Memorandum: Chelsea Food Cluster Economic Impact Analysis

Prepared by the Metropolitan Area Planning Council for the City of Chelsea

Summary and Key Findings:

The City of Chelsea has identified the Island End River as a future high risk area for climate change induced flood inundation to the many job intensive businesses that exist along this section of the city's industrial waterfront. Approximately 541 businesses are located within the area projected to flood during a 1% storm by 2070, and are vulnerable to associated disruptions and damages.

Unique to this area is a high density cluster of wholesale produce suppliers and distributers. The available industrial real estate, multimodal transit networks, and proximity to Boston, along other large markets in the North East, has fostered a strong center for this industry. The cluster is anchored by the cooperatively run New England Produce Center and Boston Market Terminal – two of the largest wholesale produce venues in the country. Additional food manufacturing and food support services, such as cold storage facilities, have also located in this area but not at the same densities as the food wholesale sector.

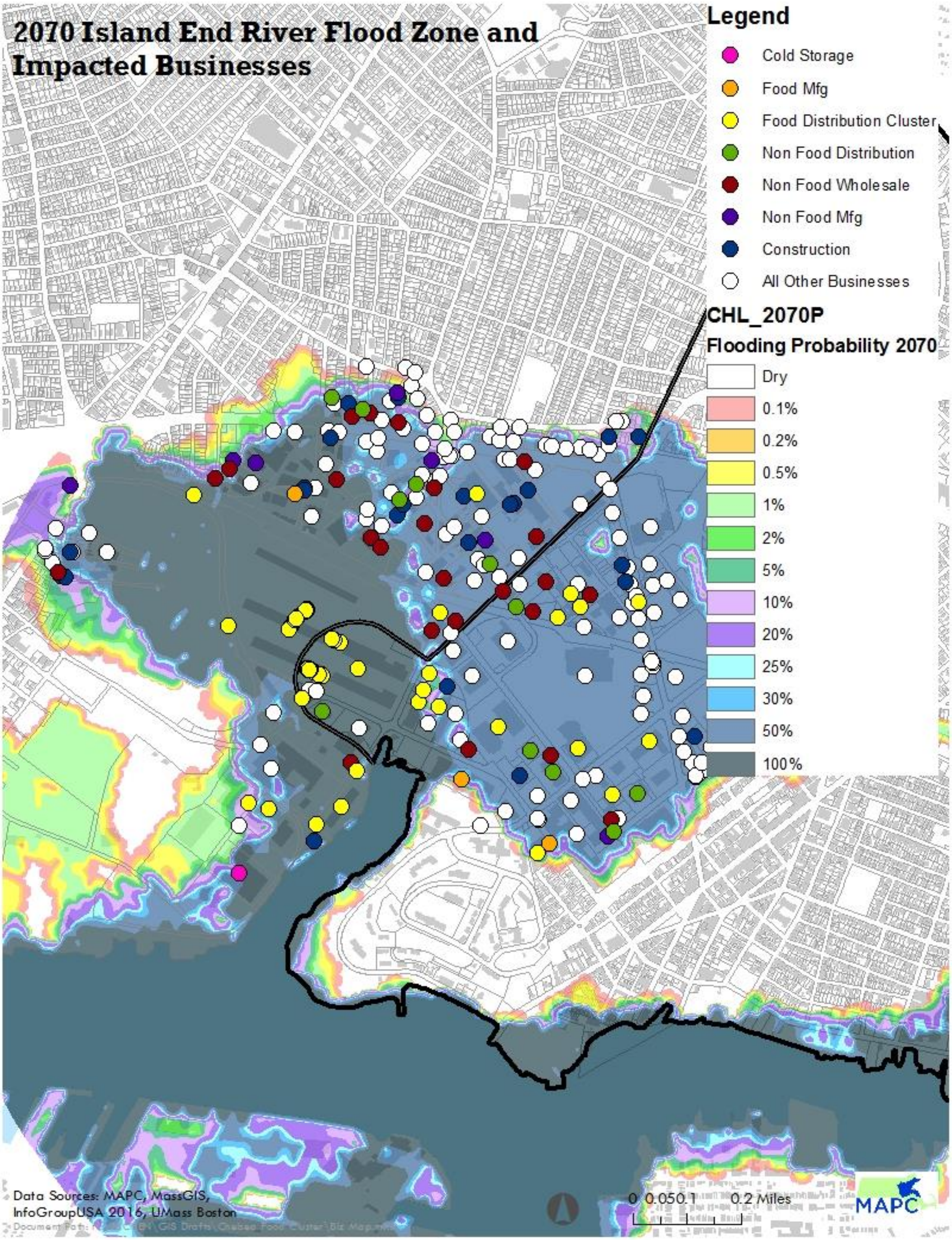
While all businesses in the identified flood plain are vulnerable to future climate events, the food wholesale sector is of particular interest due to the industries density, employment composition and spatial requirements. Many of the jobs within the industry are well paying and accessible to a workforce that does not have a college degree or English language skills. Due to the large space and logistical needs of the businesses it is unclear what opportunities for relocation would be if this area was to be disrupted by a climate event. This disruption could have large implications for the regional economy and employment base.

To better understand the regional economic implications of disruption to this area, MAPC has conducted an economic impact analysis of the food distribution sector in the identified flood zone. The analysis includes an existing conditions assessment of the number of firms and employees in the area, review of workforce demographics, and the use of BEA multipliers to evaluate the impact of the food distribution sector specifically, on the regional economy.

Key findings from this analysis are as follows:

1. The Chelsea Food Cluster accounts for only 11% of the businesses within the flood zone but 37% of all sales volume.
2. This outsized sales volume has a large multiplier effect on the larger regional economy. The food wholesale / distribution industry alone accounts for $2.3B in total economic output and supports close to 11,000 indirect jobs.
3. The Chelsea Food Cluster is a large employer of a regional workforce. Many employees travel from nearby communities in Boston, Revere, and Everett. However, the workforce demographics are surprisingly unrepresentative of the local Chelsea community, with the majority of workers in the area identified as white non-Hispanic.
4. Disruption of the Chelsea Food Cluster will have the greatest impact on food access from independent retailers as they do not have an independent and dedicated supply chain.

The distribution sector has been identified as a key component of a resilient food system, and was the focus of a full chapter in the Massachusetts Food Action Plan, released in 2015. Through anecdotal conversations with participants in the Food Action Plan process it appears that many of the specific recommendations for the distribution sector have yet to be acted upon. With the impacts of climate change pending and the supply of affordable industrial real estate in the immediate Boston area dwindling, it will be important for stakeholders within the private and public sector to come together to begin to plan for protecting and strengthening this sector that plays a strong role in the regional economy.


2070 Island End River Flood Zone and Impacted Businesses
Legend
Cold Storage
Food Mfg
Food Distribution Cluster
Non Food Distribution
Non Food Wholesale
Non Food Mfg
Construction
All Other Businesses
CHL_2070P
Flooding Probability 2070
Dry
0.1%
0.2%
0.5%
1%
2%
5%
10%
20%
25%
30%
50%
100%
Data Sources: MAPC, MassGIS, InfoGroupUSA 2016, UMass Boston
0 0.05 0.1 0.2 Miles
MAPC

Chelsea Food Cluster Business Assessment

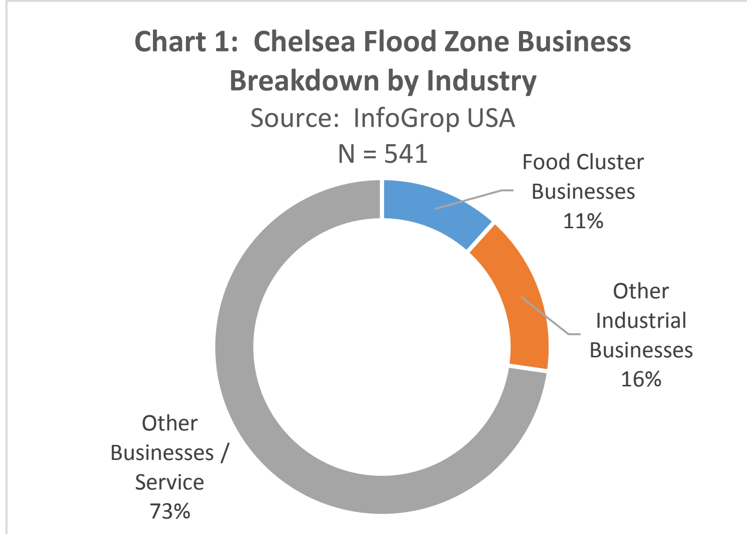
For this analysis the Food Distribution Sector is being defined as business types falling into NAICS codes 1119 (All Other Miscellaneous Crop Farming), 4244 (Grocery and Related Product Merchant Wholesalers), 44523 (Fruit and Vegetable Markets), and 44529 (Other Specialty Food Stores). InfoGroup USA 2016 data was used as the primary data source for this analysis and all businesses identified in these categories were verified through web search as food distribution or production related.

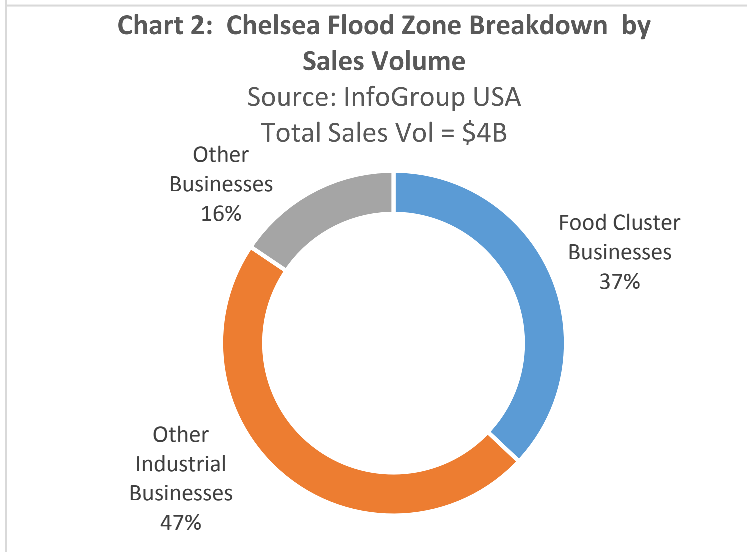
Geographically, these businesses are defined as falling within the 70 year flood plain as identified by UMASS Boston and MAPC (see Map on previous page).

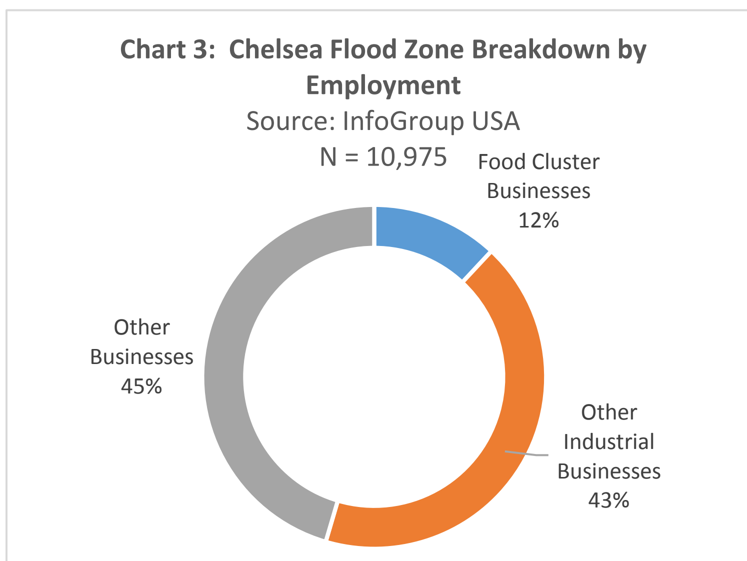
The 2016 InfoGroup USA data identifies 541 businesses located within the greater flood zone, 64 (11%) of them are members of the Chelsea Food Cluster. Of this cluster only three businesses were identified as manufacturing and one as cold storage, the remaining 60 are actively engaged in the food wholesale or distribution sector. An additional 16% of businesses in the flood zone are other industrial type businesses[1] with the remaining businesses categorized as professional, retail, or service type firms.

While the total number of food cluster businesses in the flood zone area may be comparatively small, they account for 37% of all businesses total sales volume. The other industrial businesses round out this composition with 47% of sales volume, with only 16% of sales volume attributed to other non-industrial businesses that make up the majority of the areas business composition.

In terms of employment, the food cluster does not exhibit the same outsized proportion of jobs to number of firms as with sales volume. Only 12% of area employment can be attributed to the food cluster. Other industrial businesses account for 43% of employment and other non-industrial businesses in general for 45%.







[1] Construction, Manufacturing, Wholesale Trade, Warehousing

Within the food cluster, the total employment and sales volume is as follows:[2]

	Table 1: Chelsea Food Cluster Employment and Sales		
	Source: InfoGroup USA 2016		
Sector	**Total Firms**	**Total Employment**	**Total Annual Sales Volume**
Distributors	60	1084	$1,363,228,000
Manufacturers	3	171	$131,543,000
Warehousing	1	50	$4,173,000
Total Food Cluster	**64**	**1305**	**$1,498,944,000**

RIMS Methodology

To assess the economic impact of the sector which includes businesses located within the New England Produce Center and Boston Terminal Market, MAPC has used the Bureau of Economic Analysis RIMS II Multiplier system. The multiplier system sets distinct values by which planners can estimate the indirect effect of a certain industry or set of businesses within a specific geographic area. For this analysis we are using the geographic boundaries of the Boston Metropolitan Statistical Area (MSA). The RIMS II multiplier system uses final demand as an input to estimate changes in four categories: output, earnings, employment, and value added. Final demand can be understood as the change in the purchases of goods or services by final users[3] – in this case we are using total sales volume.

The categories of estimated change are defined as follows:

Output[4]: Output is defined as the sum of all intermediate inputs (all of the goods and services that goes into making a product) as well as the income value added by a business (compensation of employees, taxes, operations etc)

Earnings: Wages and salaries as well as proprietors income.[5]

Employment: Total jobs (not categorized as part time or full time)[6]

Value Added: Sum of compensation, taxes, imports, and gross operating surplus.[7]

The final demand identified in this exercise is the individual sum of the total sales volume within the Food Distribution Cluster. As there were only 4 businesses not associated with the distribution industry in the food cluster we did not conduct a multiplier analysis for the food manufacturing or warehousing sectors due to a lack of business concentration.

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[2] Infogroup 2016
[3] BEA RIMS user guide G-1, https://www.bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf
[4] I-O models for Impact Analysis, Ambargis, Bess, 6, https://www.bea.gov/papers/pdf/wp_iomia_rimsii_020612.pdf
[5] IBID
[6] IBID
[7] IBID

The end multipliers for the distribution sector are as follows:

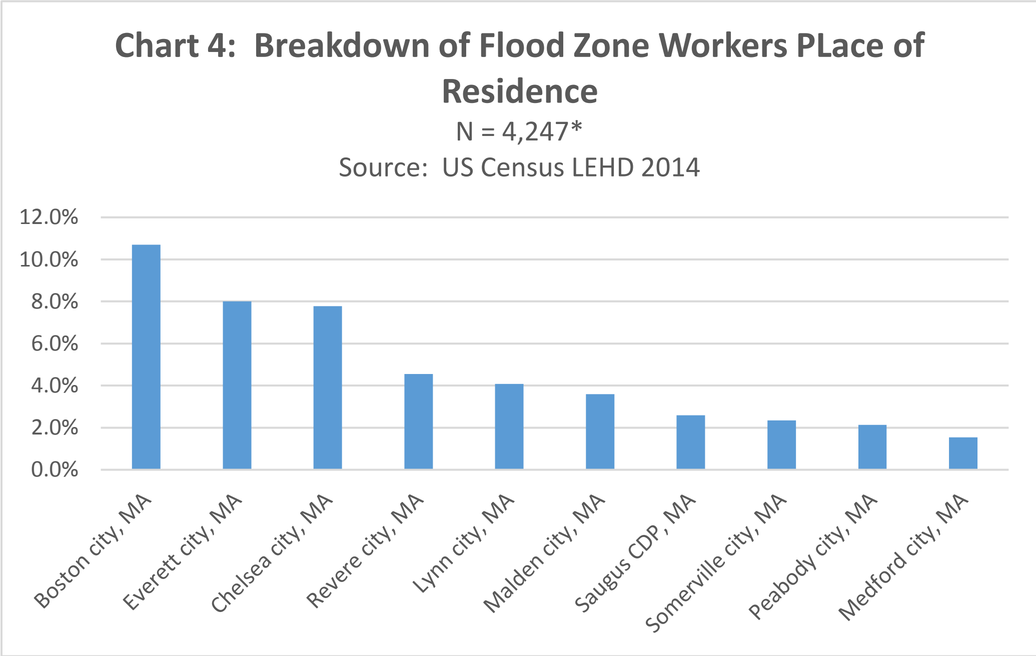
	Table 2: Wholesale Trade Multipliers and Impact for Boston MSA			
	Source: BEA RIMS II			
	Input (Final Demand)	**Input Value**	**Multiplier**	**Economic Impact**
Output[8]	Final Demand Sales	$1,363,228,000	1.7185	$2,330,196,638
Earnings	Final Demand Sales	$1,363,228,000	0.4632	$628,075,113
Employment	Final Demand Sales / 1M	$1,363	7.9409	10,767 Jobs
Value Add	Final Demand Sales	$1,363,228,000	1.1121	$1,507,949,771

Using the RIMS Multipliers reveals that the Food Distribution sector in the Island End River flood zone is responsible for $2.3B in regional economic output and supports nearly 11,000 jobs. Given the relatively small number of businesses associated with the food distribution cluster these large output numbers indicate the regional significance of the cluster within the Boston MSA.

To contextualize those numbers, the total GDP of the Boston MSA was nearly $396B in 2015[9] and composed of 159,933 private businesses employing 2,309,404 people.

Island End River Flood Zone Employment Demographics

The identified flood zone in Chelsea and Everett is a job intensive area employing a regional workforce. US Census data reveals close to 9,000 jobs in the flood zone with employees traveling to work from a number of nearby communities, with large shares of workers from Boston, Everett, Chelsea, Revere, Lynn, Malden, Saugus and others.

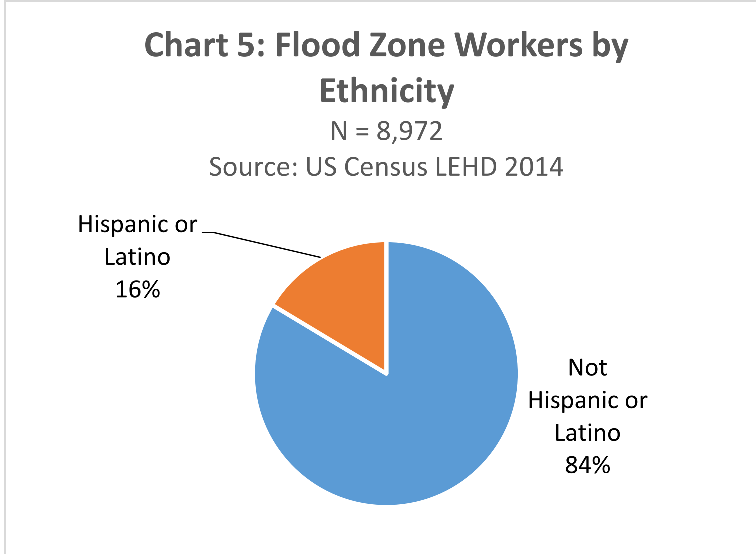


While the area does employ a number of local workers, the majority of workers in the flood zone are not from the immediate communities of Chelsea and Everett, a fact supported through anecdotal reports gleaned at two community meetings.

[8] Output is the sum of Earnings and Value Add

[9] US BEA Regional Data Trends

Further, the difference between the workforce demographics of the Island End River flood zone and that of the nearby Chelsea Everett community is quite disparate in terms of race, ethnicity, and income. The flood zone workforce is largely identified as white (85%) and not Hispanic (84%). 52% of workers make over $40k / year. In contrast, residents in the City of Chelsea identify as 68% Hispanic and 44% of households make less than $40k / year.



It is unclear as to why the hiring patterns within the Island End River flood zone don't reveal a more locally based workforce, especially given that 30% of Chelsea residents work in industrial sectors[10] and would likely have the skills needed to fill positions at the businesses in the flood zone.

On the Massachusetts Food Action Plan

The Massachusetts Local Food Action Plan was published in 2015 and adopted by the Mass Food Policy Council, a legislatively established organization in 2011 staffed by reps from various agencies as well as gubernatorial appointees. The focus of the council is largely related to increasing production and consumption of agricultural products within the state. The food plan includes a section on improving the states distribution networks with a series of objectives and goals. Many of the distribution recommendations are tied to other sections of the Food Plan that are more focused on expanding access to healthy food and increasing the amount of Massachusetts produced food, but several are focused directly on supporting the distribution sector. Goals 2, 3, and 4 are most relevant to the distribution sector individually.

Goal 2: Massachusetts-produced foods will be distributed more cost effectively.

The recommendations falling under this goal fall into the following categories: Educating consumer facing businesses on the availability of locally produced food products, Improving distribution efficiencies, consolidating spatial information regarding the wide spread distribution sector, and adjusting regulatory processes that inhibit innovation within the distribution sector.

Goal 3: Support for, and innovations in, cost-effective local food distribution will increase.

Goal 3 largely focuses on the development of investment and financing programs to support capital investment in the distribution sector. Funding for technology improvements, coop model development, and partnerships between higher ed and other stakeholders are all focus areas for this goal.

Goal 4: Technical assistance and support for distributors will respond to the diversity, differences of scale, and market forces of products produced by local producers.

The technical assistance related recommendations and actions similarly involve a focus on convening stakeholders ranging from business support service providers (public and private) to higher ed and community based organizations to build connections between these communities. This goal also puts an emphasis on the relationship between the food distribution sector and well-paying, safe jobs that provide a career ladder.

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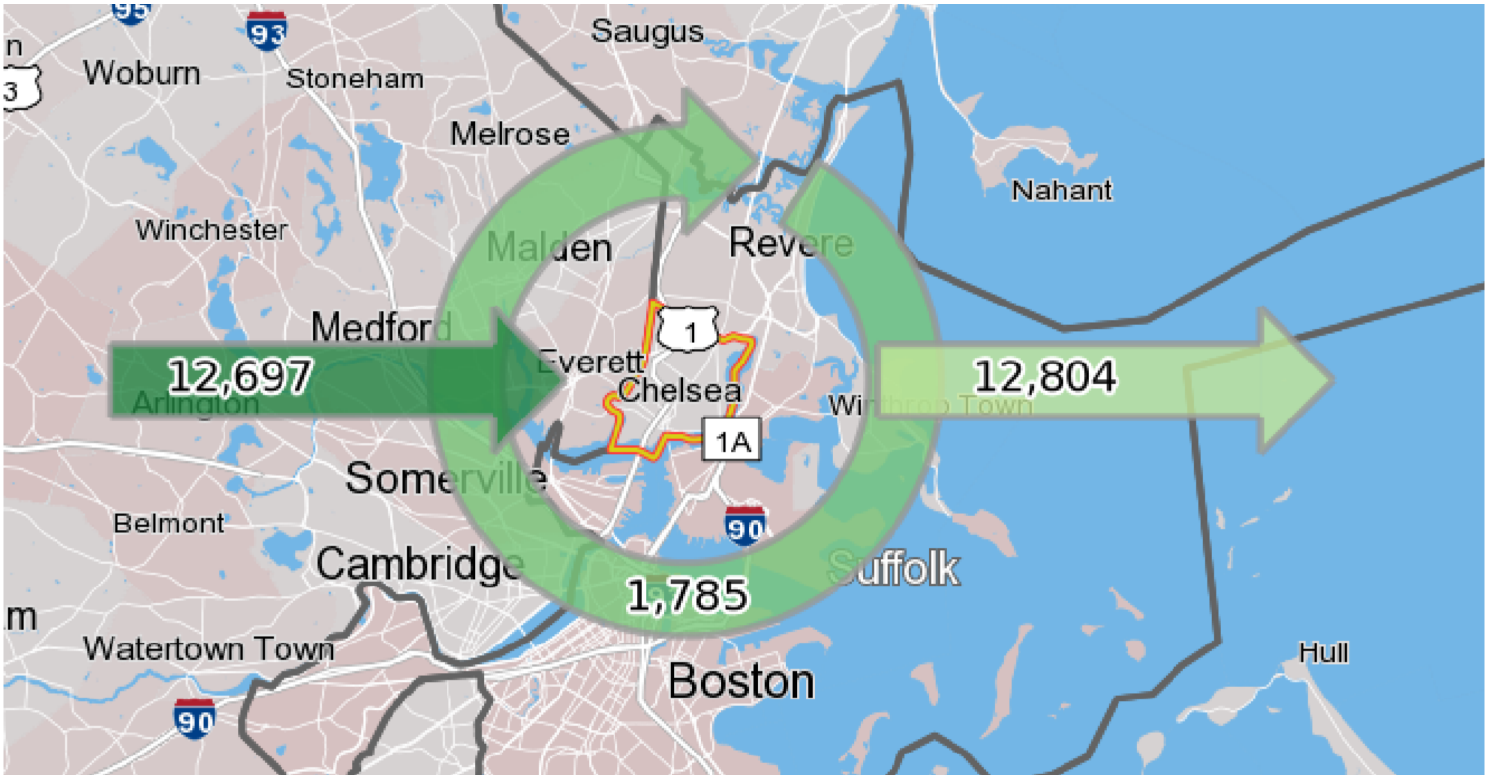
[10] US Census ACS 2015 5 Year

On Conversations with Stakeholders at the Mass Food Collaborative, Dep of Agriculture, and EOHED

While the Mass Food Plan outlines the distribution sector as an area critical to enacting the goals and vision of the Mass Food Policy Council it is one of nine focus areas. Conversations with staff at the Mass Food Collaborative indicate that the primary focus areas for many of the agencies engaged in enacting the food plan is access to healthy foods and expanding locally produced food products market reach. However, this is not to say that there is no interest in pursuing distribution strategies by state stakeholders. The department of agriculture expressed interest in advancing their knowledge of the food distribution system especially as working with the distribution sector could be a means to achieving the high priority goal of expanding local food products market reach and share. Similarly EOHED has a focus on small business assistance and development that could be applied to the distribution sector. The Seaport Economic Development fund was discussed as a potential funding source for any planning studies related to the support of the distribution sector in Chelsea. Chelsea was the recipient of a Seaport Economic Development fund project in 2015 that was used to develop a waterfront master plan by MAPC for the eastern side of the municipality.

Additional Maps and Charts



Map 2: City of Chelsea Workforce Inflow Outflow, US

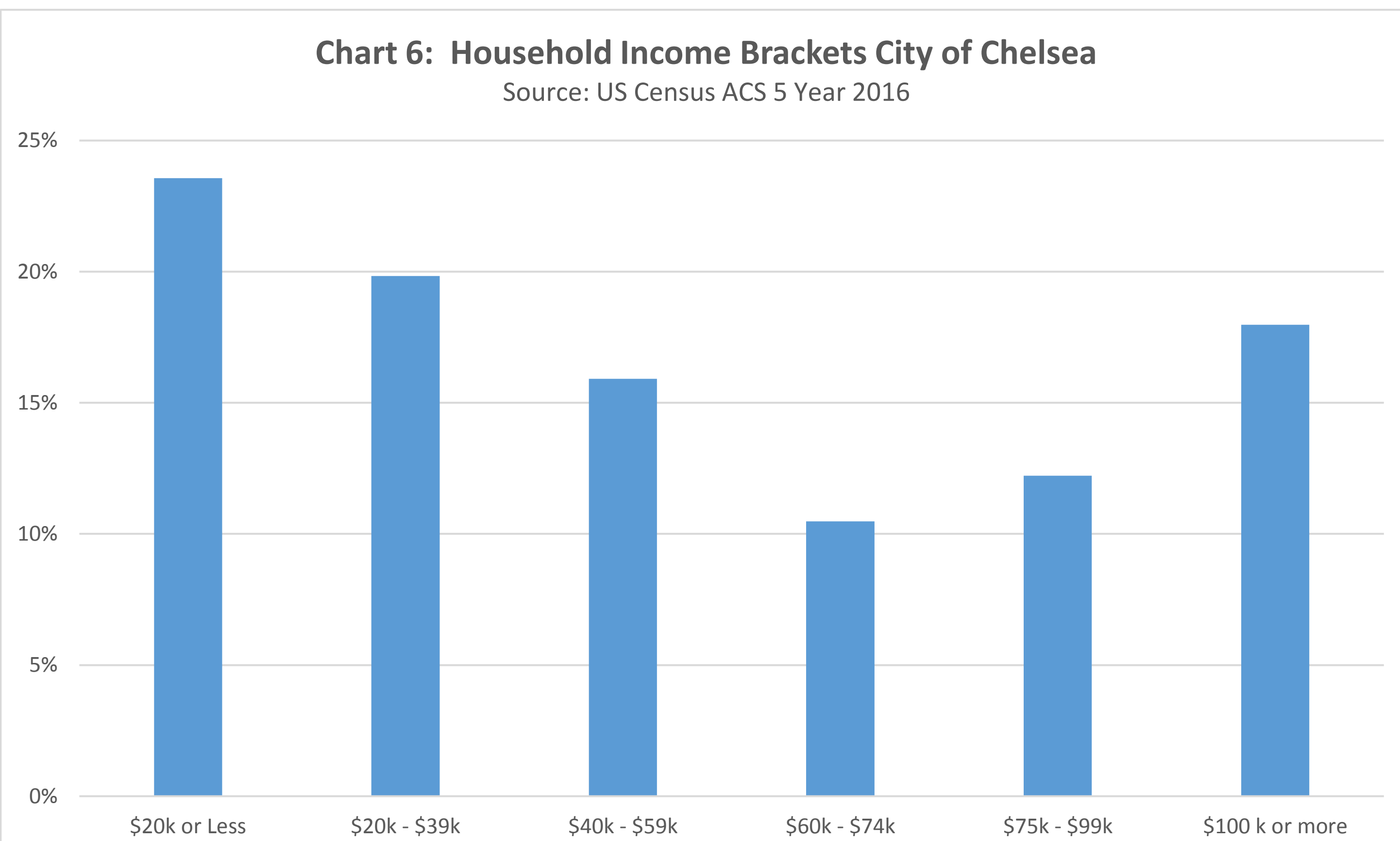


Chart 6: Household Income Brackets City of Chelsea
Source: US Census ACS 5 Year 2016

Chart 7: Flood Zone Jobs by Worker Age

N = 8,972

Source: US Census LEHD 2014

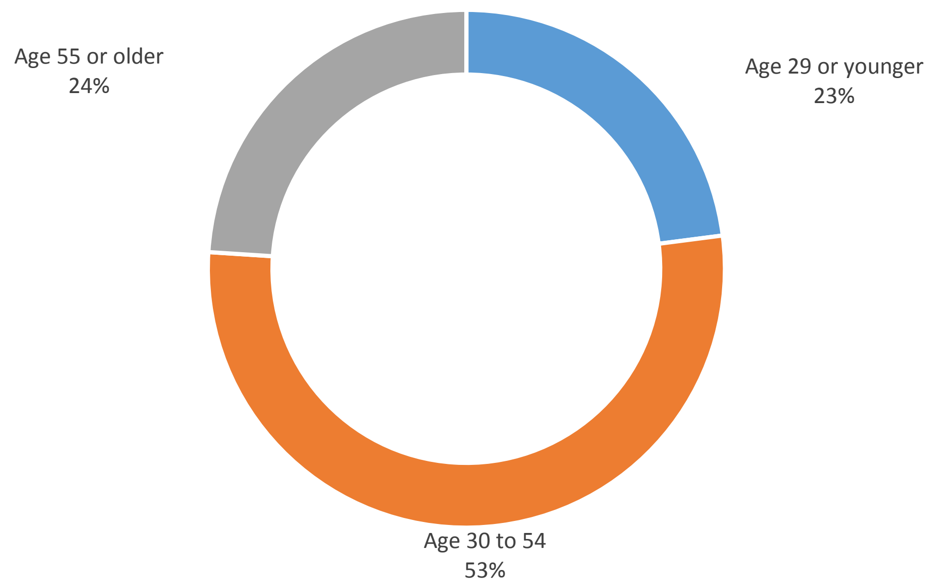
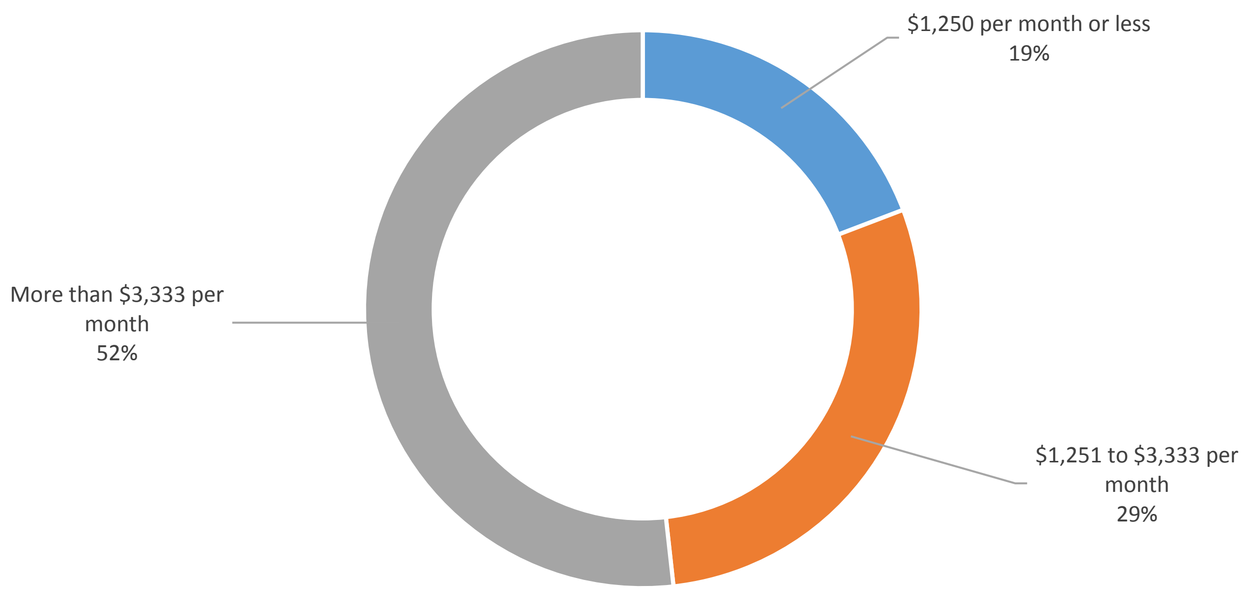
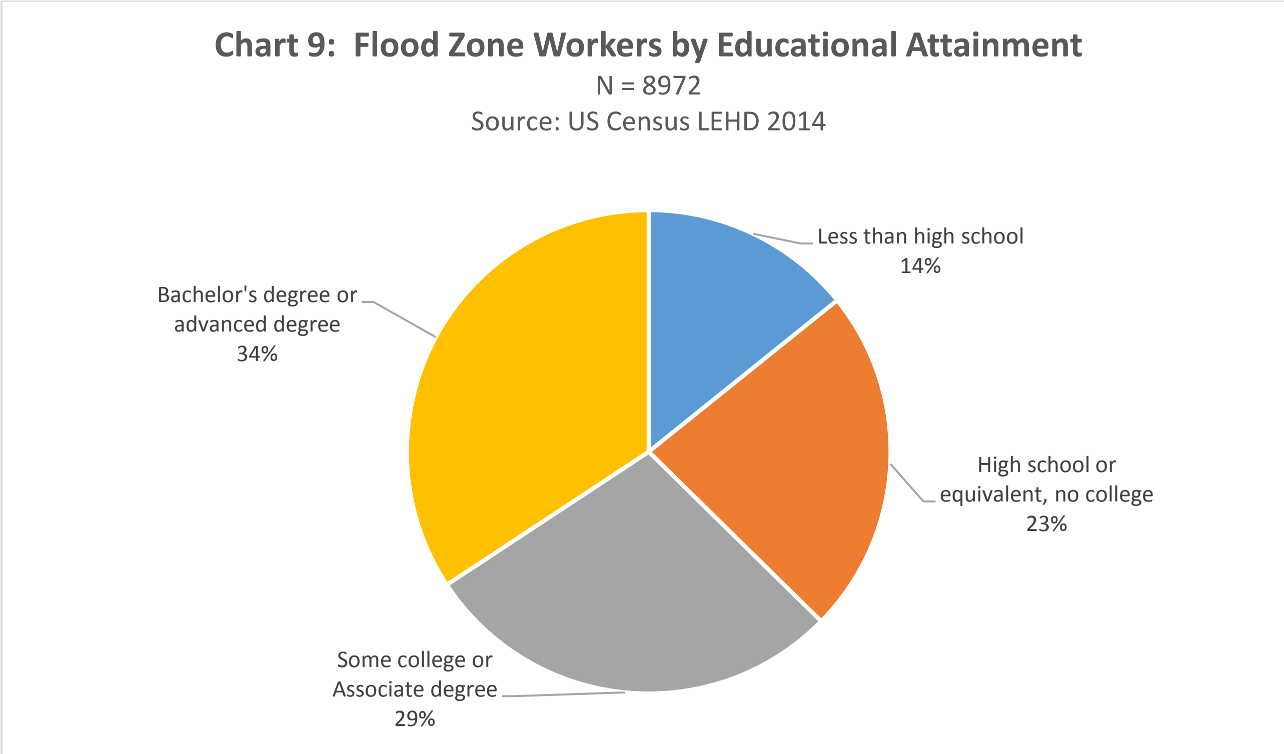


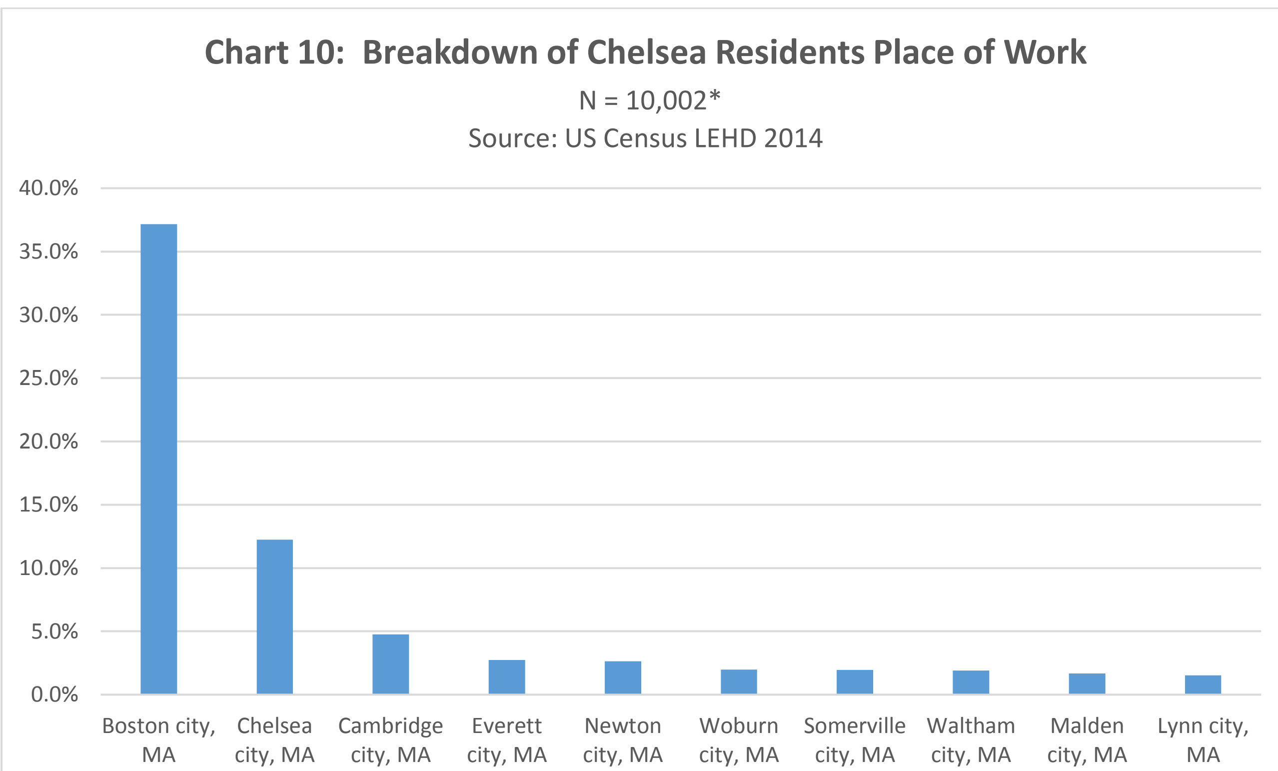
Chart 8: Flood Zone Workers by Earnings

N = 8972

Source: US Census LEHD 2014







[11]

[11] 4,587 workers live in assorted municipalities not displayed in chart

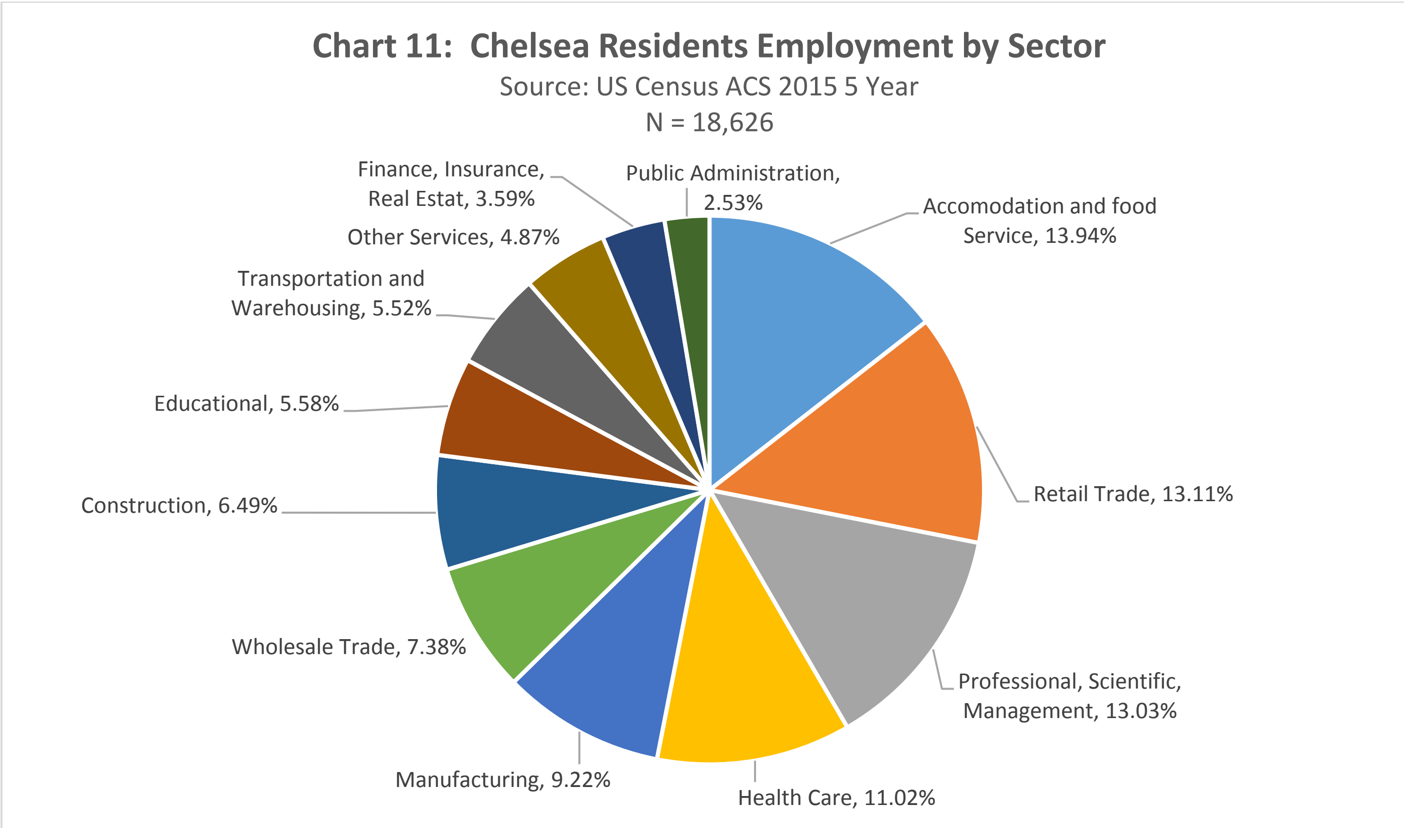


Chart 11: Chelsea Residents Employment by Sector
Source: US Census ACS 2015 5 Year
N = 18,626
Public Administration, 2.53%
Accomodation and food Service, 13.94%
Retail Trade, 13.11%
Professional, Scientific, Management, 13.03%
Health Care, 11.02%
Manufacturing, 9.22%
Wholesale Trade, 7.38%
Construction, 6.49%
Educational, 5.58%
Transportation and Warehousing, 5.52%
Other Services, 4.87%
Finance, Insurance, Real Estat, 3.59%