, credit unions, and trust companies that are characterized by being open to members of the public for routine banking transactions to retail uses as an individual line item while retaining financial institutions that function primarily as office space in this section.
f. Technical office for research and development, laboratory & research facility subject to 4.21(m)	Consider creating lab and R&D uses as principal uses with office as an accessory use and define generally under Article 2. <ul style="list-style-type: none"> General definitions will allow for modern lab or R&D uses to fit more readily into the use classification system than attempting to define every type of lab or R&D business that would be acceptable. Currently lab and R&D uses are allowed as an accessory use to technical offices provided they meet the criteria of 4.21(m). Creating provisions for the labs and R&D that conduct commercial research or product development as a principal

Uses	Suggestions
	<p>use will give better control for conversions of existing office uses, particularly in transition areas between commercial and residential zones.</p> <ul style="list-style-type: none"> If this lab and r&d use is to be created, there should likely be a differentiation between labs and R&D businesses under 5,000 square feet and those large than 5,000 square feet. Roughly half the biotech and R&D businesses located in Cambridge occupy spaces smaller than 5,000 square and their impacts differ significantly from those of much larger buildings

4.35 Retail Business and Consumer Service Establishments

Uses	Suggestions
<p>a. Store for retail sale of merchandise ²³</p> <ol style="list-style-type: none"> Establishment providing convenience goods such as drug stores, food stores, tobacco, newspaper and magazine stores, variety stores, and liquor stores. ²⁴ Other retail establishments 	<p>Clarify intent of “other retail” – presumably it is intended to cover clothing, shoes, art galleries, furniture and other common types of dry goods retailers but it is currently unclear. Possibly revise 4.35(a)1 as “convenience retail” and retain 4.35(a)2 as “general retail” and define both accordingly in Article 2.</p>
<p>b. Place for the manufacturing, assembly or packaging of consumer goods ²⁵</p>	<p>Clarify this subsection to allow small scale arts and crafts and fabrication of non-food consumer items manufacturing with a retail component. Consider expanding to allowed co-shared spaces.</p>
<p>c. Barber shop, beauty shop, laundry and dry cleaning pickup agency, shoe repair, self-service laundry or other similar establishment</p>	<p>Consolidated subsections c & d. It is unclear why laundry requires this level of differentiation, but large scale commercial laundries (e.g. Cintas) which are not addressed here should possibly be addressed as a light industrial use.</p>
<p>d. Hand laundry, dry cleaning or tailoring shop ²⁶</p>	
<p>e. Lunchroom, restaurant, cafeteria ²⁷</p>	
<p>f. Establishments where alcoholic beverages are sold and consumed and where no dancing or entertainment is provided</p> <ol style="list-style-type: none"> Lunchroom, restaurant, cafeteria Bar, saloon, or other establishment 	<p>Consider consolidating sections.</p> <ul style="list-style-type: none"> Eliminate 4.35(f).2. It is not an allowed use in practice as licensing requires all alcohol establishments to provide some type of food.

Uses	Suggestions
<p>serving alcoholic beverages but which is not licensed to prepare or serve food</p> <p>g. Bar or other establishment where alcoholic beverages are sold and consumed and where dancing and entertainment is provided. Dance hall or similar place of entertainment</p>	<ul style="list-style-type: none"> Allow live entertainment or “commercial recreation” through licensing instead of zoning to allow for greater provision of cultural activities and entertainment with more frequent oversight (via licensing) to manage impacts.
h. Theatre or hall for public gatherings	
i. Commercial recreation	Clarify definition – it is unclear if something like a movie theater would be classified under this definition in addition to the examples expressly used in the definition. It may also be helpful to consider commercial recreation as an accessory use to a principal use such as an eating establishment or other entertainment venue.
j. Mortuary, undertaking or funeral establishment	
k. Printing shop, photographer’s studio	
l. Veterinary establishment, kennel, pet shop or similar establishment ²⁹	Clarify whether pet shops is meant as shops where pets are sold, or simply where pet supplies are sold. If no pets are on site, perhaps stores selling pet supplies could be regulated under Subsection a(2). Additionally, include dog day care within this line item.
m. Sales place for new and used car, rental agency for autos, trailers and motorcycles ³⁰	
n. Office including display or sales space of a wholesale, jobbing or similar establishment ³¹	
o. Fast Order Food Establishment	Consider adjusting definition.
p. Deleted	
q. Art/Craft Studio	
r. Bakery, Retail	
s. Registered Marijuana Dispensary	

General Suggestions

- Consider the addition of “other retail or consumer services” category by special permit to allow for uses not previously considered to be reviewed at a lower legal threshold than a variance.
- Create a provision for commercial fitness related uses. As a full service health club and a one-room yoga studio (as examples) have different impacts, some differentiation of scale should be considered as part of the provision.
- Consider provision for brew-pubs with small scale alcohol manufacturing on-site in addition to a retail and/or restaurant component.

4.36 Open Air or Drive In Retail & Service

Uses	Suggestions
a. Sales place for flowers, garden supplies agricultural produce conducted partly or wholly outdoors; commercial greenhouse or garden	
b. Automobile oriented fast order food service establishment	Add provision to address open air, non-automobile oriented, fast order food. Add definition to Article 2 to set limitations.
c. Drive in bank and other retail or consumer service establishment where motorist does not have to leave his or her car	
d. Outdoor amusement park, outdoor sports facility conducted for profit	
e. Open air or drive in theatre or other open air place of entertainment	Separate open air entertainment from drive-in theatres.
f. Sale of new or used cars conducted partly or wholly on open lots, or rental agency for automobiles, trailer, motorcycles, conducted partly or wholly outdoors	
g. Automobile service station where no major repairs are made ³²	Move to 4.37, or add 4.37(g-h) to this subsection. Define what constitutes “major repair”.
h. Car washing establishment using mechanical equipment for the purpose of cleaning automobiles and other vehicles	
i. Place for exhibition, lettering or sale of gravestones	Remove. This is likely addressed by 4.35(a)2 or possibly 4.38(c).
j. Sales place for flowers, garden supplies agricultural produce conducted partly or wholly outdoors; commercial greenhouse	

Uses	Suggestions
or garden	

General Suggestions

- Add use for open air retail, i.e. farmer's markets, artist/craft markets, food service, etc. Differentiate between temporary and permanent uses to preclude the provision of permanent pop-up "temporary" markets.
- Add "other open-air" category as a conditional use special permit.

4.37 Light Industry, Wholesale Business and Storage

Uses	Suggestions
a. Assembly or packaging of articles ³³	Footnote 33 states: "Provided that no such article exceeds two hundred (200) pounds in weight and provided that no manufacturing or processing is carried out." It is unclear what the difference is between "manufacturing or processing" and "assembly or packaging" in practical terms.
b. Manufacturing, processing, assembly and packaging the following: ³⁴	Much of this can be consolidated and generalized between dry-goods, pharmaceuticals and other medical/scientific manufacturing, and food items.
1. Clothing, but not the manufacture of the cloth or other material of which the clothing is made	
2. Food products, including bakery, confectionery and dairy products	
3. Drugs	
4. Electrical, electronic and communication instruments	
5. Engineering, laboratory and scientific instruments, temperature controls	
6. Jewelry, insignia, emblems and badge, lapidary, scale models, dolls, costume jewelry and costume novelties	
7. Lamp shades except of glass or metal	
8. Leather goods, excluding footwear and saddlery	

Uses	Suggestions
9. Medical and dental instruments and supplies, optical instruments and lenses	
10. Paper and paperboard products ³⁵	
11. Pens and mechanical pencils	
12. Plaster of Paris or papier mache products	
13. Office machines, including cash registers, computing machines and typewriters, scales and balances	
14. Umbrellas, parasols and canes	
15. Watches, clocks, watchcases, clockwork mechanisms	
c. Bottling of beverages	
d. Distribution center, parcel delivery center, delivery warehouse	
e. Laundry, dry cleaning plant	
f. Printing, binding, publishing and related arts and trades	
g. Auto body or paint shop ³⁶	
h. Automotive repair garage not including auto body or paint shop ³⁷	
i. Food Commissary	
j. Wholesale business and storage in roofed structure, but not including wholesale storage of flammable liquids, gas or explosives	
k. Storage warehouse, cold storage plant, storage building, but not including storage or bailing of junk, scrap metal, rags, waste paper or used rubber	
l. Open lot storage of new building materials, machinery, and new metals, but not including junk, scrap metal, rags, waste paper and similar materials ³⁸	
m. Open lot storage of coal, coke, sand, or other similar material, or such storage in silos or hoppers ³⁹	

Uses	Suggestions
n. Assembly or packaging of articles ³³	As noted above, the legislative intent of this provision is unclear.
o. Manufacturing, processing, assembly and packaging the following: ³⁴	
1. Clothing, but not the manufacture of the cloth or other material of which the clothing is made	
2. Food products, including bakery, confectionery and dairy products	

General Suggestions

- Simply and clarify allowed manufacturing activities (Subsections a & b).
 - Define manufacturing under Article 2.
 - Eliminate Subsections B(1-15). Regulate manufacturing more broadly by scale (i.e. under 5,000 s.f., 5,000-20,000 s.f., over 20,000 s.f.) rather than by specific good manufactured.
 - Consider provisions for small scale manufacturing (under 10,000 s.f.) with a retail component (possibly not more than 25% of GFA) for food related manufacturers not otherwise covered by 4.35(b).
 - Consider adding “other manufacturing” as a special permit provision.
- Add provision for co-shared manufacturing/crafting/fabrication space.
 - Consider retail and for-profit educational uses as accessory uses. It is not uncommon for fabrication or crafting studios to offer lessons to the general public or have a small retail component to showcase the works produced on-site.

4.38 Heavy Industry

Uses	Suggestions
a. Dismantling or wrecking of used motor vehicles and storage or sale of dismantled, inoperative or wrecked vehicles or their parts ³⁸	
b. Rendering or preparation of grease, tallow, fats and oils, manufacture of shortening, table oil, margarine and other food oils, but not including garbage, dead animals, offal or refuse reduction	Remove. Any rendering required under food manufacturing is covered under Subsection 4.37(2) while grease, tallow, fats, non-food oils, garbage, dead animals, offal, or refuse reduction appear to be covered under 4.38(e)5
c. Stone cutting, shaping, and finishing, in completely enclosed buildings	
d. Textile mill, except mill for processing of jute, burlap or sisal	Remove. Obsolete.

Uses	Suggestions
e. Manufacturing, processing, assembly, packaging or other industrial operation without limit as to category or product, but the following are expressly prohibited ⁴⁰	The utility of this remaining in the ordinance given the lack of feasibility of this happening anywhere is questionable.
1. Acid Manufacture	Unclear if this is inclusive of acids used in biotech manufacturing.
2. Cement, lime or gypsum manufacture	
3. Explosives or fireworks manufacture	
4. Glue manufacture	
5. Incineration or reduction of garbage, offal or dead animals ⁴¹	
6. Petroleum refining	
7. Smelting of zinc, copper, tin or iron ores	
8. Stockyard or abattoir	
f. Open lot storage of second hand lumber or other used building material ^{38,42}	
g. Open lot storage of junk, scrap, paper, rags, unrepared or unclean containers, or other salvage articles ³⁸	

Recommendations

- It appears most noxious heavy manufacturing uses are addressed within this section. While this section is rather specific to older manufacturing uses, it is somewhat unlikely new heavy industrial activities would choose to locate in Cambridge due to the lack of large parcels of land and proximity to uncongested roadways suitable for heavy industrial trucking. There is some question as to whether or not this section should be generalized and become a prohibited use section.

General Suggestions

- Create subsection to expressly allow urban agriculture based on the specific recommendations of the Urban Agriculture group. Preliminarily, consideration of defining the following types of urban agriculture as part of a new ordinance:
 - Large scale – Larger parcels of land or building area used for commercial urban agriculture production
 - Ground Level Farms
 - Roof Level Farms

- Aquaculture and Aquaponics
- Hydroponic Farms
- Neighborhood Agriculture –Smaller scale agriculture (typically under 1 acre) where food is produced to be harvested and sold or donated
 - Community Gardens
 - School Gardens
 - Small scale roof or ground level farms

Definitions

Definitions that are strong, descriptive, and clearly written greatly help with the administration and application of a zoning ordinance. Upgrades to existing definitions or the incorporation of new definitions into Article 2 were frequently suggested throughout the targeted approach, and several terms have proven to be particularly problematic in practice. Below are examples of language used in other municipalities to describe specific uses that are currently at issue locally.

Fast Order Food Establishment and Full-Service Restaurants

Washington, D.C. offers a fairly simple definition for fast order food that clearly identifies hallmarks of fast order food that does not rely on metrics such as percentage of business dedicated to take out or the presence of paper menus and instead focuses on how the food is prepared and taken away to differentiate this type of business.

- Fast Food Establishment: A business, other than a prepared food shop, where food is prepared and served very quickly; and where the food is typically made of preheated or precooked ingredients, served to the customer in a packaged form for carry-out/take-away, although it may be eaten on site, and payment is made before the food is provided or consumed. ⁴

Menlo Park, California also has a system to address a wide range of food based businesses that address outdoor seating, entertainment, and scales restaurants by services offered. Of particular interest is the limited service restaurant and the fact that it is differentiated by fast food. If the intent of the fast order food establishment regulation is to reduce the amount of fast food restaurants, but not necessarily the limited service restaurants, this may be a reasonable approach to addressing that issue.

- Eating and Drinking Establishments. Businesses primarily engaged in serving prepared food and/or beverages for consumption on or off the premises.

⁴ Zoning Regulations, Washington, D.C.

1. Bars/Night Clubs/Lounges. Businesses serving beverages for consumption on the premises as a primary use and including on-sale service of alcohol including beer, wine, and mixed drinks.
2. Restaurants, Fast Food. Establishments where ready-to-eat prepared foods and beverages are: (1) sold for immediate consumption on- or off-premises; (2) are available upon a short waiting time; (3) are packaged and served in or on disposable wrappers, containers, or plates; and (4) where the facilities for on-premises consumption of food are insufficient for the volume of customers purchasing such items. Fast-Food Restaurants may also exhibit other design and operating characteristics, including: a limited menu, food is paid for prior to consumption, the facility in which the activity/use is occurring provides a take-out counter space and substantial delineated area for customer queuing, employees generally wear a standard uniform, and the facility has late or long hours of operation.
3. Restaurants, Full Service. Restaurants providing food and beverage services to patrons who order and are served while seated and pay after eating. Takeout service may be provided.
4. Restaurants, Limited Service. Establishments where food and beverages are prepared and may be consumed on the premises, taken out, or delivered, but where no table service is provided and patrons pay before eating. This classification includes cafeterias, delis, coffee shops, and snack bars but excludes fast-food restaurants and take-out only establishments.
5. Restaurants, Take-Out Only. Establishments where food and beverages are prepared and may be taken out or delivered, but may not be consumed on the premises. No seating is provided on the premises.
6. With Outdoor Eating Areas. Provision of outdoor dining facilities on the same property or in the adjacent public right-of-way.
7. With live entertainment or dancing.⁵

Commercial Recreation and Fitness Uses

Currently, health clubs and other fitness uses are being regulated under the same definition as commercial recreation, which has a somewhat different intent. Using examples from Menlo Park, California, Greenwich, Connecticut, and Brookline, Massachusetts, health and fitness uses as well as commercial recreation uses can be differentiated by scale and operating characteristics.

⁵ Menlo Park Commercial Zoning Update Proposed Use Classifications, Menlo Park, California.

- Commercial Recreation. Provision of participant or spectator recreation to the general public, excluding public park and recreation facilities.
 - Large-scale. This classification includes large outdoor facilities including sports stadiums and arenas; amusement and theme parks; bowling centers; racetracks; amphitheaters; driving ranges not in conjunction with a golf course; large fitness centers, gymnasiums, handball, badminton, racquetball, or tennis club facilities greater than 20,000 square feet; ice or roller skating rinks; swimming or wave pools; miniature golf courses; archery or indoor shooting ranges; riding arenas; and campgrounds. This classification may include restaurants, snack bars, and other incidental food and beverage services to patrons.
 - Small-scale. This classification includes small, generally indoor facilities, although some facilities may be outdoor, including: dance halls, gymnasiums, handball, badminton, racquetball, or tennis club facilities less than 20,000 square feet, poolrooms, and amusement arcades. This classification may include restaurants, snack bars, and other incidental food and beverage services to patrons.
 - Golf and Country Clubs. A privately-owned facility offering golfing opportunities to members or the public for a fee. Comment: Golf and country clubs could be included in the definition of large-scale commercial recreation, or could be a separate classification. Some jurisdictions prefer to make them a separate classification because their largely open nature may make them more desirable than more intensive recreation uses in some locations.
 - Cinemas. Facilities for showing films and motion pictures.⁶
- Health Club shall mean a membership facility designed and used for body conditioning and rehabilitation, excluding rehabilitation services provided by health care providers (defined as a person, or corporation licensed by the state to provide health care services), involving, but not limited to, activities such as weight training, aerobic and related exercise classes. Health clubs may contain the following types of facilities: whirlpool, sauna, steam room, showers, swimming pool, gym, tennis court and racquetball courts, exercise equipment and exercise rooms, locker rooms, tanning salons, and health food bar as an accessory use.⁷
- Gym shall mean a commercial establishment or use where physical exercise or training is conducted on an individual basis, with or without an option for having one-to-one instruction with a personal trainer, using exercise equipment or open floor space and

⁶ Menlo Park Commercial Zoning Update Proposed Use Classifications, Menlo Park, California.

⁷ Proposed Zoning Change, Greenwich, Connecticut.

may have accessory facilities or uses so as long as they are provided in support of the primary use.⁸

- Small group health and fitness club not exceeding 2,500 square feet of gross floor area operated for profit and for members only, solely for the purpose of providing physical fitness, exercise, therapy, rehabilitation and/or health services.⁹

Manufacturing

Somerville, Massachusetts is currently reviewing a draft zoning code to replace their existing ordinance. One focus of the new code is the provision of manufacturing space that is inclusive of maker space and/or fabrication. Certain elements of their proposed code may provide some insight to addressing similar issues Cambridge is currently facing.

- Industrial Manufacturing Uses that process, fabricate, assemble, treat, or package finished parts or products without the production or use in large quantities of hazardous or explosive materials. Due to the nature of operations and products, little or no noise, offensive odors, undue vibration or glare, and/ or environmental pollution is produced, and, therefore, there is minimal impact on surrounding properties. Operations may include the storage of materials and the loading and unloading of new materials and finished products. Activities common to this subcategory include, but are not limited to, food and beverage production, electronics and other electrical equipment assembly, furniture and other woodworking, printing and publishing operations, and computer hardware manufacturing, and the fabrication of metal products except machinery and transportation equipment. The following standards apply:
 - The floor area of Industrial Manufacturing uses within is the Fabrication district is limited to fivethousand (5,000) square feet per establishment.
- Design & Fabrication Center A facility providing individuals and small firms access to professional manufacturing tools & equipment; classes & training; lab, workshop, and studio space; and storage for tools and supplies.
- Shared Workspaces & Arts Education The transfer of knowledge or skills related to the creative enterprises through teaching, training, or research; organizations providing collaborative workplace facilities and business planning, finance, mentoring, and other business or administrative support services to creative enterprises; and multi-purpose facilities dedicated to providing space for multiple creative enterprises. The arts education and shared workspace subcategory includes arts centers, creative incubators, culinary incubators, design & fabrication centers, fabrication laboratories, and their substantial equivalents.

⁸ Proposed Zoning Change, Greenwich, Connecticut.

⁹ Zoning Bylaw, Brookline, Massachusetts.

- Artisan Production Individuals and firms involved in the on-site production of hand-fabricated or hand-manufactured parts and/or custom or craft consumer goods through the use of hand tools or small-scale, light mechanical equipment. The artisan production subcategory includes apparel manufacturing, breweries, cabinetry, chocolatiers, confectionery, furniture making, glass working, jewelry making, metal working, pottery, sculpture, wood working, and their substantial equivalents. Showrooms and the ancillary sales of goods produced on-site are permitted. The following standards apply:
 - The production of offensive noise, vibration, smoke, dust or other particulate matter, heat, humidity, glare, or other objectionable effect is prohibited, except in the Fabrication and Commercial Industry Districts¹⁰

Labs and Research and Development

Labs and Research and Development remain largely undefined within the Cambridge Zoning Ordinance and are currently regulated as accessory uses to office uses. While there are larger policy implications involved in how to regulate these uses, below are several approaches to differentiating and defining lab and research and development uses used throughout the country.

- Office This designation encompasses all office uses referenced in the City's Administrative and Professional Office Zone including administrative, professional and research and development activities. Prototype research and development is permitted if it is conducted along with the office functions of a business. Prototype R&D is defined as research and development activities that lead to the development of a new product or a new manufacturing and assembly process. Products developed, manufactured or assembled here are not intended to be mass-produced for sale at this location.¹¹
- Research and Development Facility An establishment or complex of structures located in a building whose dimensions are intended to foster physical, chemical and biological research and/or experimentation involving but not limited to controlled simulation of factors, development of prototypes, chemicals, commodities, pharmaceuticals, information technology, electronics and instrumentation for academic and industrial purposes. Light manufacturing may be included as an ancillary use depending on the impact of activity on neighboring property and scale of the premises.¹²
- Research & Development and/or Laboratory The analysis, testing, and development of products, or services predominantly for scientific research operations in biotechnology, pharmaceuticals, medical equipment, communication & information technology,

¹⁰ Proposed Zoning Ordinance, City of Somerville, Massachusetts.

¹¹ Appendix A, Land Use Definitions, Cupertino, California.

¹² Cyburbia.org

electronics, computer hardware, and their substantial equivalents. The following standard apply:

- Research & Development and/or Laboratory does not include activities involved in fabricating, assembling, warehousing, or sale of products for the retail or wholesale market.
- Ancillary development of mock-up and prototype products is permitted so long as the total floor area devoted to their fabrication or assembly is limited to twenty-five percent (25%) to the gross floor area occupied by the use.¹³

Milwaukee, Wisconsin differentiates between lab and research and development uses, while also creating a provision for commercial labs that are not university affiliated.

- Research and Development means an establishment which conducts research, development or controlled production of high-technology electronic, industrial, or scientific products or commodities for sale or laboratories conducting educational or medical research or testing. This term includes, but is not limited to, a biotechnology firm or a manufacturer of nontoxic computer components.¹⁴
- Medical Research Laboratory means an establishment providing medical or dental laboratory services or photographic, analytical or testing services for medical or medical research purposes. This term does not include a research and development facility that primarily serves an educational or industrial establishment.¹⁵ [Note: this could be expanded to include scientific laboratories]

Santa Rosa, California further differentiates between research labs and diagnostic labs as well as defines research and development.

- Laboratory— Analytical A facility for testing, analysis, and/or research. Examples of this use include medical or scientific labs, soils and materials testing labs, and forensic labs.
- Laboratory - Diagnostic A facility intended for the examination of clinical specimens for the purpose of providing information such as diagnosis, prognosis, prevention, or treatment of disease to improve the health of a patient. Examples of these uses include:
 - dental laboratories (crown and denture manufacturing, etc.)
 - medical laboratories (blood and tissue testing, x-ray, CT scanning, etc., but not research (see “Laboratory”))
 - reference laboratories

¹³ Proposed Zoning Ordinance, Somerville, Massachusetts.

¹⁴ Definitions and Rules of Measurement, Zoning Ordinance, Milwaukee, Wisconsin.

¹⁵ Definitions and Rules of Measurement, Zoning Ordinance, Milwaukee, Wisconsin.

- **Research and Development (R&D)** A facility for scientific research, and the design, development and testing of electrical, electronic, magnetic, optical and computer and telecommunications components in advance of product manufacturing, and the assembly of related products from parts produced off-site, where the manufacturing activity is secondary to the research and development activities. Includes pharmaceutical, chemical and biotechnology research and development. Does not include soils and other materials testing laboratories (see “Laboratory”), or medical laboratories (see “Medical Service—Clinic, Lab, Doctor Office”).

Comprehensive Approaches

There is a wide array of comprehensive approaches that could be taken to address Cambridge’s land use classification system in the long term. Cambridge currently has approximately 50 zoning districts between base districts, overlays, overlay sub-districts, special districts, and neighborhood conservation districts, in addition to areas of special planning concern, Local Historic Districts, institutional overlays, and PUD regulations. Within the CZO, there are provisions that pertain to special area regulations (for lots facing Green Street as an example), height regulations for specific parcels, and all manner of processes established for project reviews. In short, there are a myriad of districts and regulations to contend with, and a comprehensive approach to updating the land use classification system would have broad implications throughout the zoning ordinance.

Because of the far-ranging implications, rather than adopting one of these approaches as a stand-alone revision, it would make the most sense to consider these options in the context of any future citywide rezoning initiative that would address the zoning districts themselves as well as the use categories.

Below are several options for comprehensive approaches listed in order by their deviation from the existing code.

Reorganization of Use Categories, Groups, and Specific Uses

The current CZO follows the traditional format of categories, groupings, and specific uses, which establish a hierarchy of uses. The table below gives a brief example of what is meant by categories, groupings, and specific uses.

Category	Group	Specific Use
Service Uses	Lodging	Bed and Breakfast
		Hotel – Limited Service
		Hotel – Full Service

This method of use classification is common; one option for comprehensive revisions would be to revise and modernize the categories themselves, rather than just the uses within them. While this method does not address all issues with the existing use classification system, a more logical ordering of uses and modernized listing of specific uses would allow the City to retain better control over allowed and prohibited uses. An example of a more modern division of use categories, though specific to Cambridge, may look something more like the table below:

Potential Use Categories	
1. Service Uses	7. Residential Uses
2. Office Uses	8. Agricultural and Open Space Uses
3. Manufacturing and Processing Uses	9. Mixed Use
4. Recreation Uses	10. Temporary Uses
5. Institutional Uses	11. Accessory and Support Uses
6. Transportation Uses	

By updating this system, groups and specific uses can be developed to established categories that regulate specific uses by addressing scale. For example:

Category	Group	Specific Use
Service Uses	Retail	Neighborhood Retail
		General Retail
		Large Format Retail
		Restricted Retail

Using the same example, these uses could be further defined under Article 2 to differentiate scale, and therefore mitigate impacts. Below are some sample definitions to illustrate possibilities:

Retail, Neighborhood A neighborhood-serving use primarily which serves individual consumers and households, not businesses, is generally pedestrian in design, and does not generate noise, fumes or truck traffic greater than that typically expected for uses with a local customer base. A neighborhood-serving use is also one to which a significant number of customers and clients travel, rather than the provider of goods or services travelling off-site.¹⁶

Retail, General Stores and shops selling or renting one or more lines of merchandise or

¹⁶ City of Palo Alto, California. *Land Use and Land Use Classification Discussion Paper #2*, Definition of Neighborhood Retail; 2002.

services not specifically listed under another use classification and occupying ground level, first, or second floor spaces smaller than 10,000 square feet of Gross Floor Area.

Retail, Large Format Stores and shops selling or renting one or more lines of merchandise not specifically listed under another use classification that exhibits any of the following characteristics: occupies space in excess of 10,000 square feet of Gross Floor Area, receives deliveries via heavy trucks more than three times a week, and is served by a parking area in whole or in part for greater than 20 vehicles.

Retail, Restricted Retail that is subject to restricted locations such as the licensed retail sales of packaged alcoholic beverages, including wine, ale and beer, for off-premises consumption, registered marijuana dispensaries, and other such uses that may be considered to have an adverse effect on surrounding areas.

Generalized Use Provisions

In recognition of the dynamic environment within which land use operates, many municipalities are moving away from using “line item” use classification systems while still choosing to generally retain a Euclidian zoning model with hierarchal uses. Within these models, uses tend to be more generally defined and are differentiated by characteristics rather than individual specific uses. Using the example above, this model is somewhat akin to retaining categories and groupings, but being less specific about the actual uses. Within the CZO, for example, in lieu of the existing line items for industrial activities, which are currently split across four categories, a more general use classification system of definitions could look something like an example considered by the City of Menlo Park, California¹⁷:

A. Industry, Limited. Establishments engaged in any of the following types of activities taking place within enclosed buildings: manufacturing finished parts or products primarily from previously prepared materials; food and beverage manufacturing/distribution; or providing industrial services. This classification excludes basic industrial processing and recycling of cans, bottles, cardboard and similar consumer materials.

B. Industry, General. Manufacturing of products from extracted or raw materials or recycled or secondary materials, or bulk storage and handling of such products and materials.

C. Research and Development. Establishments primarily engaged in the research, development, and controlled production of high-technology electronic, industrial or

¹⁷ City of Menlo Park California, *Menlo Park Commercial Zoning Update: Proposed Use Classifications*, 2006.

scientific products or commodities for sale. This classification includes biotechnology firms and manufacturers of nontoxic computer components.

D. Warehousing and Storage. Storage and distribution facilities without sales to the public on-site or direct public access.

1. Indoor Commercial Storage. Storage within an enclosed building of commercial goods prior to their distribution to wholesale and retail outlets, with no on-site sales (see Wholesale Distribution and Storage).
2. Outdoor Storage. Storage of vehicles or commercial goods in open lots. This classification excludes junkyards, which are prohibited in the City of Menlo Park.
3. Personal Storage. Facilities offering storage for individual use, including mini-warehouses.

E. Wholesale distribution and storage. Establishments engaged in bulk sales of goods primarily to other vendors, with distribution and storage facilities without direct public access.

Using a model that is focused more on how a space is used and operates rather than the specific type of business offers regulatory control based on specific impacts rather than the actual business activities. The advantage to such a system is that it allows flexibility and requires less upkeep than specific uses when trying to address obsolescence, while still preventing high impact uses from locating in areas where they may not be considered appropriate or desirable.

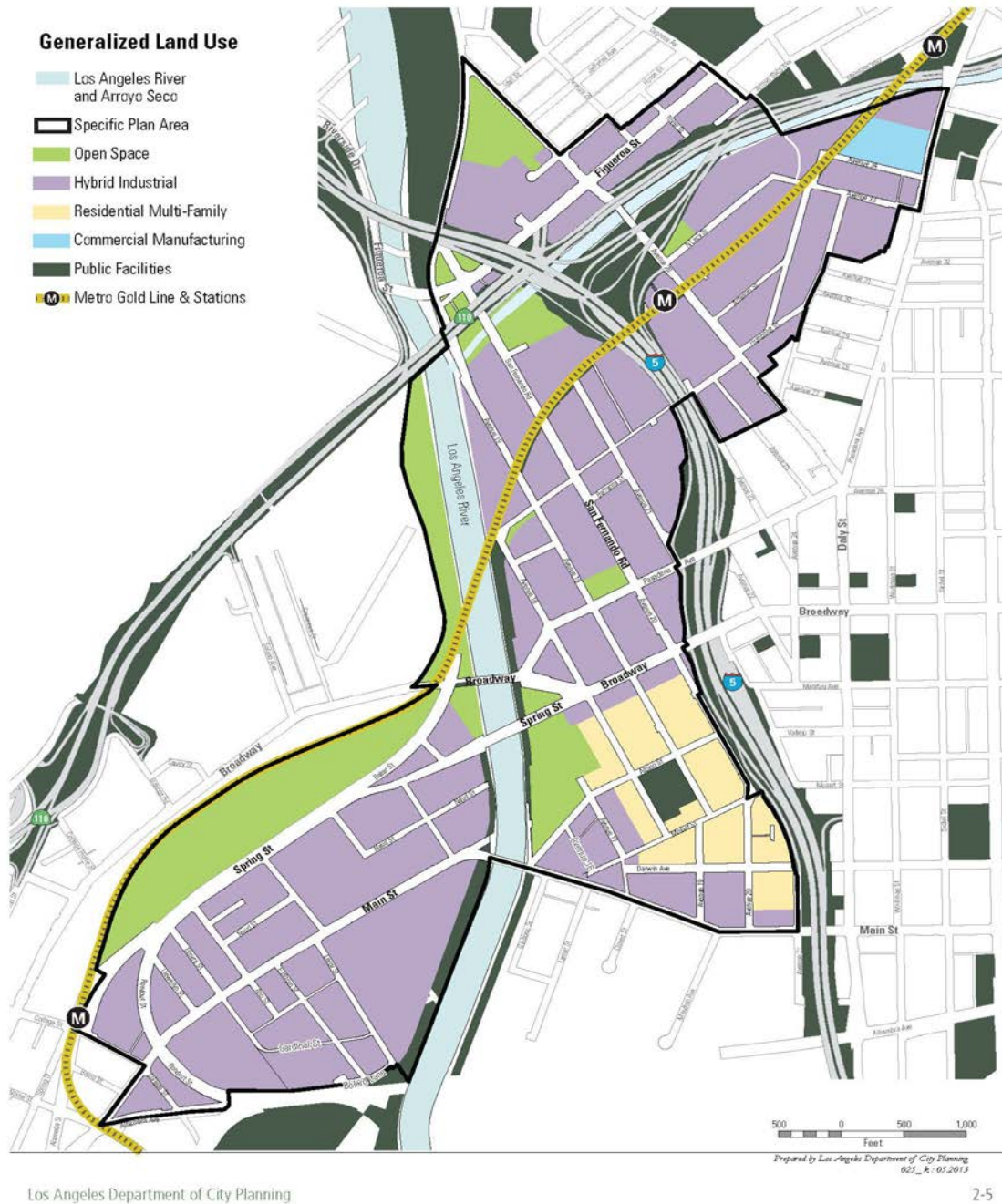
Land Based Classification Standards

A more intensive deviation from the existing land use classification system would be to simplify the existing zoning districts and assign uses based on land classification standards reflective of the existing built environment. As much of Cambridge's building inventory predates the original zoning ordinance, there is a very high preponderance of mixed uses that are not as easily or suitably regulated by a traditional classification system.

Incorporating land-based classification standards would involve redistricting the city based on existing and desired future uses with general use classifications that are not highly prescribed but are reflective of desired outcomes, paired with use limitations (i.e., FAR, retail square footage limits, maximum hotel room numbers, maximum residential unit counts for new development) and incentives for certain types of uses or public benefits (i.e., FAR density bonuses for provision of affordable housing or other community benefit, exclusions of public areas in commercial developments from FAR counts, etc.). For an example of what the redistricting methodology could look like, a study conducted in 2013 by the City of Los Angeles

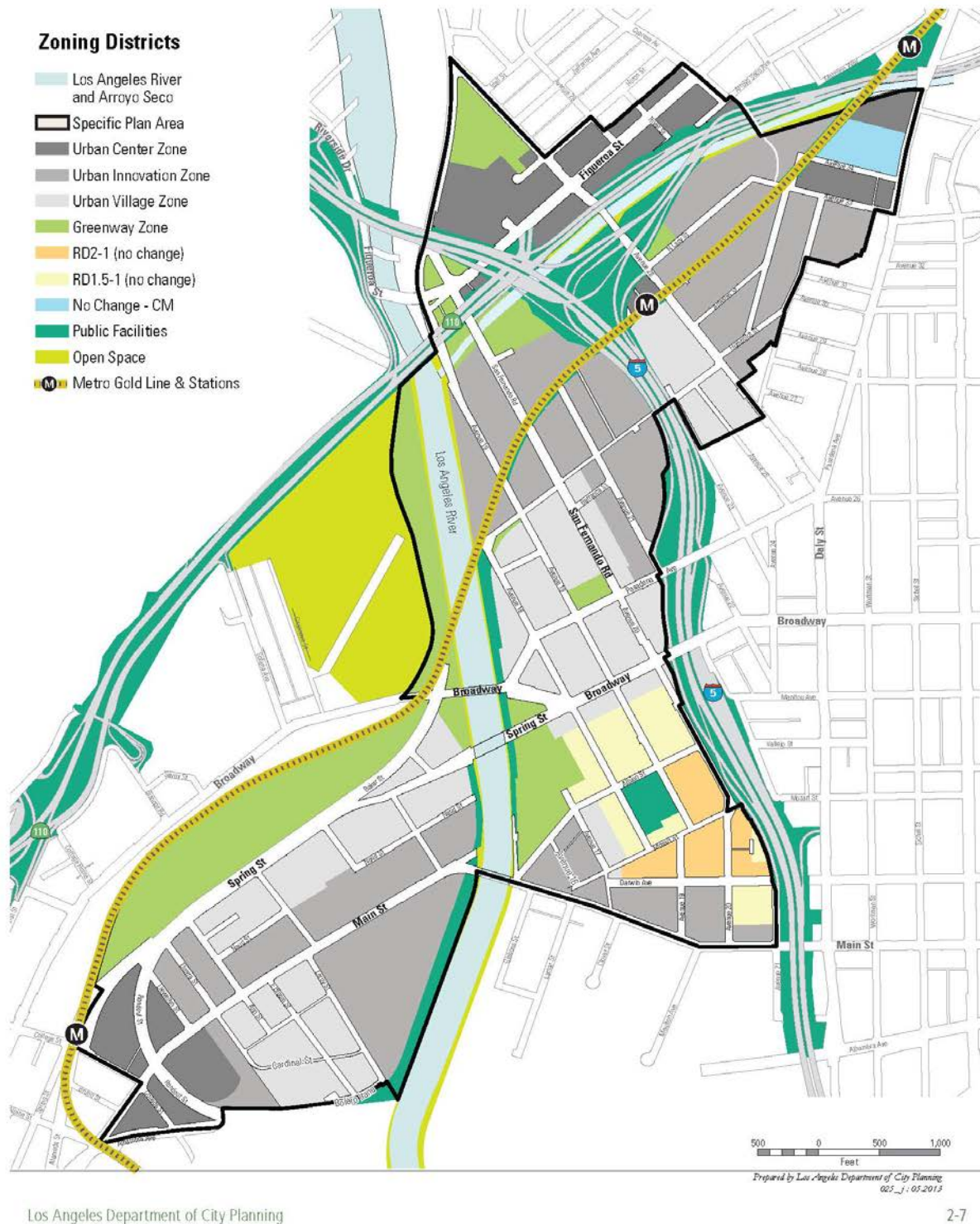
Planning Department for the Cornfield Arroyo-Saco Specific Plan, **Maps 1 & 2** show how land use maps were used in the creation of new zoning districts that were reflective of the existing conditions as well as desired future conditions.

Map 1. Land Use Map



Source: Los Angeles Department of City Planning, Cornfield Arroyo-Saco Plan, 2013.

Map 2. Zoning Districts Resulting From Land Use Classifications



Source: Los Angeles Department of City Planning, Cornfield Arroyo-Saco Plan, 2013.

The use classifications are then organized by the generalized zoning districts and include a list of allowed uses, either by right or as a conditional use requiring additional approvals – which are displayed in the Table of Uses. Uses would be more general than the previously described methods. The following would be typical examples of use classifications: restaurants and bars, retail and personal services, office, research and development, manufacturing, parking, etc. These uses are then further modified to control for scale and impact with a Use Limitation Table that includes expressly prohibited uses as well metrics such as dimensional requirements (maximum FAR, height, maximum square footages dedicated to specific general use categories), limits on loading facilities or parking, or other such metrics that control for impacts while allowing flexibility and diversity of use.

This type of system is currently used in Cambridge to regulate particular districts such as PUD districts, the Cambridgeport Redevelopment District (University Park) and the Mixed-Use Development District (Kendall Square). Extending this approach to other districts would involve extensive work and could be considered as a result of a comprehensive planning effort.

Form-Based Code

Form-based codes (FBC) are a means of regulating land development to achieve specific urban form(s). This type of zoning uses physical form rather than the separation of uses as an organizing principle. Unlike the design review components that are often found in traditional municipal zoning, form-based codes are most often designed to be regulatory, not merely advisory.

Like a land-based code, the advantage of a form-based code in regulating uses is greater flexibility. Since building types are more strictly regulated, use classifications can be more generalized and permissive. Also like a land-based code, a form-based code would not be implemented as a stand-alone update to the use classification system but would require a more extensive study of the existing zoning districts and regulations throughout the city, and therefore it might also be considered as the result of a comprehensive planning effort.

However, as described previously, there are elements related to form- or land use- based approaches within parts of the Cambridge Zoning Ordinance, particularly those related to unique redevelopment districts or other areas of special planning concern. It is possible that a form-based approach could be used when considering such unique districts. Some areas where it might be possible to consider incorporating form-based rather than use-based provisions include the following:

- **Redevelopment Areas** such as PUD, AOD, MXD and CRDD Districts.
- **Major Squares:** Harvard, Central, Kendall, Porter, Inman.

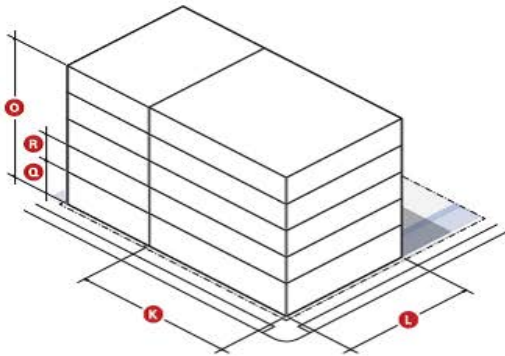
- **Major Streets:** Massachusetts Avenue, Cambridge Street, etc.

A section from the recently proposed Somerville zoning code is provided below as an example of a form-based code.

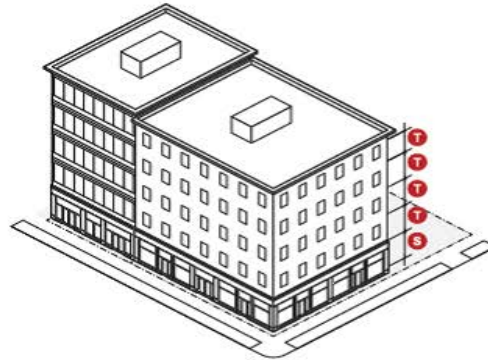
COMMERCIAL BUILDING (cont.)

A multi-story building type limited to commercial uses.

c. Height & Massing



d. Uses & Features



MAIN BODY

J Facade Build Out (min)	80%
M Floor Plate (max)	—
3MU & FAB	15,000 sq. ft.
4MU & CI	22,000 sq. ft.
5MU	30,000 sq. ft.
7MU & 10MU	—
Up to 5 stories	36,000 sq. ft.
Above 5 stories	20,000 sq. ft.
N Building Height (min)	—
3MU - 10MU	2 stories
O Building Height (max)	—
3MU & FAB	3 stories (45 ft.)
4MU & CI	4 stories (55 ft.)
5MU	5 stories (70 ft.)
7MU	7 stories (100 ft.)
10MU	10 stories (135 ft.)
a Ground Story Height (min)	—
3MU & FAB	12 ft.
4MU - 10MU, CI	14 ft.
R Upper Story Height (min)	9 ft.

PERMITTED BUILDING COMPONENTS

Awning	See §3.D.2
Entry Canopy	See §3.D.3
Bay	See §3.D.4
Balcony	See §3.D.5

FACADE COMPOSITION

S Ground Story Fenestration (min)	—
3MU, 4MU, FAB, & CI	60%
5MU - 10MU	70%
T Upper Story Fenestration (min/max)	20% min 50% max.
Blank Wall (max)	20 ft.

PERMITTED BUILDING FRONTAGE

	(1 required)
Forecourt	See §3.E.7
Lobby Entrance	See §3.E.8
Storefront	See §3.E.9
Terrace	See §3.E.10
Lightwell	See §3.E.11

PEDESTRIAN ACCESS

Principal Entrance Spacing (min)	30 ft.
----------------------------------	--------

USE & OCCUPANCY

Tenant Space Depth (min)	—
3MU & FAB	20 ft.
4MU - 10MU, CI	30 ft.
Permitted Use	See Article 5: Use Provisions

Appendix

Characteristics of Commercial Areas

Alewife/West Cambridge



Located on the northwest end of the city, this district encompasses a large area with a broad range of uses and densities that is in the process of significant redevelopment. The area is centered around the intersection of Alewife Brook Parkway and Concord Avenue, extending between Concord Avenue and the railroad tracks, from New Street to the Belmont border. Alewife Brook Parkway/Route 16 is a major commuter route connecting to Route 2 and Alewife Station, located just over the train tracks which are crossed by a bridge with four lanes

of traffic. Fresh Pond Reservation is located on the other side of Concord Avenue and is owned by the City, and includes a City reservoir (Fresh Pond), water treatment plant, the Cambridge Water Department headquarters, public conservation land, and recreational open space including the golf course. The area is characterized by a mix of low-density strip retail and office buildings, typically with parking located in front and buildings set back from the road on lots that front on the highway, while buildings located off the highway are typically closer to the roadway. While older industrial areas remain, particularly along the railroad tracks, a significant increase in new multi-family residential development and some office development is occurring around the shopping plazas, along Concord Avenue, and near Alewife Station (on Cambridge Park Drive).

Strip retail and office buildings line both sides of Alewife Brook Parkway, with predominantly ground floor retail and 1-2 levels of upper-floor office space behind large parking lots along the street. The two retail plazas are connected by an underpass along the tracks beneath the bridge. Additionally, two-three story office buildings, a movie theater, and a hotel adjoin the plazas along Alewife Brook Parkway. New one-story retail buildings have been constructed in the vicinity of the two rotaries where Alewife Brook Parkway and Concord Avenue connect. Smaller fast food, gas, and convenience services are located along Concord Avenue between the rotaries and to the north/west of Alewife Brook Parkway.

On the north/west side of Alewife Brook Parkway new multifamily residential development and some new office construction has occurred alongside older office and industrial buildings throughout side streets off of Concord Avenue. Closer to the train tracks there remain obsolete

and dilapidated industrial structures, although the vacancy in the district is fairly low. Farther from Alewife Brook Parkway and Concord Avenue, the older buildings are mostly 1-2 stories, while new development is typically 2-4 stories.

Cambridge Triangle



Inman Square is located at the triangle formed by Cambridge Street, Beacon Street/Hampshire Street, and Prospect Street. The area is centrally located between Harvard Square, Central Square, Kendall Square, and Union Square in Somerville, but it is not directly served by subway. Commercial uses extend approximately one block beyond the triangle along each of the major streets.

Mostly 1-3 story buildings have independent retail and service uses on the ground floor, with primarily residential uses on upper floors. Some municipal and institutional uses such as the Fire Station occupy prominent sites in the Square, and Cambridge Hospital is located one block west on Cambridge Street. Restaurants outnumber other types of retail stores in Inman Square, offering a wide range of cuisine, as well as cafes, pubs, and music venues. Prominent stores include a toy store, a hardware store, one or more vintage/gift shops, and specialty foods. Parking for Inman Square is very limited: in addition to on-street parking, there is a modest-sized public lot on Springfield Street, and a few businesses have dedicated parking spaces on their lots.

Inman Square is surrounded by residential neighborhoods with mostly 1-4 family homes. Density increases on the east side toward Kendall Square with a continued mix of retail/restaurants and multifamily structures.

Cambridgeport

Cambridgeport is a densely developed neighborhood located between Massachusetts Avenue near Central Square and the Charles River. Primarily 1-3 family residences are interspersed with neighborhood commercial uses along principal roads, as well as small-scale multifamily, schools, churches, and parks.



Memorial Drive divides the neighborhood from the Charles River. Along this corridor are larger commercial uses, including the two hotels, a big-box retail plaza with Trader Joes and Micro Center, and industrial and office buildings. The MIT campus borders Cambridgeport to the east, and an older industrial district is sandwiched in between the residential neighborhood starting around Brookline Avenue

and the edge of the MIT campus, and is bounded by the railroad line. Many of the small 1-3 story industrial buildings primarily along Sydney Street, have been renovated and are now occupied by research, office, & high tech businesses. The buildings are served by small private parking lots or on-street parking.

Central Square

The area that comprises Central Square runs along both sides of Massachusetts Avenue, between the MIT campus and Harvard Square. The core of the commercial district extends more or less from the intersection of Main Street and Massachusetts Avenue on the east end, to Cambridge City Hall on the west end, and is centered around the intersection of Massachusetts Avenue with Western Avenue/River Street and Prospect Street, where the Central Square MBTA station is located.



The land use pattern throughout the length of Massachusetts Avenue in the vicinity of Central Square consists of commercial and mixed use buildings ranging from 1-12 stories with retail and restaurant uses on the ground floor, and office or residential uses on upper floors. This pattern continues for approximately one

block along side streets throughout the district, with one-story commercial uses extending further along Prospect Street. Upper floors tend to be commercial closer to the center of the

square, and residential toward the edges. Municipal buildings and other major institutional uses, along with 3-5 story multifamily structures and parking facilities form the edges of the core commercial district. Beyond these edges, are residential neighborhoods with a mix of 1-3 family homes and garden-style apartment buildings.

The retail uses are predominantly independent and local chains, with some national or regional chains in prominent locations. A cluster of restaurants and entertainment venues make Central Square an evening destination.

East Cambridge



The east end of Cambridge between the Lechmere MBTA station and Kendall Square includes the areas referred to as the East Cambridge Riverfront and Cambridgeside (near the Cambridgeside Galleria Mall). The district is bounded on three sides by Cambridge Street, Route 28 (McGrath Highway) and Edwin Land Boulevard (which becomes Memorial Drive), with

Third Street and Binney Street forming the approximate edge to the south and west.

Major public/institutional uses are located on the edges of the district, including the Middlesex Registry of Deeds and District Court, the Museum of Science, and Cambridge Multicultural Arts Center. A 1970's era 22-story structure that housed the Middlesex County Courthouse and jail has been permitted for adaptive reuse into retail, office, and residential space.

East Cambridge is characterized by a mix of old and new commercial buildings at a larger-scale than in most other neighborhoods in Cambridge. Along First Street and Edwin Land Boulevard are relatively newer structures, including the 3-5 story Cambridgeside Galleria Mall and Hotel Marlowe, 10 story Royal Sonesta hotel, and some 5-7 story office/commercial buildings. Many older 1-3 story commercial and industrial buildings remain on the west side of First Street, some of which have retail on the ground floor (particularly along First Street), and some with all office uses. Some of the older industrial buildings have been renovated for office space, while some smaller commercial buildings appear to be obsolete (though many are active, if underutilized), presenting future opportunities for redevelopment.

Most of the newer buildings throughout East Cambridge have attached structured parking. Farther from the river, older and/or smaller buildings are often accompanied by surface parking lots or are served only by on-street parking. Lechemere Canal Park offers public open space

behind the mall, which is utilized by visitors and employees within the district. To the west of the commercial area is a neighborhood of small-scale multifamily residences, with primarily 2-4 story townhouse and garden apartment buildings.

Harvard Square



Harvard Square is the most well-known commercial district in Cambridge, attracting tourists from around the world. Harvard Square MBTA station is located underneath the center of the commercial district at the intersection of Massachusetts Avenue and Brattle Square. The commercial side of Harvard Square extends along one side of Massachusetts Avenue, opposite the core of Harvard University Campus.

Commercial uses also front other major streets throughout the district, including JFK Street, Brattle Square, Mount Auburn Street, Brattle Street, and Church Street. The north side of the district is bounded by churches, a cemetery, and Cambridge Common.

Most buildings in the district are 2-5 stories, with retail on the first floor (and sometimes upper or basement floors as well), and office uses on upper floors. Much of the non-retail space in the Square is occupied by Harvard University. Restaurants and retail stores are scattered throughout the district, including side streets. The mix of stores and restaurants is weighted toward independent businesses, although national chains occupy key locations. For the most part, residential uses are limited to upper floors of mixed use buildings around the edges of the Square. A few blocks of large multifamily buildings are located nearby to the north of the Square, beyond which lies a neighborhood of high end single-family and townhomes interspersed with Harvard campus buildings. A substantial amount of Harvard University housing is also located on the campus surrounding Harvard Square.

Kendall Square/MIT

The Kendall Square area of Cambridge is rapidly transforming into a nationally significant hub of high tech, research and industry. Centered around the Kendall Square MBTA station at the intersection of Main Street and Broadway, major new development extends from the MIT campus in the vicinity of Main Street to Binney Street. Kendall Square forms the gateway to Cambridge from Boston over the Longfellow Bridge.

Older industrial buildings and surface parking lots have largely been replaced by large new structures, 7-10 stories or higher, some with substantial rooftop mechanical equipment. New construction continues throughout the district. Major high tech businesses located within the district include Google, Genzyme, Microsoft, Novartis, and Biogen Idec. Alongside private industry in Kendall Square are several bio-medical research institutions, including the Whitehead Institute, the Koch Institute, Draper Laboratory, and Novartis Institute. The MIT campus merges with Kendall Square south of Main Street, with the Frank Gehry-designed Stata Center forming a landmark gateway at Main Street and Vassar Street.

There is a limited amount of first floor retail space in the district, particularly along Broadway, Main Street, and Third Street, most of which is occupied by restaurants or minor university related retail and services such as dry cleaners targeted to employees within the district. On the northwest edge of Kendall Square along Cardinal Medeiros Avenue are some destination entertainment and restaurants, including Landmark Theater and the Cambridge Brewing Company brew pub. The 20+ story Marriot is located in the center of Kendall Square, and a second hotel, Cambridge Residence Inn, is located nearby on Broadway.



North Cambridge

North Cambridge is a relatively low density neighborhood that extends along Massachusetts Avenue (Mass. Ave.) from Porter Square to the Arlington border (Route 16). The Minuteman Bike Path intersects Mass. Ave. at Cameron Avenue, leading from Davis Square Station to Alewife Station (and continuing through Arlington and Lexington into the town of Bedford). Rindge Ave provides a major connection across North Cambridge from Mass. Ave. to the Alewife area. The Somerville line runs parallel along the north side of Mass. Ave. marking the northern boundary of the neighborhood.

Single story strip commercial development along Mass. Ave. (primarily retail/restaurant and auto uses) are interspersed with 3-4 story multifamily buildings that have recently come to replace underutilized commercial sites. The largest commercial buildings include the 3-story medical office that was the Marino Center, and nearby 3 story office building. A former oil company that was located along the bike path behind these buildings is now being redeveloped as housing. Across from these, a former free-standing restaurant is now occupied by a daycare facility. Most buildings along this stretch of Mass. Ave. are single-use, whether they are

commercial or residential, except for the recently developed Trolley Square building next to the MBTA bus terminal, which has retail on the ground floor and residential above.

Behind the Mass. Ave. frontage is a network of small residential streets with 1-3 family homes. Institutional uses include various churches both along Mass Ave and side streets, as well as the International School of Boston and the Cambridge Peabody School. Some industrial/office buildings as well as older neighborhood retail spaces are also scattered along residential streets throughout the neighborhood.

Porter Square



This district is centered around Porter Square Station along the Red Line at the intersection of Massachusetts Avenue and Somerville Avenue. A commuter rail station also connects to the Red Line at Porter Square. Commercial and residential uses are well-established in 1-3 story buildings as well as a number of buildings that are 4-6

stories throughout the district, although new residential and institutional development is occurring along Massachusetts Avenue on both edges of Porter Square.

A conventional strip retail plaza dominates the center of Porter Square, with a one-story row of shops served by a large parking lot. Shops in the strip include iconic local retailers as well as national retailers, a supermarket, and fast food restaurants. A large two-story building located at the front of the parking lot near the MBTA station houses retail on the first floor and a fitness club on the second floor. Across from the plaza, a small 2-story enclosed mall has retail, personal service, and restaurant tenants. A mix of commercial and residential uses occupy small, mostly older structures on the opposite side of the parking lot from the retail strip along White and Elm Streets.

Along both sides of Massachusetts Avenue around Porter Square is a



mixture of 1-3 story buildings and some larger 4-6 story buildings with retail on the ground floor and residences or service/office uses on upper floors. Massachusetts Avenue is a complex of 3-4 lanes of through traffic, with bike lanes and turning lanes to go onto side streets and into the parking area. The southern end of the district is bounded by Lesley University, which is expanding with new construction. The northern end of the district is bounded by multifamily residential and institutional uses, including a church and a school for culinary arts. Porter Square is bounded by Somerville on the other side of Elm Street from the plaza, where there are two- and three-family homes, a school, and single story retail strips. Davenport Street separates Porter Square Plaza from a dense neighborhood of 1-3 family homes, with loading docks off of a narrow two lane road.

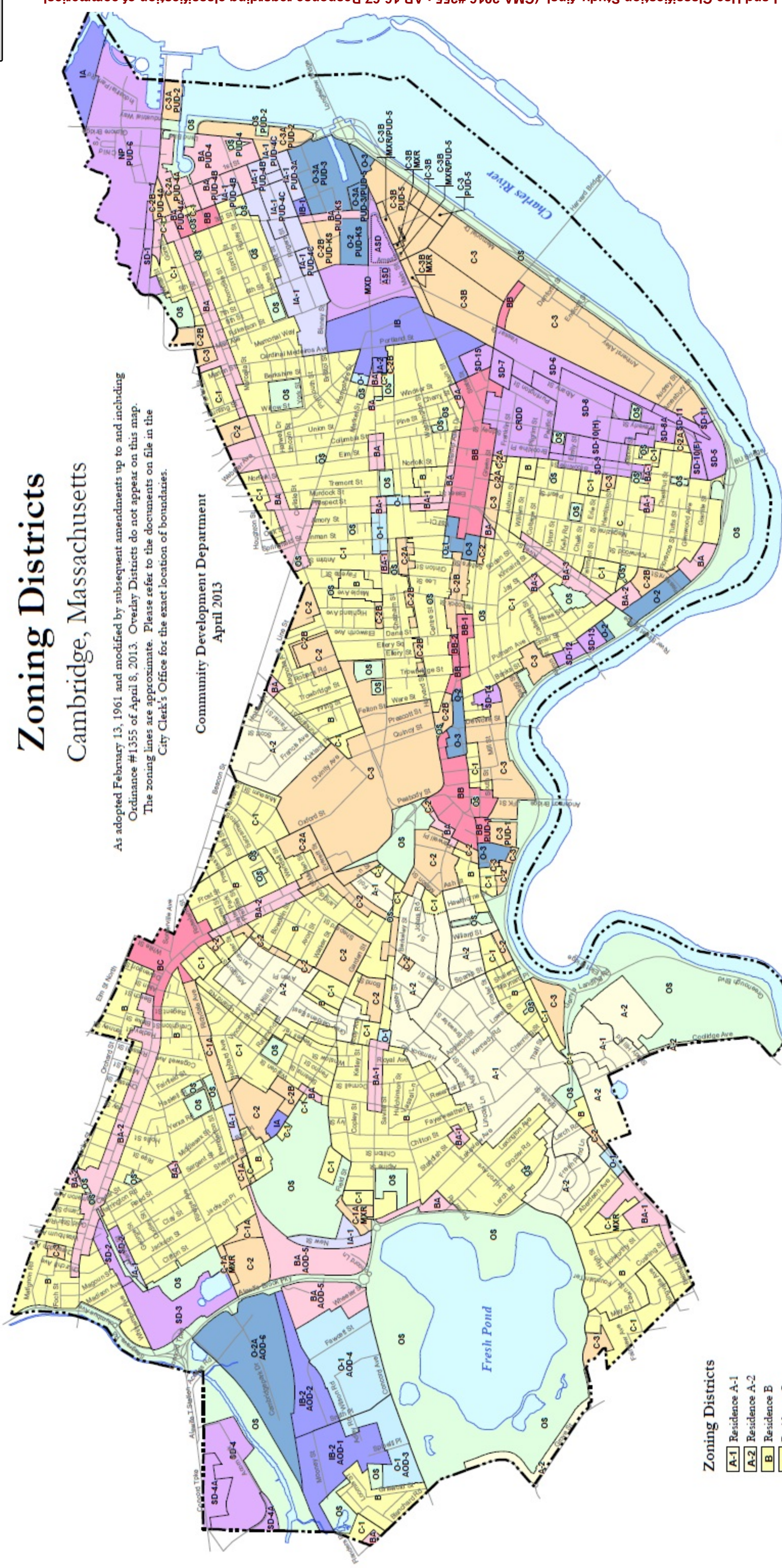
Maps

Zoning Districts

Cambridge, Massachusetts

As adopted February 13, 1961 and modified by subsequent amendments up to and including Ordinance #1355 of April 8, 2013. Overlay Districts do not appear on this map. The zoning lines are approximate. Please refer to the documents on file in the City Clerk's Office for the exact location of boundaries.

Community Development Department
April 2013



- | | | |
|-------------------------|------|----------------|
| Zoning Districts | A-1 | Residence A-1 |
| | A-2 | Residence A-2 |
| | B | Residence B |
| | C | Residence C |
| | C-1 | Residence C-1 |
| | C-1A | Residence C-1A |
| | C-2 | Residence C-2 |
| | C-2A | Residence C-2A |
| | C-2B | Residence C-2B |
| | C-3 | Residence C-3 |
| | C-3A | Residence C-3A |
| | C-3B | Residence C-3B |
| | O-1 | Office-1 |
| | O-2 | Office-2 |

Zoning Overlay Districts

Cambridge, Massachusetts

As adopted February 13, 1961 and modified by subsequent amendments up to and including Ordinance #1361 of October 20, 2014. The zoning overlay lines are approximate. Please refer to the documents on file in the City Clerk's Office for the exact location of boundaries.

Community Development Department
October 2014

Zoning Overlay Districts

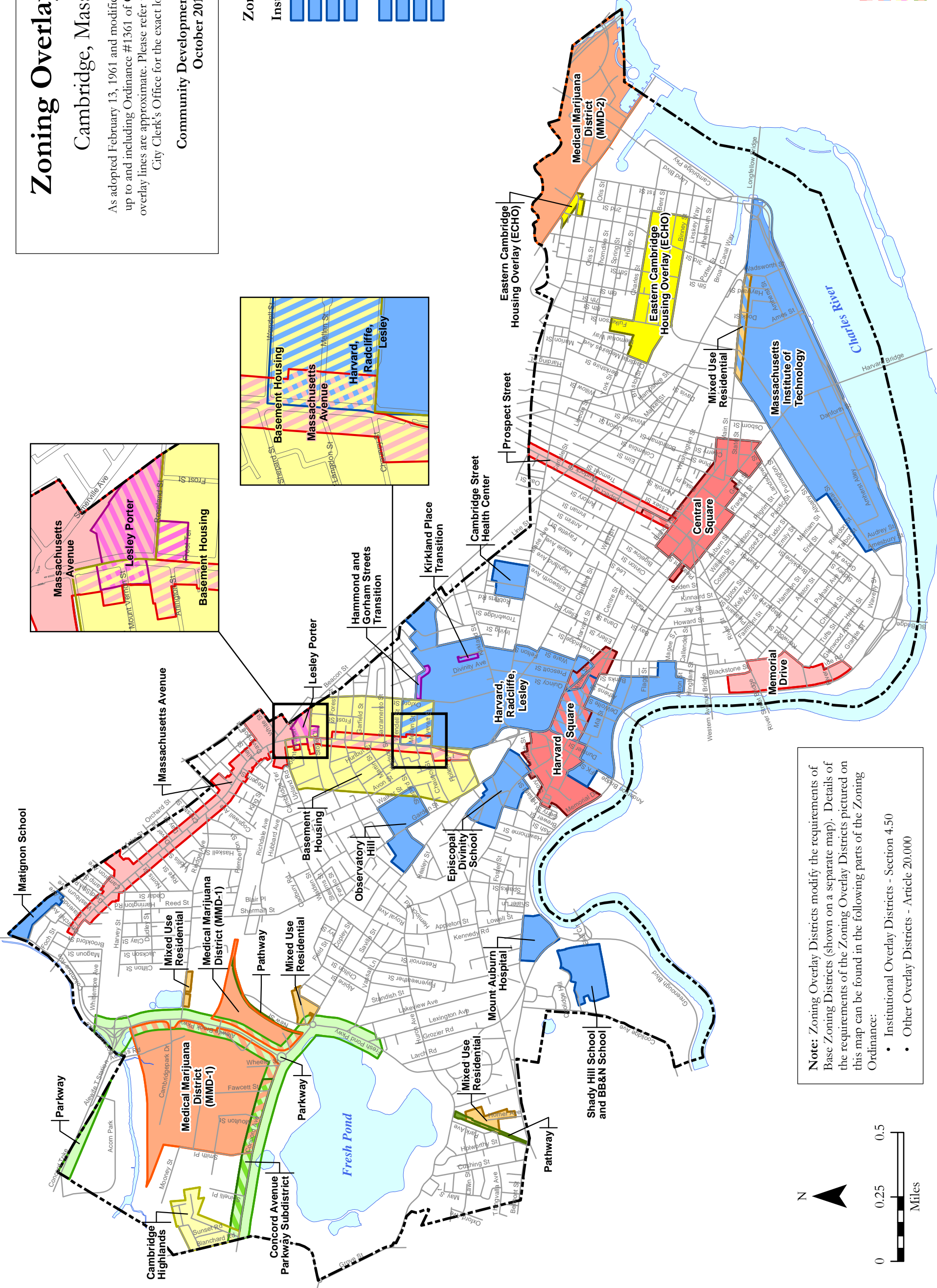
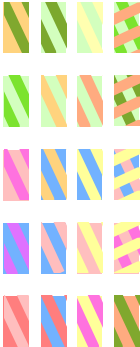
Institutional Overlay Districts

- Cambridge Street Health Center
- Episcopal Divinity School
- Harvard, Radcliffe, Lesley
- Massachusetts Institute of Technology
- Matignon School
- Mount Auburn Hospital
- Observatory Hill
- Shady Hill School and BB&N School

Other Overlay Districts

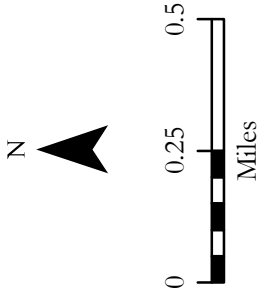
- Lesley Porter
- Hammond and Gorham Streets Transition
- Kirkland Place Transition
- Harvard Square
- Central Square
- Massachusetts Avenue
- Memorial Drive
- Prospect Street
- Medical Marijuana District
- Mixed Use Residential
- Cambridge Highlands
- Basement Housing
- Eastern Cambridge Housing Overlay (ECHO)
- Parkway
- Concord Avenue Parkway
- Subdistrict
- Pathway

Overlapping Districts



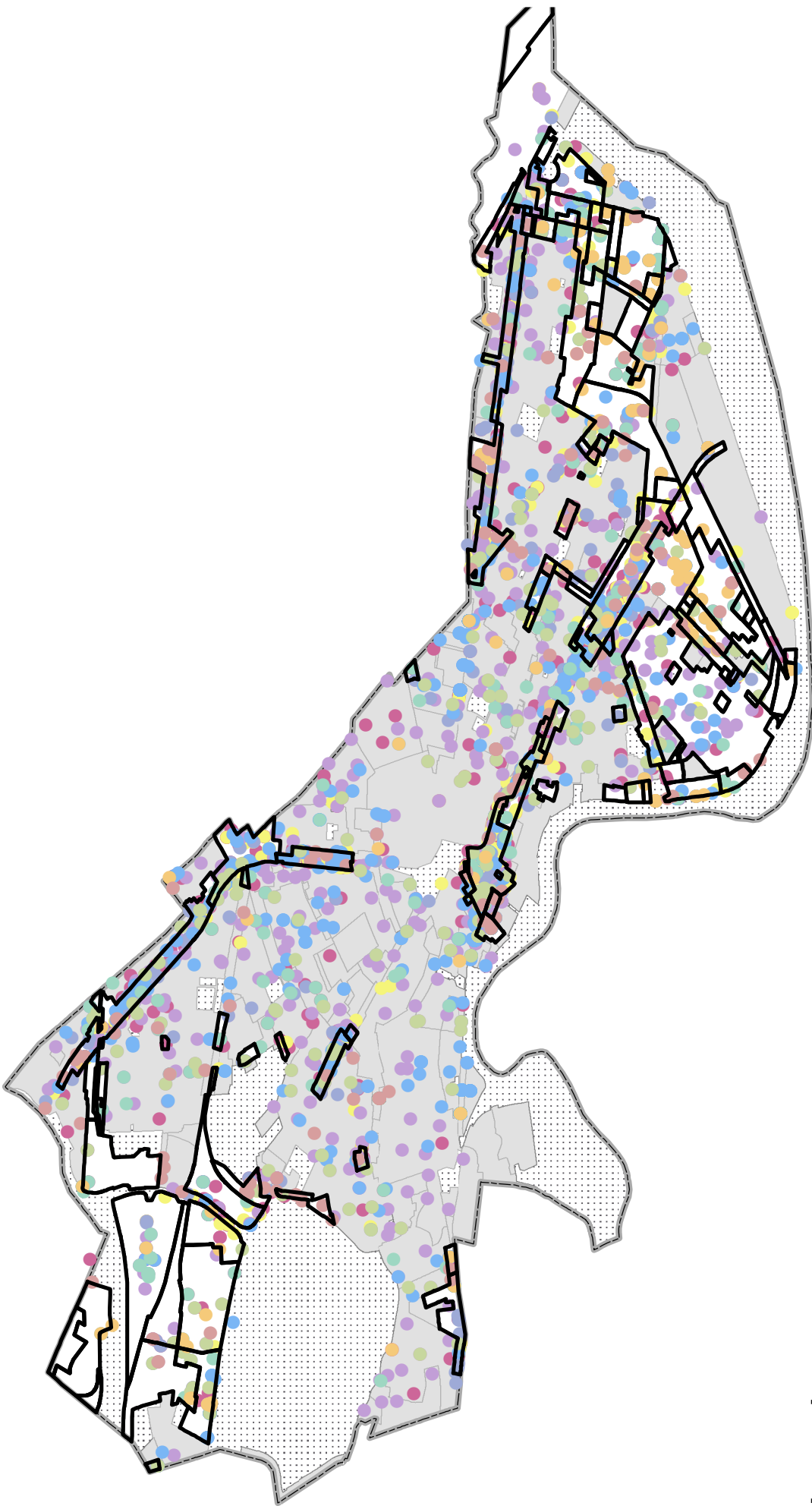
Note: Zoning Overlay Districts modify the requirements of Base Zoning Districts (shown on a separate map). Details of the requirements of the Zoning Overlay Districts pictured on this map can be found in the following parts of the Zoning Ordinance:

- Institutional Overlay Districts - Section 4.50
- Other Overlay Districts - Article 20.000



Business Locations by Type and Zoning District

City of Cambridge, Massachusetts



Legend

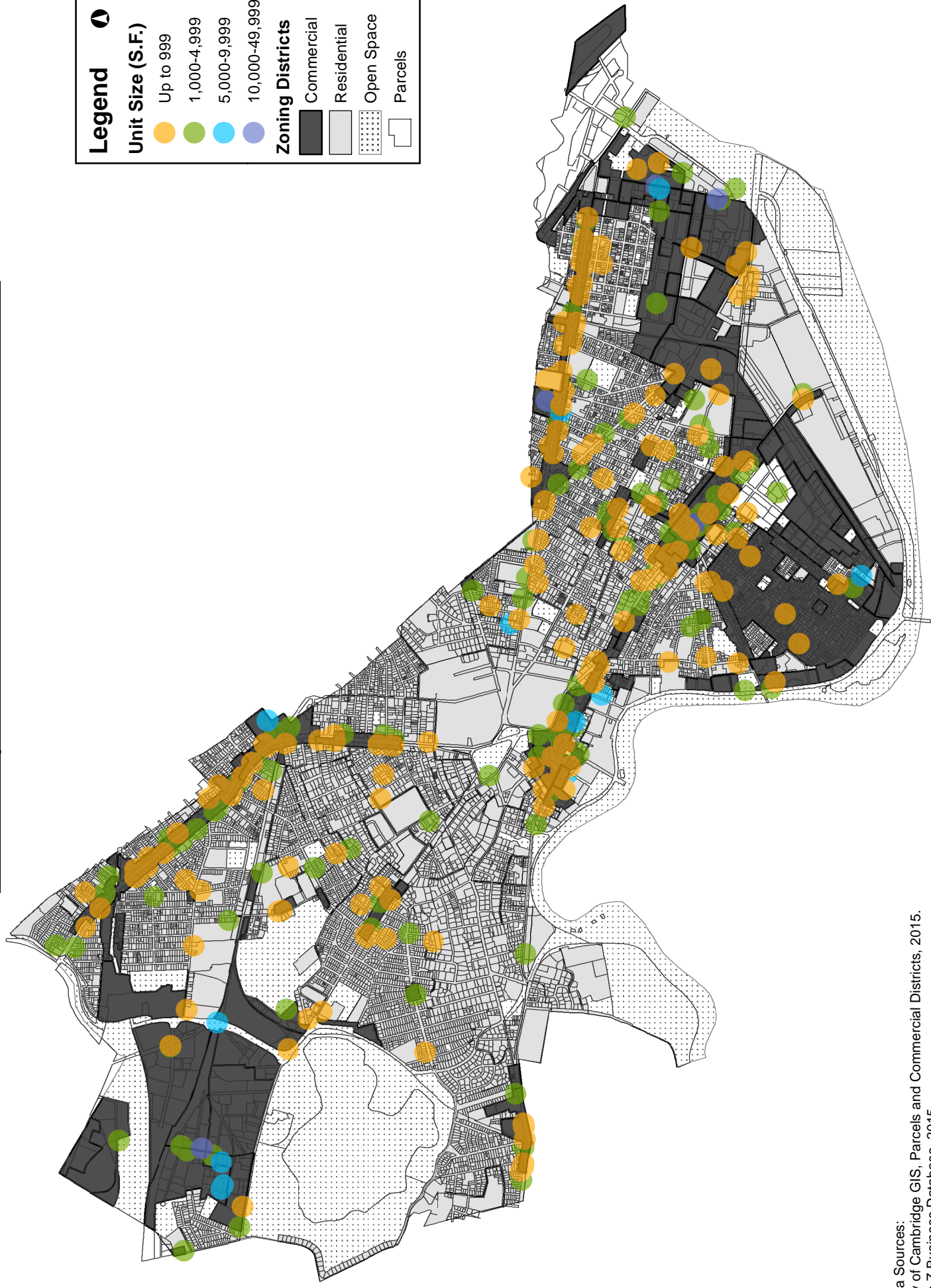
- | | | | |
|--------------|-------------------|-----------------------|-------------------------|
| Auto Related | High-Tech | Professional Services | Zoning Districts |
| Biotech | Medical | Restaurants | Commercial |
| Construction | Personal Services | Retail | Residential |
| | | | Open Space |

Data Source:
City of Cambridge, GIS
A to Z Business Database
Community Opportunities Group, Inc.

Disclaimer:
This map is intended for informational purposes only and accuracy is not guaranteed.

Auto/Transportation-Related Business Locations

2.19.b



Legend

Unit Size (S.F.)
● Up to 999
● 1,000-4,999
● 5,000-9,999
● 10,000-49,999

Zoning Districts
 Commercial
 Residential
 Open Space
 Parcels

Data Sources:
 City of Cambridge GIS, Parcels and Commercial Districts, 2015.
 A to Z Business Database, 2015
 Community Opportunities Group, INC.
 Disclaimer:
 This map is for planning purposes only and accuracy is not guaranteed.

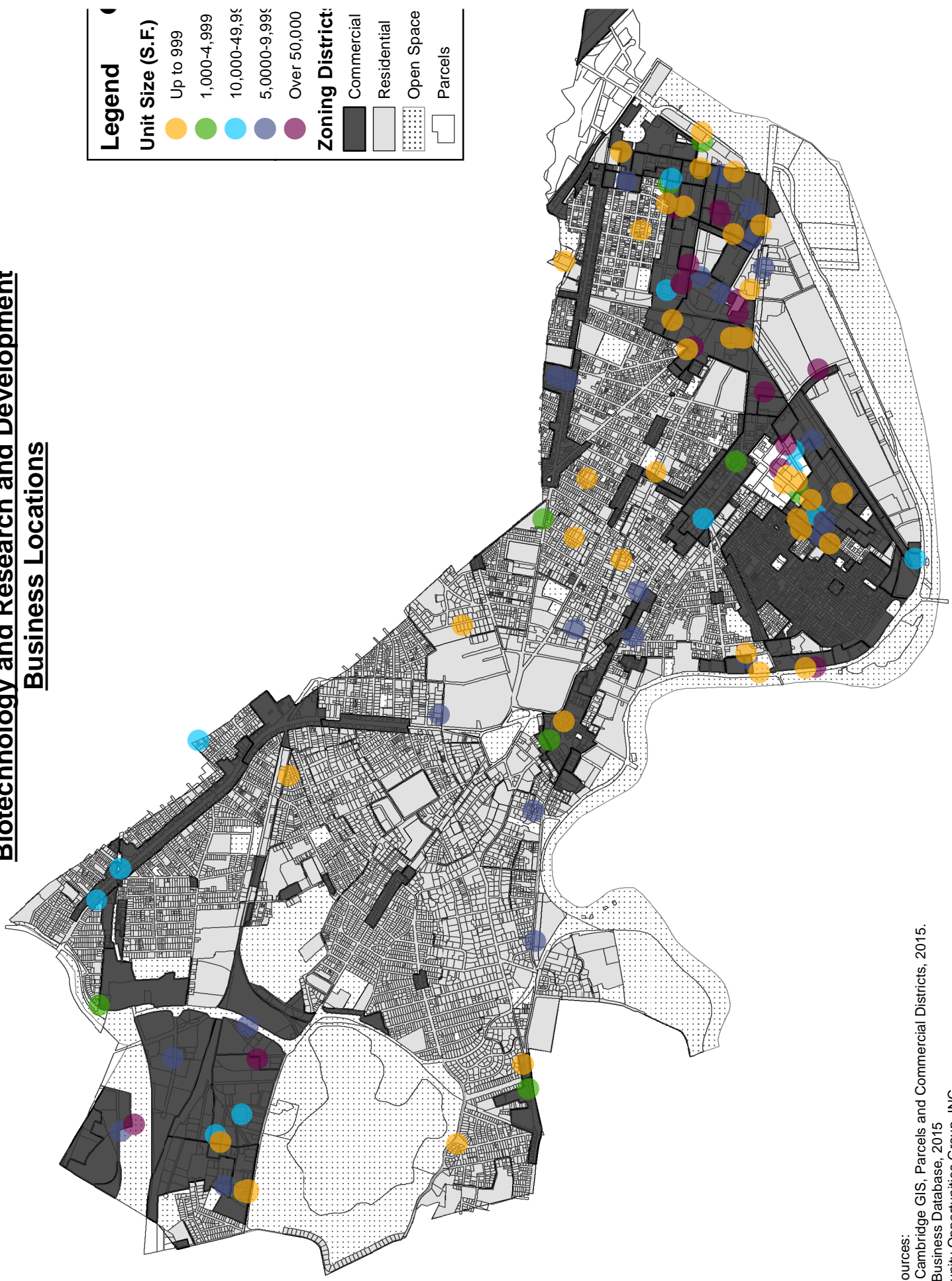
Biotechnology and Research and Development Business Locations

Attachment: Commercial Land Use Classification Study_Final (CMA 2016 #255 : AR 16-67 Response

Legend

Unit Size (S.F.)
Up to 999
1,000-4,999
10,000-49,999
50,000-99,999
Over 50,000

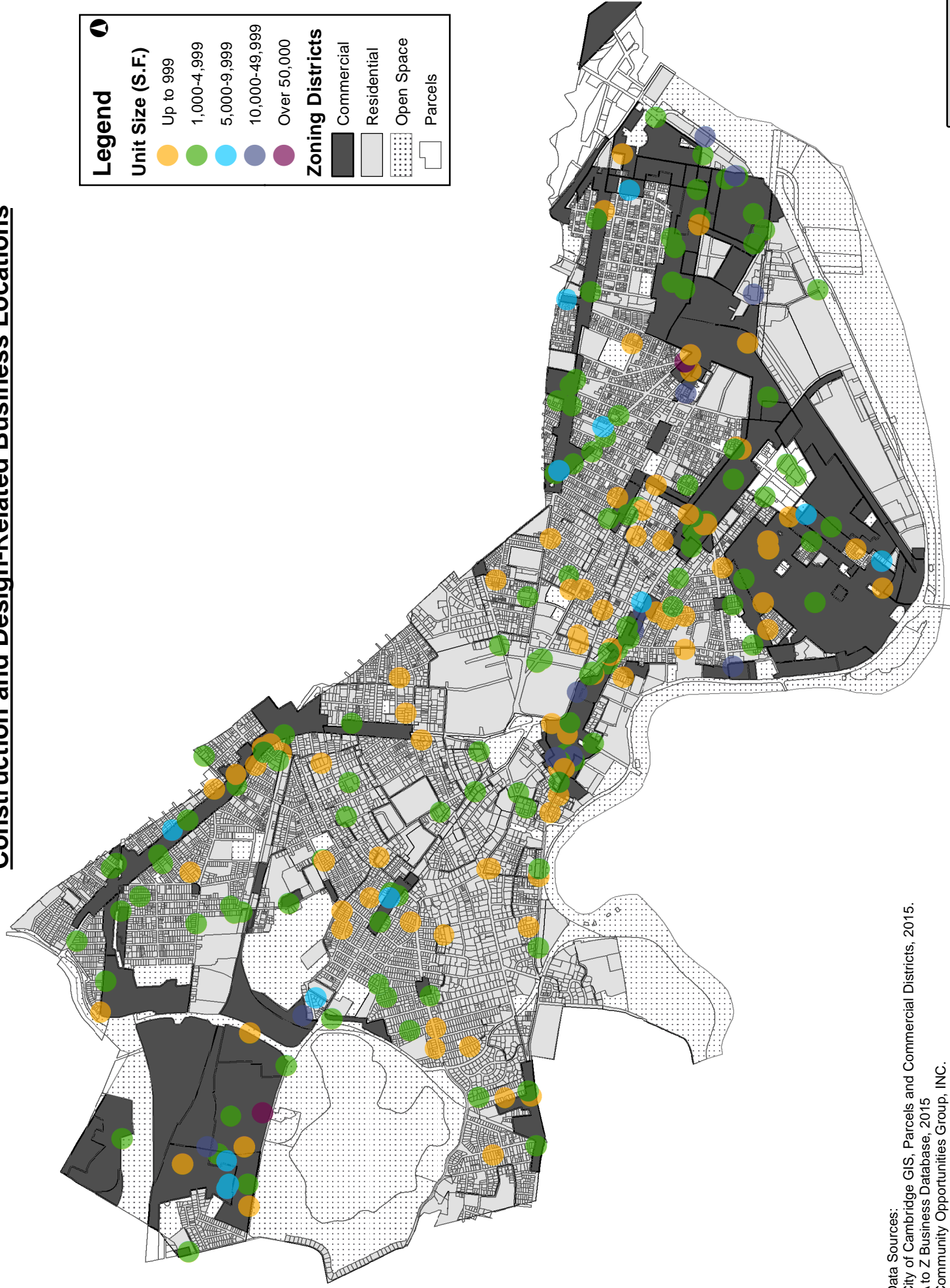
Zoning District:
Commercial
Residential
Open Space
Parcels



Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
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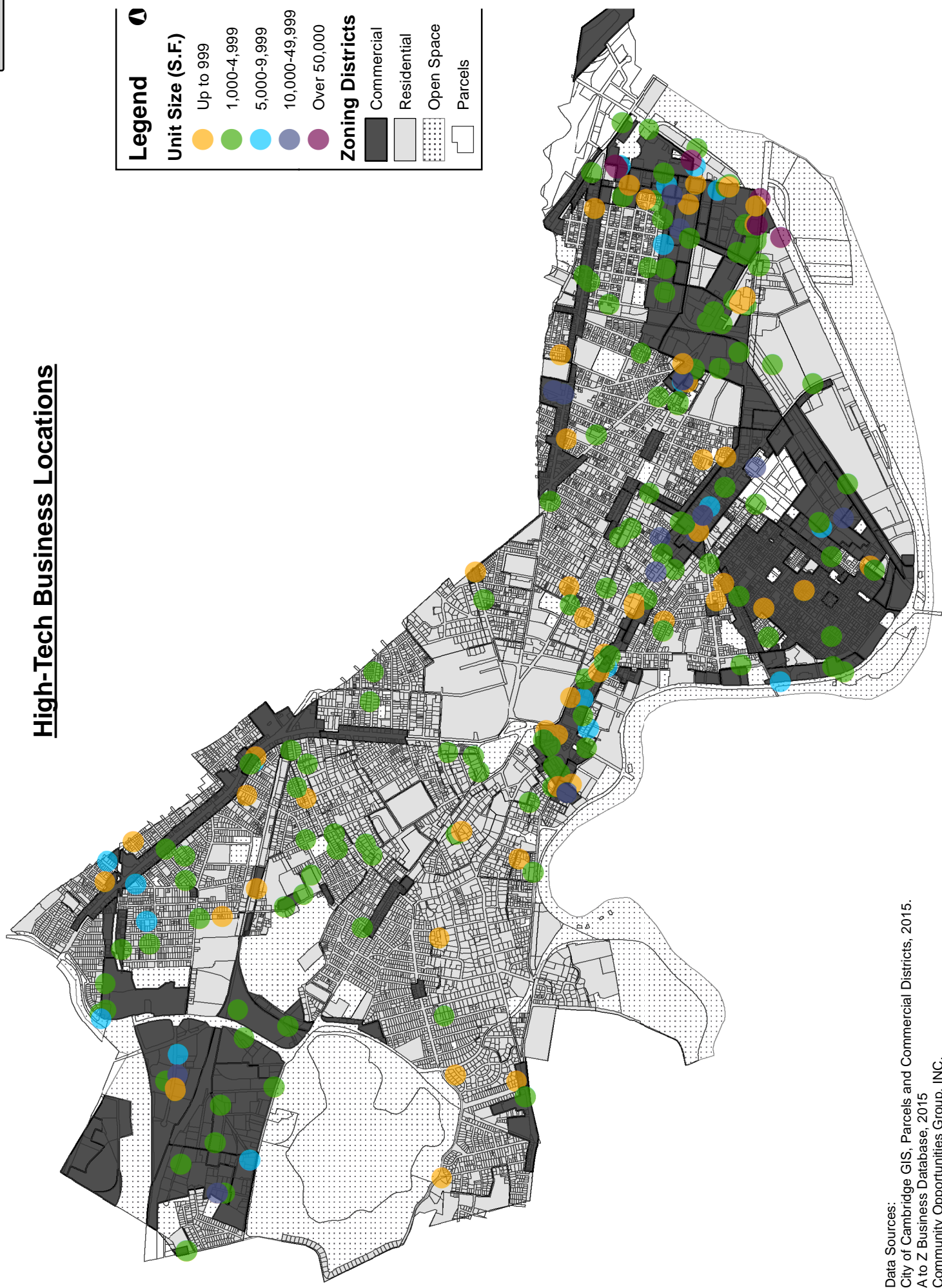
Construction and Design-Related Business Locations

2.19.b



Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
Disclaimer:
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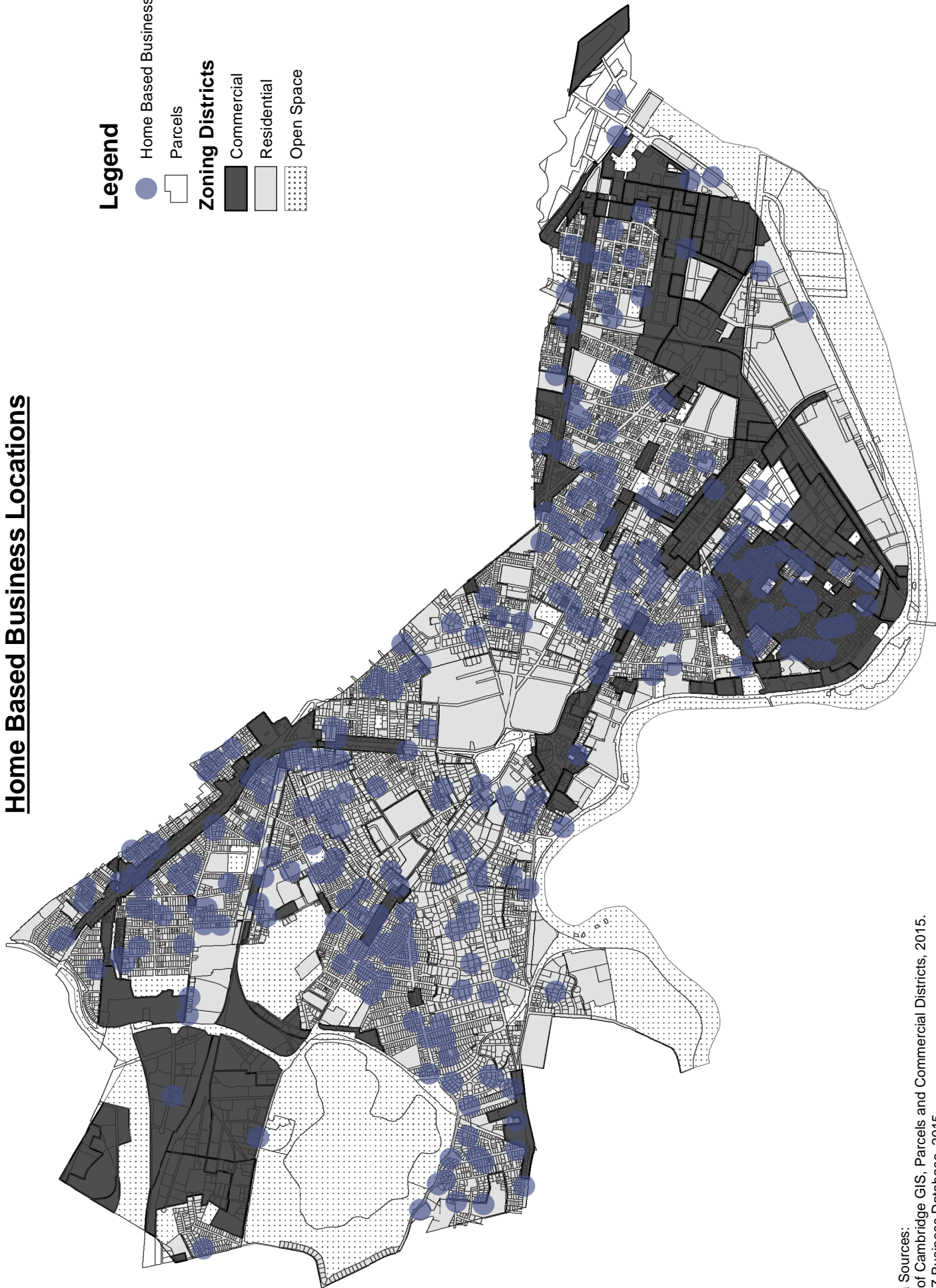
High-Tech Business Locations



Attachment: Commercial Land Use Classification Study_Final (CMA 2016 #255 : AR 16-67 Response

Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
Disclaimer:
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Home Based Business Locations

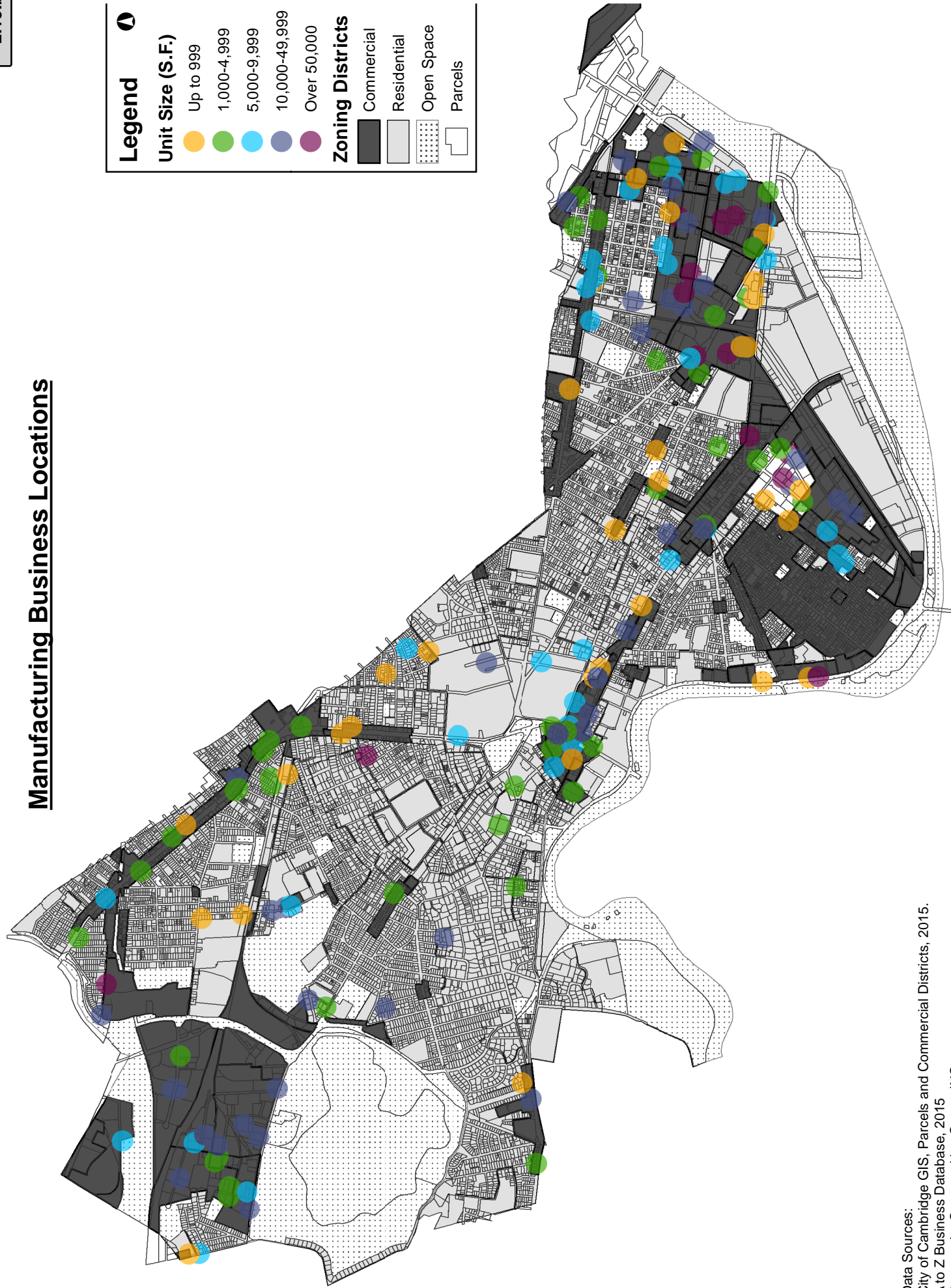


Legend

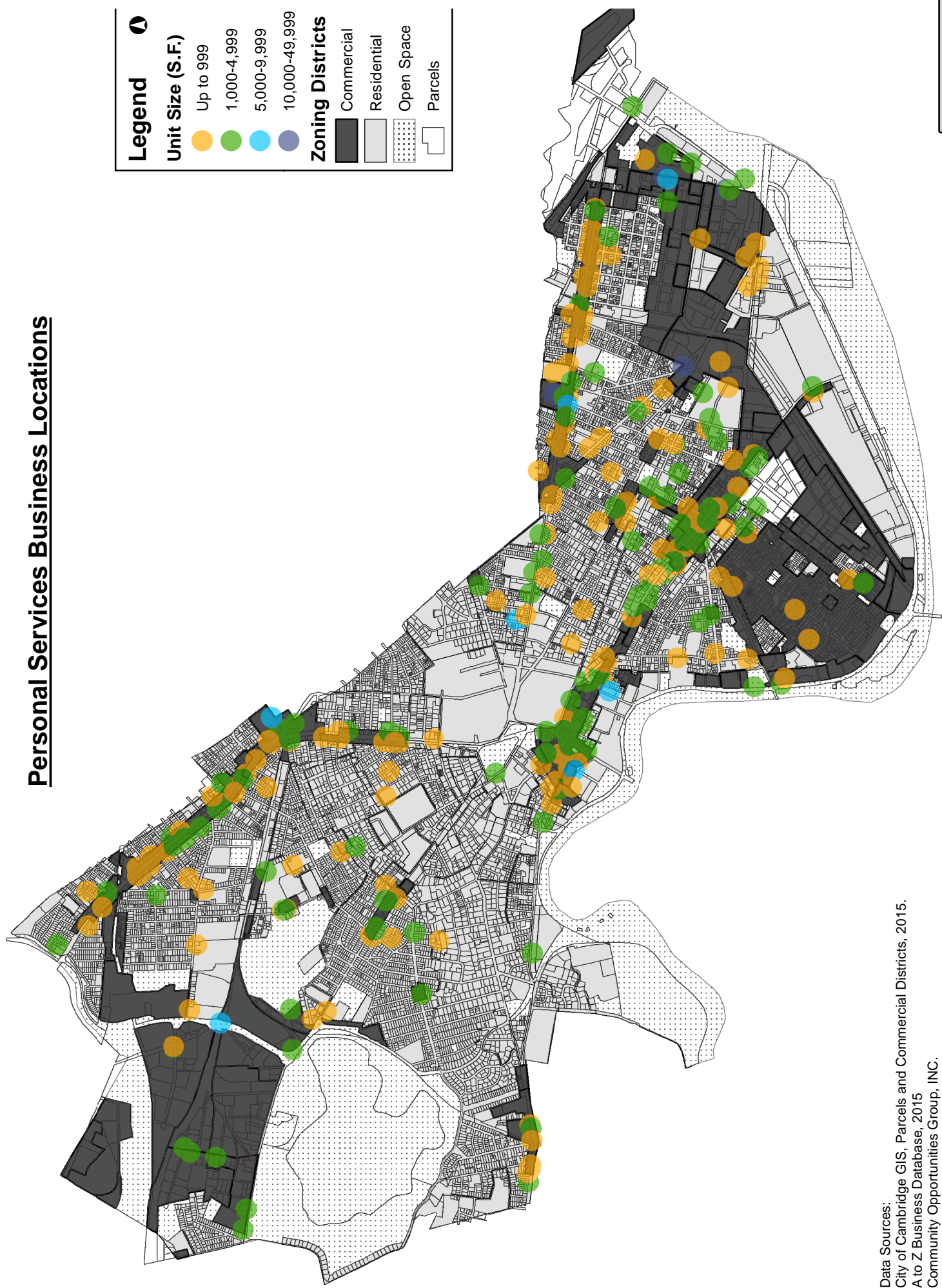
- Home Based Business: (blue dot)
- Parcels: (black outline)
- Zoning Districts**
 - Commercial: (dark grey)
 - Residential: (light grey)
 - Open Space: (white with dotted pattern)

Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
Disclaimer:
This map is for planning purposes only and accuracy is not guaranteed.

Manufacturing Business Locations



Personal Services Business Locations



Professional Services Business Locations

Legend

●

Unit Size (S.F.)

●

Up to 999

●

1,000-4,999

●

5,000-9,999

●

10,000-49,999

●

Over 50,000

■

Zoning Districts

■

Commercial

■

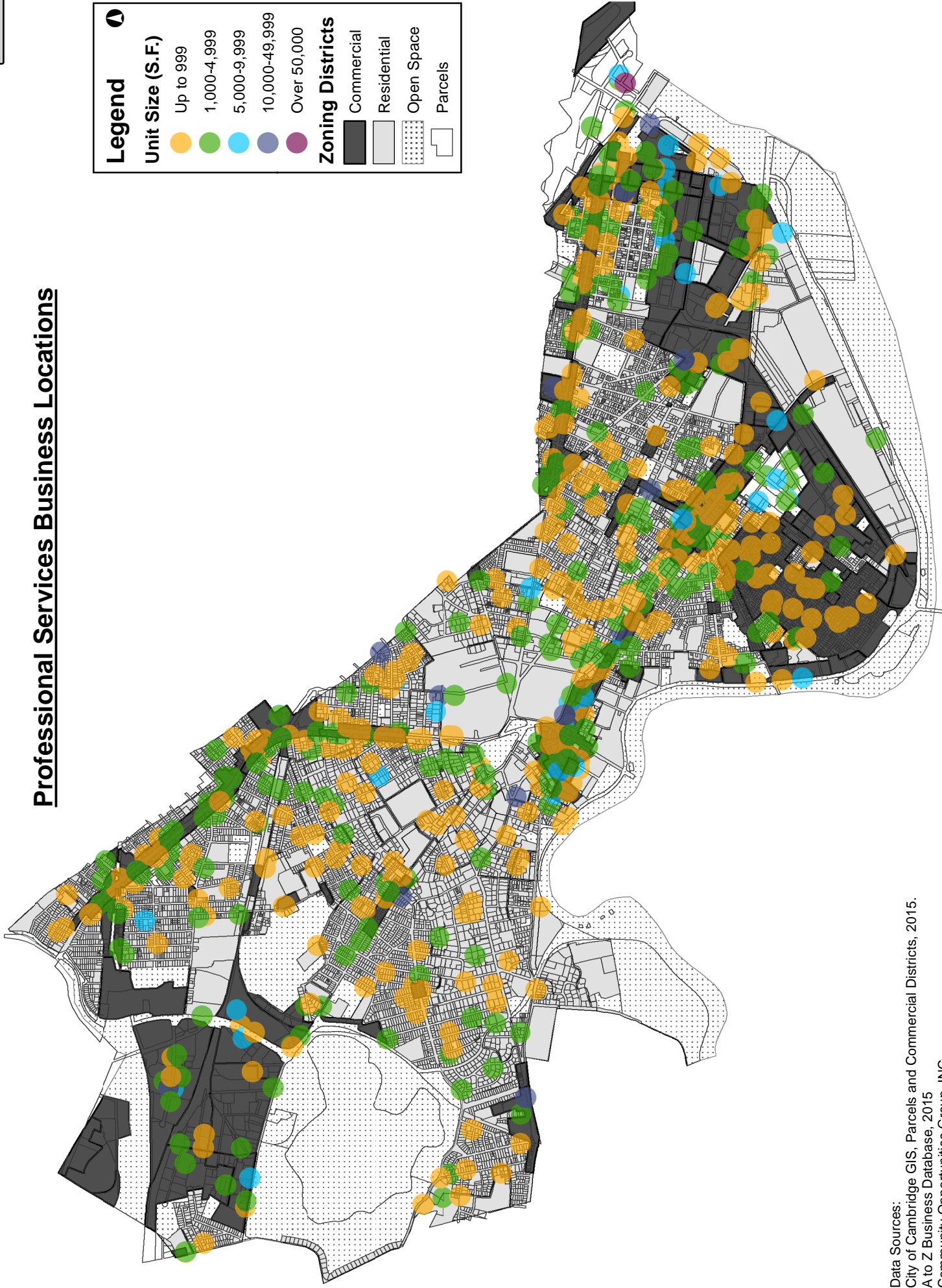
Residential

■

Open Space

■

Parcels



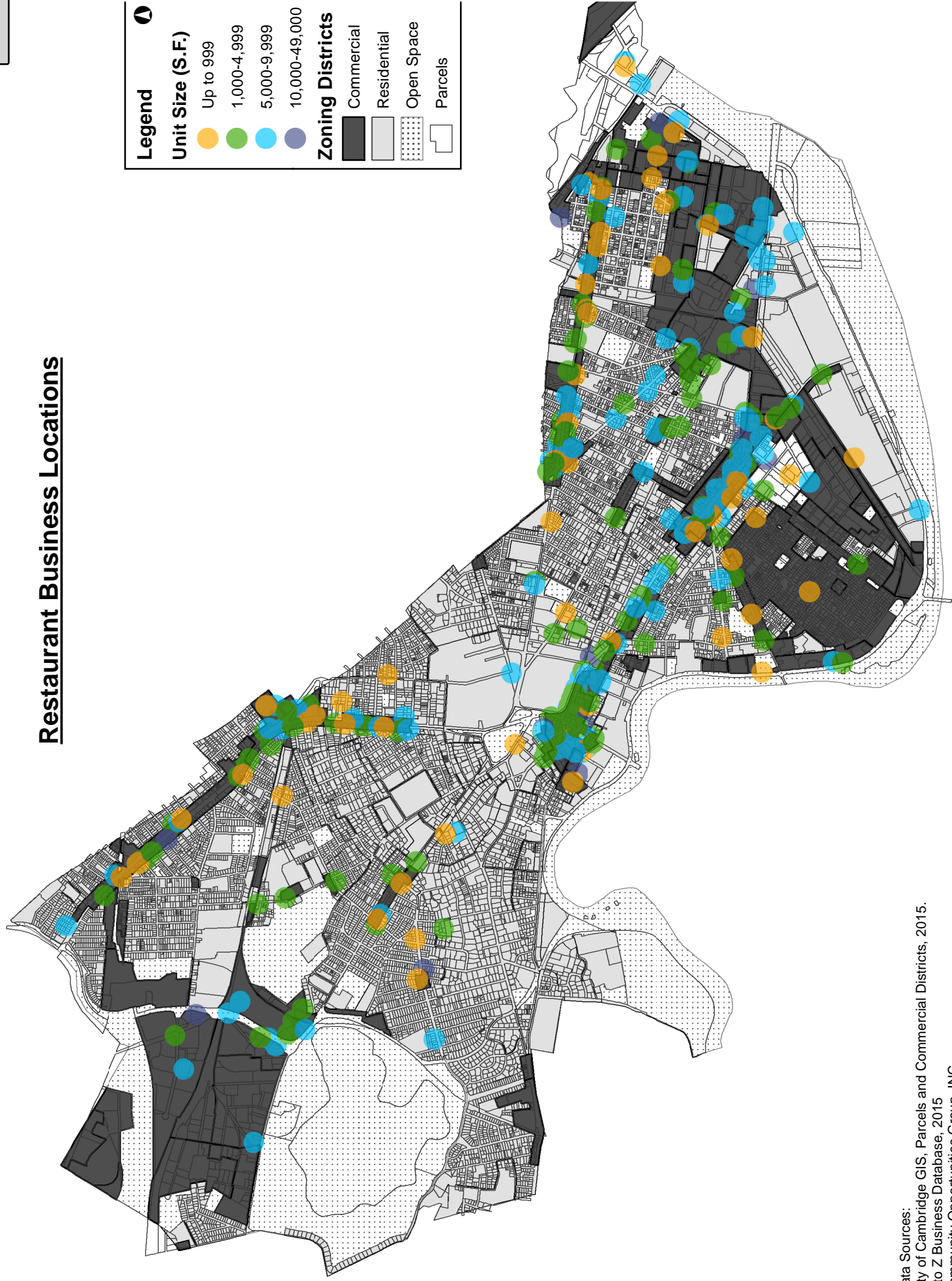
Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
Disclaimer:
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Restaurant Business Locations

Legend

Unit Size (S.F.)
Up to 999
1,000-4,999
5,000-9,999
10,000-49,000

Zoning Districts
Commercial
Residential
Open Space
Parcels



Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
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Retail Business Locations

Legend

●

Unit Size (S.F.)

Up to 999

●

1,000-4,999

●

5,000-9,999

●

10,000-49,000

●

Over 50,000

Zoning Districts

■

Commercial

■

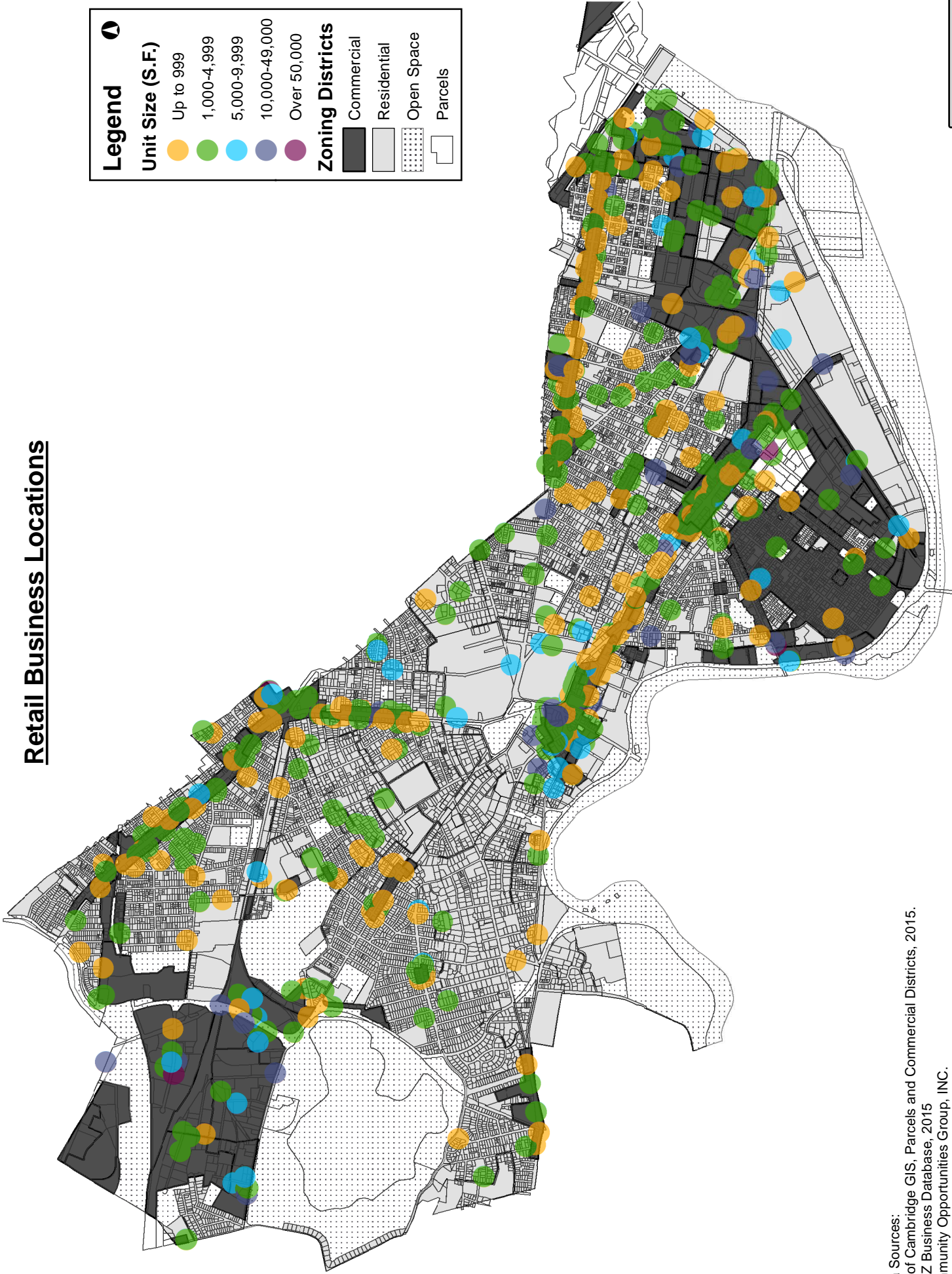
Residential

■

Open Space

□

Parcels



Data Sources:
City of Cambridge GIS, Parcels and Commercial Districts, 2015.
A to Z Business Database, 2015
Community Opportunities Group, INC.
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