

Passaic County, New Jersey Comprehensive Economic Development Strategy: Attachments



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Attachments

- A – Economic Base Analysis
- B – Relevant Cluster Analysis
- C – SWOT Analysis
- D – Interview List
- E – Focus Group List and Themes
- F – Pre- and Post-Irene Impact Analysis
- G – Priority Project List
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Attachment A – Economic Base Analysis



Demographic & Economic Base Analysis

Comprehensive Economic Development Strategy

Passaic County, New Jersey

March 2015

Prepared for:
Passaic County, New Jersey



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Executive Summary

As part of the Passaic County Comprehensive Economic Development Strategy, one of the primary steps was to gather and analyze data related to historic and current demographic and economic trends. This document is intended to provide background data on the Passaic County economy and compare the county to four nearby counties (referred to in this report as “the 4 NJ counties”),¹ New Jersey as a whole, and the nation. This is one set of data that will be used to develop specific strategies for Passaic County’s economy. The following is a summary of the major findings of the analysis. The full report follows.

Demographic and Socioeconomic Profile

- Passaic County has experienced slow but steady population growth over the last decade, and growth expected to further decelerate in the coming years.
- The typical Passaic County household size is close to 3 and has a median household income of about \$54,000. Passaic County households are slightly larger and have lower incomes than their counterparts in the 4 NJ counties and New Jersey overall.
- The median Passaic County resident is 36.4 years old, several years younger than the median New Jersey resident.
- Passaic County is a minority-majority county in terms of racial composition, with non-Hispanic whites representing 44% of the population. The county has a very significant Hispanic population—39% of residents are Hispanic.
- The county is slightly behind the 4 NJ counties, New Jersey, and the U.S. in terms of educational attainment, with 83% of the population 25 years and older with at least a high school diploma. About a quarter have at least a bachelor’s degree.
- The county’s net migration rate between 2008 was –0.8 per 100 population, indicating that a slightly higher number of people moved out of the county than moved in. Young adults were the only age group to show net in-migration.
- Unemployment remains relatively high in Passaic County, recovering only slightly since the recession. The unemployment rate in 2014 was 8.3%.²

Migration and Commuter Trends

- Between 2008 and 2012, 14,426 moved in to Passaic County, while 18,393 moved out, for a net change of 3,967.
- Between 2000 and 2010 there were more out-migrants than in-migrants for most age groups in the County over this period, except for the young adult population. There was a net gain of young adults between the ages of 20 and 35.
- Passaic County has more out-commuters than in-commuters. About 95,000 people commuted into the county for work in 2011, compared to 142,000 who out-commuted. About 60,000 Passaic County residents also worked in the county.
- The county had the highest employment interchange with neighboring Bergen and Essex counties.

¹ Bergen, Essex, Hudson, and Morris counties

² 2014 unemployment rate based on preliminary data retrieved from BLS in February 2015.

Economic Base Analysis

- The economy is highly diversified with no particular industry or sector accounting for a large percentage of the employment in the County.
- The largest industry sectors in Passaic County in terms of employment were Government (16% of all jobs), Retail Trade (14%), Health Care and Social Assistance (14%), and Manufacturing (10%).
- The sectors with the highest employment concentration relative to the nation were Management of Companies and Enterprises (national location quotient of 1.58), Retail Trade (LQ of 1.35), and Manufacturing (LQ of 1.24).
- Within manufacturing, there are particularly high employment concentrations in the Leather and Allied Product Manufacturing and Textile Mills industries.
- In the last 10 years, the number of jobs in the county declined by over 4%, while the 4 NJ counties and New Jersey overall saw declines of 2.9% and 1.6%, respectively. The nation experienced growth over this period.
- Passaic County has experienced only minimal recovery since the recession, especially compared to the region, state, and nation.
- Four sectors have shrunk more than 20% in the last decade: Construction, Manufacturing, Wholesale Trade, and Finance and Insurance.
- The Administrative and Support and Health Care and Social Assistance sectors have shown the most growth in terms of jobs overall since 2004.
- Earnings in Passaic County were low compared to the 4 NJ counties and New Jersey overall, with average annual wages of about \$47,000. These wages have a low purchasing power relative to the nation overall, considering the region's high cost of living.
- Overall the Passaic County economy has underperformed relative to industry trends throughout the United States. The Shift Share analysis shows that there are a few industries that are outperforming, but, as is also the case for the 4 NJ counties and the state overall, the majority are underperforming.
- The largest occupation in Passaic County is Retail Sales and accounts for nearly 8,500 jobs in the county. Most of the large occupations in Passaic County require no more than a high school diploma.
- Between 2008 and 2013, Passaic County lost over 4,800 establishments, or 14% of all establishments in the County. A majority of this loss was in sole-proprietorships which lost over 3,500 establishments during this time.
- Between 2008 and 2013 the County lost almost 4,900 jobs. Establishments with more than 500 employees was the only group to add jobs during this period, and these very large companies grew by nearly 5,000 during this period.
- Sales fell across nearly all establishment stages between 2008 and 2013, decreasing by over \$7 billion, or 23%. This was significantly greater than the decreases experienced by the 4 NJ counties and New Jersey (both -11%) and the U.S. (-6%).

Introduction

As part of the initial research for the Passaic County CEDS, Camoin Associates gathered data to fully understand the existing conditions in the county in terms of demographics and the economic base. This information is used to inform the subsequent steps of the analysis including identifying targeted clusters, potential economic development initiatives, and opportunities for economic growth. The following report includes a socioeconomic characterization and an economic base analysis.

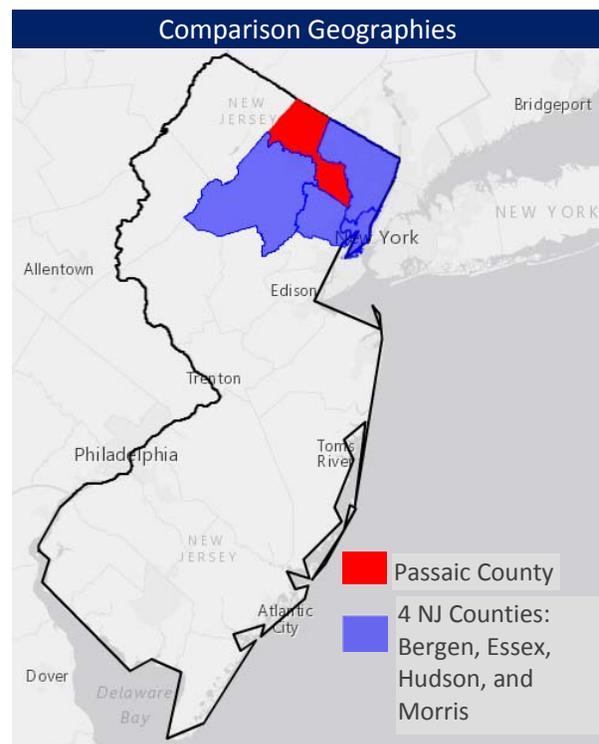
Data Sources

Much of the data in this report were purchased from ESRI Business Analyst Online (ESRI) and Economic Modeling Specialists Intl. (EMSI). ESRI's base data are the 2000 and 2010 Census. It uses proprietary statistical models and updated data from the U.S. Census Bureau, the U.S. Postal Service, and various other sources to project current statistics and future trends. ESRI data are often used for economic development, marketing, site selection, and strategic decision making. For more information, visit www.esri.com.

EMSI's data are compiled from several sources, including the U.S. Census Bureau and U.S. Departments of Health and Labor using specialized proprietary processes and models to estimate current statistics and predict future trends. Visit www.economicmodeling.com for additional information. The data used are from EMSI's "complete employment" data set, which includes both covered and uncovered jobs.³ In other words, it includes both traditional employment and non-traditional employment such as the self-employed (self-employed includes sole proprietorships and partnerships). As traditional jobs have been replaced or augmented by freelance work, consulting, and self-employment, these non-covered jobs have become much more important to the economy and EMSI provides researchers with a way to track the trends over time.

Other sources include the American Community Survey for demographic and socioeconomic data and the US Census On-the-Map data source.

In addition, the U.S. Cluster Mapping Project website was reviewed to gather additional information around areas of cluster developments, venture capital investment and size of establishments. "The U.S. Cluster Mapping Project is a national economic initiative that provides over 50 million open data records on industry clusters and regional business environments in the United States to promote economic growth and national competitiveness. The project is led by Harvard Business School's Institute for Strategy and



³ Jobs covered by unemployment insurance are tracked by the Bureau of Labor Statistics' Quarterly Census of Employment and Wages, but EMSI uses EMSI *Complete* Employment uses Bureau of Economic Analysis data (www.bea.gov/bea/regional/) as its primary benchmark. In addition to jobs covered by QCEW, BEA data attempt to count all types of paid employment.

Competitiveness in partnership with the U.S. Department of Commerce and U.S. Economic Development Administration.” (Source: www.clustermapping.us)

Geographies Studied

This data analysis was conducted to identify existing conditions and trends within industry sectors that make up the county’s economy in comparison to the regional, state, and national economies. Data was collected for four geographies: Passaic County, four nearby comparison counties, the State of New Jersey, and the United States. The comparison counties are Bergen, Essex, Hudson, and Morris and are referred to in this report as “the 4 NJ counties.”

Demographic and Socioeconomic Profile

As part of the planning process, it is important to understand the current socioeconomic conditions in the county in order to identify challenges and opportunities for future economic development initiatives. The following section highlights some important socioeconomic characteristics of Passaic County.

Basic Demographics

Passaic County’s population was approximately 506,000 in 2014. There were about 168,000 households, with an average household size of 2.95. The county’s median age was 36.4, and median household income was \$53,643.

The county has experienced slow, but steady population increase over the last decade, growing by about 12,800 people (an increase of about 2.5%) since 2004. Passaic County’s growth has been slightly slower than that of the 4 NJ counties (3.7%) and New Jersey overall (3.4%). All three of these geographies added population at a significantly lower rate than the United States overall, which has grown by 9.0% since 2014.

Passaic County 2014 Basic Demographic Profile	
Population	505,969
Households	167,977
Average Household Size	2.95
Median Age	36.4
Median Household Income	\$53,643

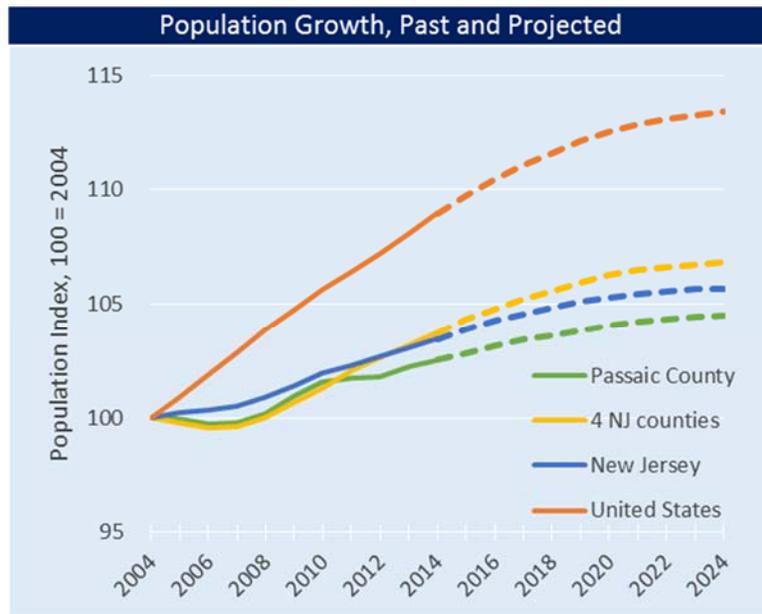
Source: ESRI

	Population Change	
	2004–2014	2014–2024 (proj.)
Passaic County	2.5%	1.9%
4 NJ counties	3.7%	3.0%
New Jersey	3.4%	2.2%
United States	9.0%	4.1%

Source: EMSI

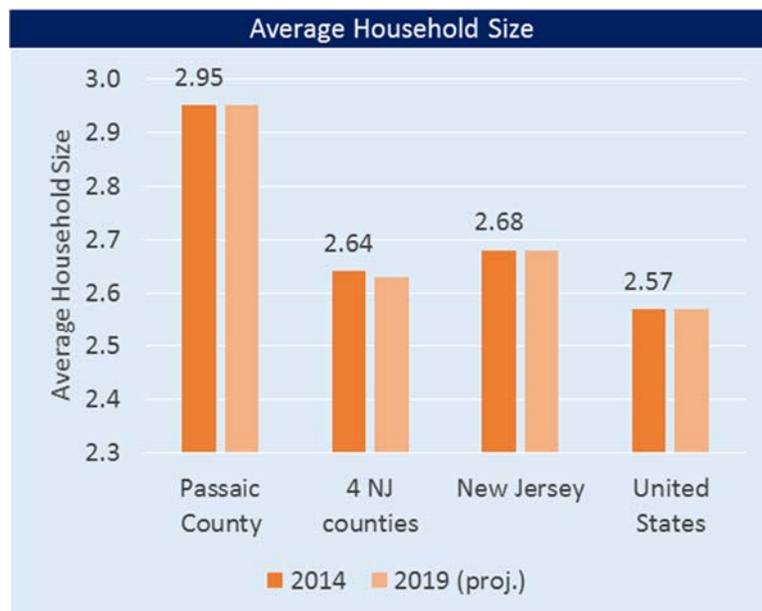
As shown in the table below, population growth across geographies is expected to taper off in the future, with Passaic County likely to gain about 9,900 people over the next ten years, which will represent a modest increase of 1.9%. The 4 NJ counties are projected to grow by 3.0% by 2024, while New Jersey will increase by 2.2%.

The chart below shows past and projected population growth for the reference geographies, indexed to their respective 2004 populations. Passaic County generally kept pace with population growth in the 4 NJ counties from 2004 until around 2010 when it began to slow.



Source: EMSI

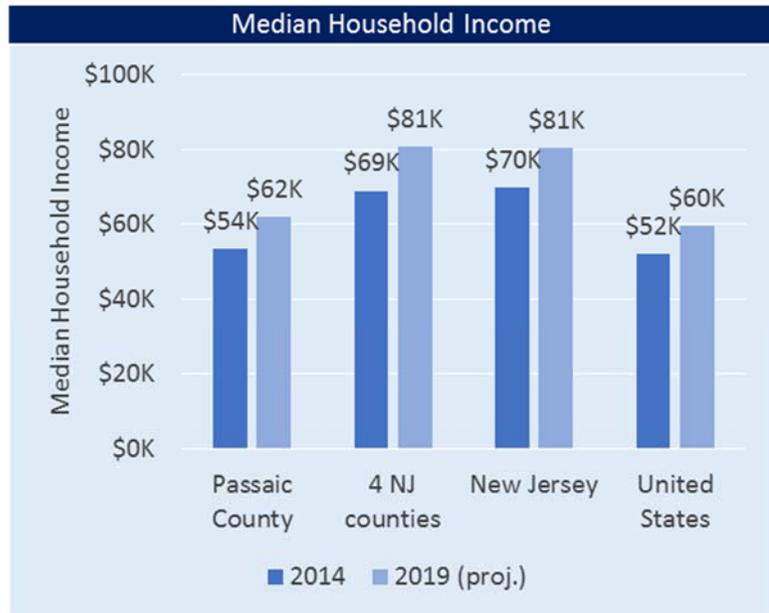
The average household size in Passaic County was 2.95, compared to 2.64 in the 4 NJ counties, 2.68 in New Jersey, and 2.57 in the U.S. overall. Average household size is projected to remain flat for all geographies in the next five years.



Source: ESRI

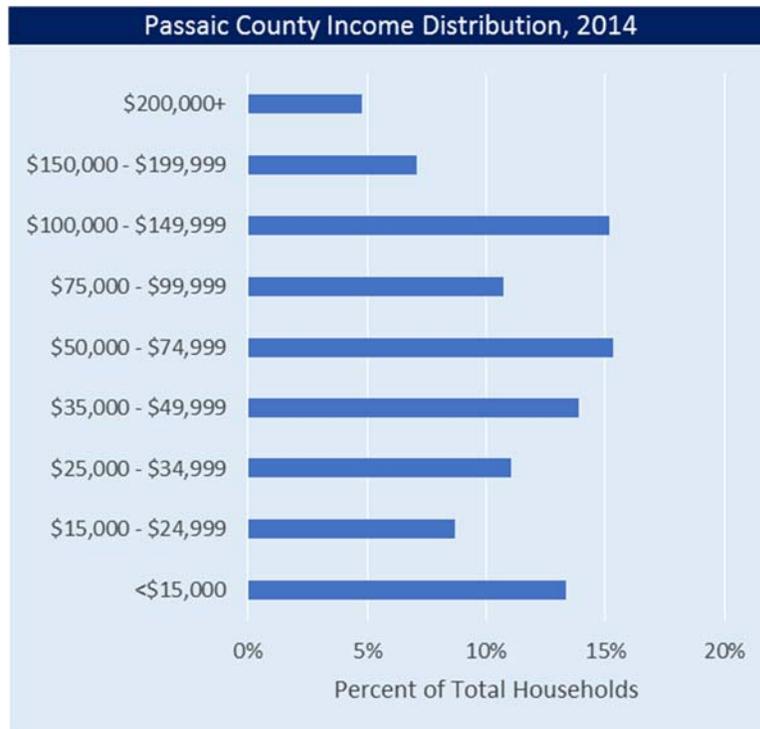
Income

Median household income in Passaic County was \$53,643 in 2014, compared to \$69,000 in the 4 NJ counties, and \$70,000 in New Jersey. Though Passaic County households had higher incomes than U.S. households overall, whose median income was about \$52,000, this does not take into account the higher costs of living associated with the New York City region.



Source: ESRI

The chart below shows income distribution in Passaic County. The largest income cohorts was the \$50,000 to \$74,999 range, which included 15% of households. Approximately 27% of households had incomes of \$100,000 and above, while 22% had incomes below \$25,000.



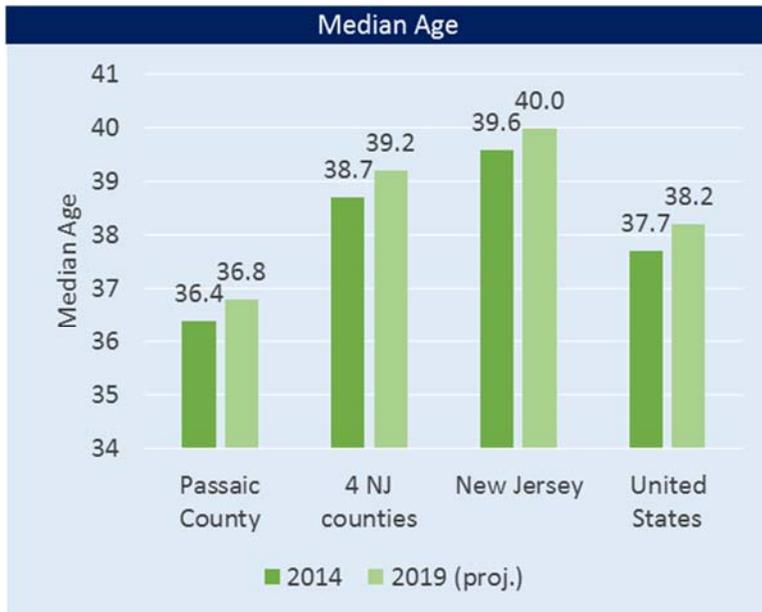
Source: ESRI

Annual Earnings

Total average annual earnings for Passaic County jobs were \$57,762. Of that amount, \$46,488 were direct wages. Average Passaic County direct wages were over \$10,000 lower than New Jersey wages, over \$16,000 less than wages for the 4 NJ counties. Passaic County wages were about equal to national wages, however, after adjusting for the region's high cost of living, these wages have a significantly lower purchasing power compared to wages nationally.



Source: EMSI



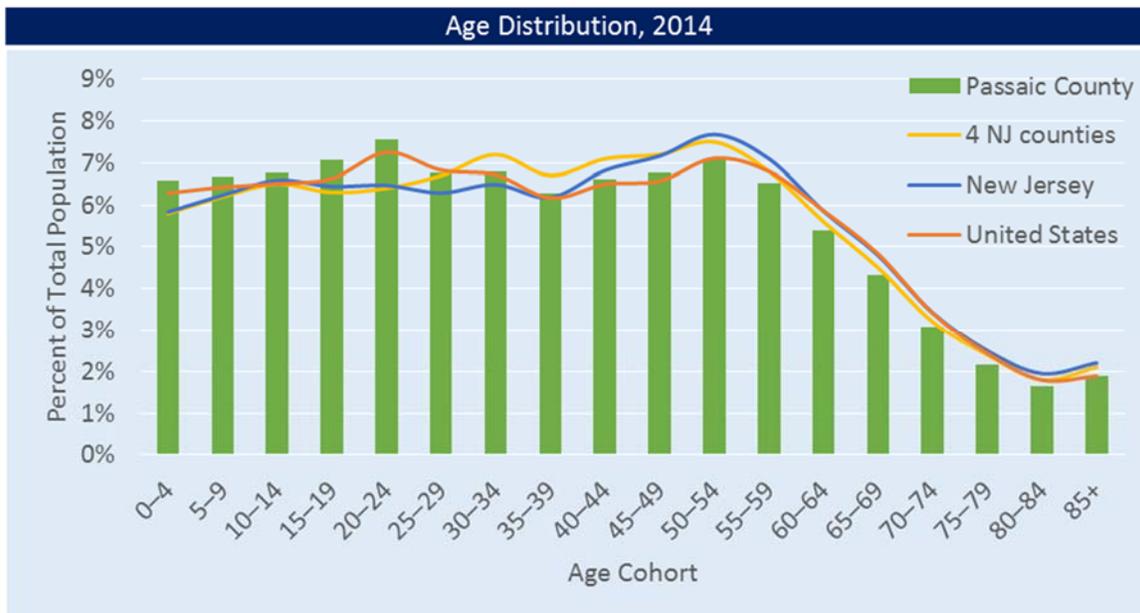
Source: ESRI

Age

Median age in Passaic County was 36.4 in 2014, lower than that of the 4 NJ counties, New Jersey, and the United States. This lower median age is a result of the presence of more children, which also contributes to county's larger average household size. New Jersey's median age was 39.6, the highest of all the comparison geographies. Median age is expected to rise across geographies by about half a year by 2019.

The chart below shows the age distribution of Passaic County's population in 2014. Compared to all three reference geographies, Passaic County had a higher share of people

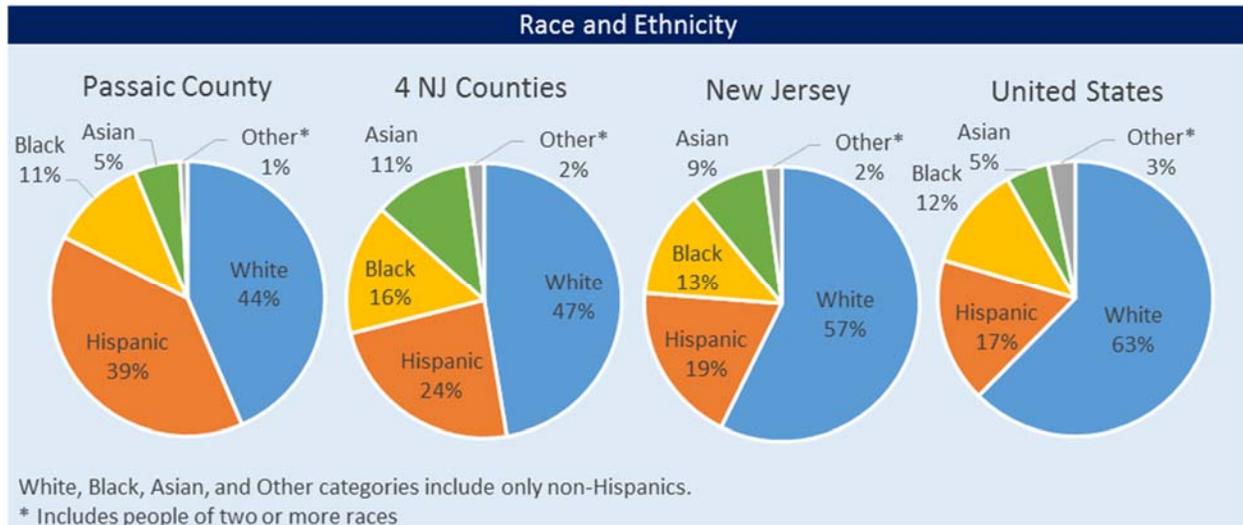
in all age cohorts under 25, and a lower share of people in all age cohorts over 54. Thirty-five percent (35%) of Passaic County residents were under 25, compared to 31% in the NJ counties, 32% in New Jersey, and 33% in the U.S. overall. One quarter (25%) of the Passaic County's population was 55 or older, versus 26% in the NJ counties, 28% in New Jersey and 27% in the U.S. The county's largest age group was the 20–24 cohort, representing over 7.5% of the population, a full percentage point higher than that of New Jersey. The county's colleges and universities are a driving factor in the relatively large presence of this age group.



Source: ESRI

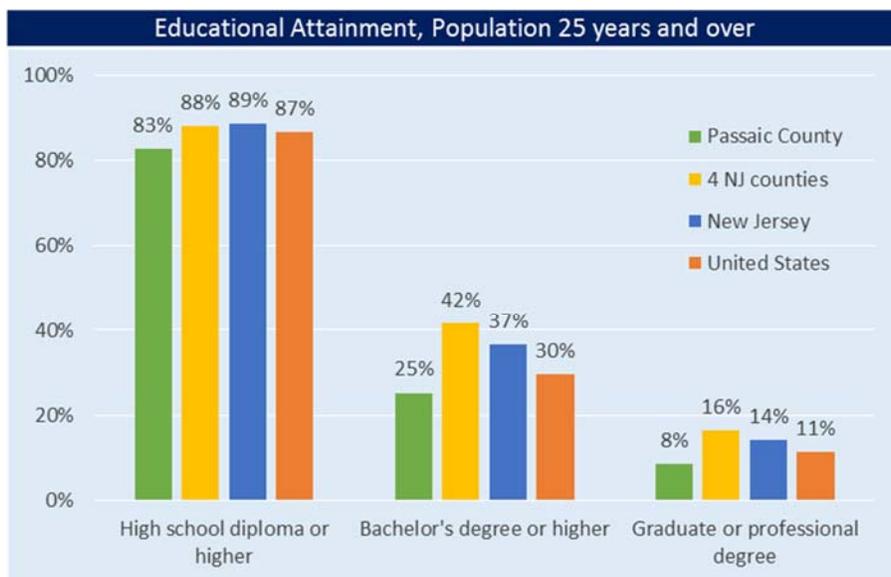
Race

Passaic County is a racially diverse county. Non-Hispanic whites are the largest segment, making of 44% of the population, closely followed by Hispanics (39%). Hispanics account for a disproportionately large share of the population, compared to New Jersey, where they represent 19% of the population, and even the 4 NJ counties, where they make up almost a quarter of the population.



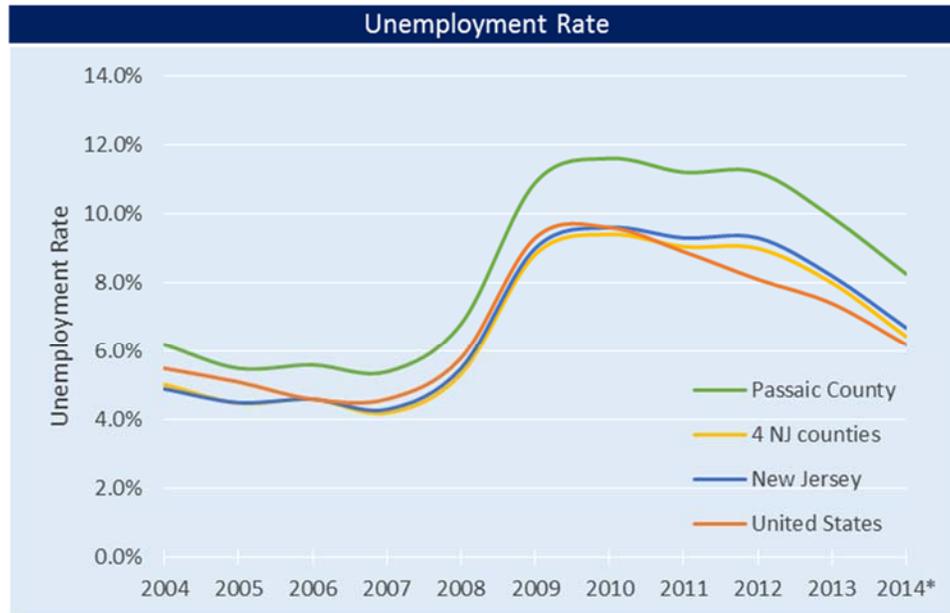
Education

Passaic County lags behind the comparison geographies in terms of educational attainment. Eighty-three (83%) of Passaic County residents 25 and older have at least a high school diploma or equivalency, compared to 88% in the 4 NJ counties, 89% in New Jersey, and 87% in the U.S. Passaic County is even further behind the other geographies when it comes to those with at least a bachelor's degree. Just 25% of residents hold such a degree, compared to 37% in both New Jersey and 42% in the 4 NJ counties. Eight percent (8%) of residents hold a graduate or professional degree, considerably less than the other geographies.



Unemployment

Passaic County's unemployment continues to be above that of the comparison geographies. At the height of the recession, the county's unemployment rate was several percentage points higher than it was for the comparison geographies, peaking at 11.6% in 2010. In recent years, unemployment has declined, and the gap between Passaic County and the other geographies has narrowed slightly. In 2014, Passaic County's annual unemployment rate was 8.3%, compared to 6.4% in the 4 NJ counties, 6.7% in New Jersey, and 7.4% nationally.⁴



*2014 unemployment rate based on preliminary data retrieved Feb. 2015

Source: BLS

⁴ Bureau of Labor Statistics. 2014 unemployment rate based on preliminary data retrieved February 2015.

Migration

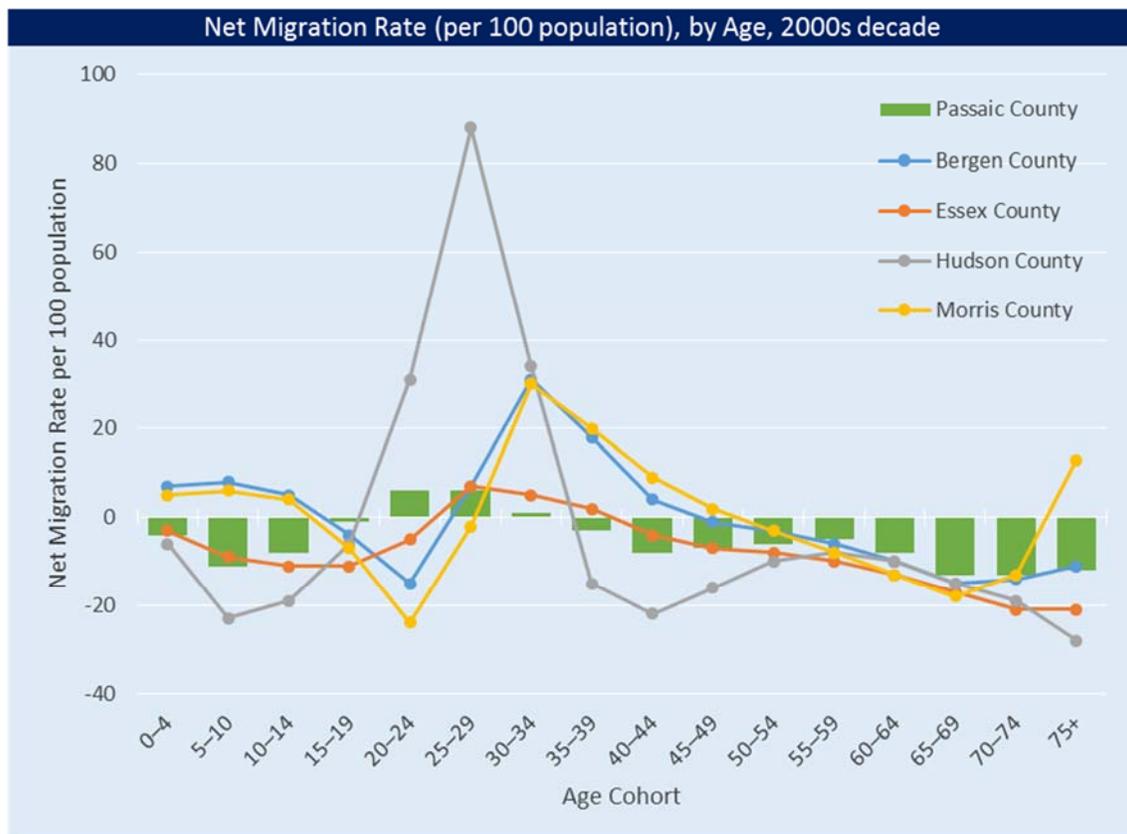
Over the period between 2008 and 2012, 14,426 moved in to Passaic County, while 18,393 moved out, for a net change of 3,967. This represents a net migration rate of 0.8 per 100 population.

The following chart shows the net migration rate by age cohort for Passaic County as well as comparison counties over the period between 2000 and 2010. There were more out-migrants than in-migrants for most age groups in the County over this period, except for the young adult population.

There was a net gain of young adults between the ages of 20 and 35. In other words, the number of young adults moving to Passaic County exceeded the number that left. Migration patterns in Essex County were similar to those in Passaic County, while the pattern in Hudson County was similar in direction, but more extreme in magnitude. Hudson County attracted an extremely high number of 20 to 34 years over this period, with 88 in-migrants per 100 population for the 25 to 29 cohort. The pattern in Bergen and Morris counties was inverted. These counties attracted young families over this period, with significant gains in the 30 to 45 age cohort, as well as those under 15. All counties generally showed out-migration for people ages 50 and up.

Passaic County Net Migration Flows, 2008–2012	
Total Population (1 year and over)	494,304
Movers from a different state	3,640
Movers from a different county, same state	8,360
Movers from abroad	2,426
Total In-Migrants	14,426
Movers to a different state	(8,375)
Movers to a different county, same state	(10,018)
Total Out-Migrants	(18,393)
Total Net Migrants	(3,967)

Source: US Census Flows Mapper



Source: Net Migration Estimates for US Counties, Applied Population Laboratory, University of Wisconsin–Madison

Commuter Trends

Passaic County is part of the New York–Jersey City–White Plains NY–NJ Metropolitan Division⁵ labor market, given its high degree of employment interchange with Bergen and Hudson counties, as well as New York City. Passaic County had more out-commuters than in-commuters in 2011. 95,438 commuted into the county for work, while 142,172 left the county. 59,608 both lived and worked in Passaic County.

Outflow

There were 201,780 primary jobs held by Passaic County residents in 2011.⁶ Thirty percent (30%) of these residents worked in the county.

Another 25% of residents commuted to Bergen County, while 11% commuted to Essex County.

The vast majority of Passaic County residents worked in New Jersey—90%. About 9% commuted into New York State.

Inflow

There were 155,046 people who worked in Passaic County in 2011. Of those, 38% were also Passaic County residents.

Sixteen percent (16%) of Passaic County workers commuted into the county from Bergen County, and 10% commuted from Essex County.

Close to 93% of workers commuted from within New Jersey, and 5% commuted from New York State.

Top 10 Counties Where Passaic County Residents Work			
County of Work	Number of Residents	Share	
Passaic County, NJ	59,608	29.5%	
Bergen County, NJ	49,854	24.7%	
Essex County, NJ	21,511	10.7%	
Morris County, NJ	17,773	8.8%	
Manhattan, NY	11,303	5.6%	
Hudson County, NJ	8,358	4.1%	
Middlesex County, NJ	6,064	3.0%	
Union County, NJ	5,209	2.6%	
Somerset County, NJ	2,535	1.3%	
Monmouth County, NJ	1,993	1.0%	

Source: LEHD OnTheMap

Top 10 Counties Where Passaic County Workers Live			
County of Residence	Number of Workers	Share	
Passaic County, NJ	59,608	38.4%	
Bergen County, NJ	24,737	16.0%	
Essex County, NJ	15,053	9.7%	
Morris County, NJ	12,509	8.1%	
Hudson County, NJ	6,090	3.9%	
Sussex County, NJ	4,506	2.9%	
Union County, NJ	4,078	2.6%	
Middlesex County, NJ	3,997	2.6%	
Monmouth County, NJ	2,691	1.7%	
Ocean County, NJ	2,090	1.3%	

Source: LEHD OnTheMap

⁵ The New York–Jersey City–White Plains NY–NJ Metropolitan Division consists of 14 of the 25 New York MSA counties. In addition to Passaic County, it includes Bergen, Hudson, Middlesex, Monmouth, and Ocean counties in New Jersey; and the five New York City boroughs and Orange, Rockland, and Westchester counties in New York.

⁶ Primary jobs data from Longitudinal Employer-Household Dynamics (LEHD) from the U.S. Census Bureau. A primary job is the highest-paying job held by a worker. Using primary jobs ensures that each worker is only counted once. 2011 is the most recent year for which data is available.

Economic Base Analysis

To analyze the economic base of the county, industry data organized by the North American Industrial Classification System (NAICS) are assessed. Camoin Associates subscribes to Economic Modeling Specialists Intl. (EMSI), a proprietary data provider that aggregates economic data from approximately 90 sources. EMSI industry data, in our experience, is more complete than most or perhaps all local data sources.⁷ Local data sources typically miss significant employment counts by industry because data on sole proprietorships and contractual employment (i.e. 1099 contractor positions) are not included and certain employment counts are suppressed from BLS/BEA figures for confidentiality reasons when too few establishments exist within a single NAICS code.

NAICS codes are maintained by the U.S. Census Bureau and are the standard used by Federal statistical agencies in classifying business establishments. 2-digit codes are the highest aggregate NAICS code level and represent broad categories such as “retail,” whereas 4-digit industry codes present a finer level of detail such as “grocery stores.”⁸

Largest Industries: 2-digit NAICS

The table on the following page highlights the 2-digit NAICS sectors with the highest employment counts in Passaic County in 2014. It compares the county’s employment distribution to that of the 4 NJ counties,⁹ New Jersey, and the United States. The highlighted rows call out the four largest sectors by employment. The following observations about employment in Passaic County can be made from this data:

- **Government** sector jobs made up the largest share of the county’s employment, with 30,355 workers accounting for 16.2% of jobs. Over 40% of government jobs were in public education.
- **Retail Trade** was the second largest sector, with 14.2% of jobs. Passaic County had a larger share of retail workers compared to the 4 NJ counties (9.9%), New Jersey (11.2%), and the U.S. (10.5%).
- **Health Care and Social Assistance** accounted for 14.1% of jobs, more than all of the comparison geographies.
- **Manufacturing** jobs made up 10.0% of the county’s economy, considerably more than in the comparison geographies. In New Jersey as a whole, manufacturing jobs represent 5.9% of employment, while in the 4 NJ counties, they are 5.8%.

⁷ Visit www.economicmodeling.com for more information.

⁸ For more information on the composition of the NAICS and detail about what is included in each industry, visit <http://www.census.gov/eos/www/naics/>.

⁹ Bergen, Essex, Hudson, and Morris counties

Top Employment Sectors, 2-digit NAICS

NAICS Code	Description	Passaic County		4 NJ counties	NJ	US
		2014 Jobs	% of All Jobs	% of All Jobs	% of All Jobs	% of All Jobs
11	Agriculture, Forestry, Fishing and Hunting	192	0.1%	0.1%	0.3%	1.2%
21	Mining, Quarrying, and Oil and Gas Extraction	126	0.1%	0.0%	0.0%	0.6%
22	Utilities	623	0.3%	0.2%	0.3%	0.4%
23	Construction	8,526	4.5%	3.2%	3.9%	5.1%
31	Manufacturing	18,671	10.0%	5.8%	5.9%	8.0%
42	Wholesale Trade	8,329	4.4%	5.7%	5.2%	3.9%
44	Retail Trade	26,553	14.2%	9.9%	11.2%	10.5%
48	Transportation and Warehousing	5,054	2.7%	5.1%	4.1%	3.2%
51	Information	1,784	1.0%	1.8%	1.8%	1.8%
52	Finance and Insurance	5,271	2.8%	6.1%	4.6%	4.0%
53	Real Estate and Rental and Leasing	2,930	1.6%	1.9%	1.6%	1.7%
54	Professional, Scientific, and Technical Services	8,321	4.4%	8.5%	7.9%	6.3%
55	Management of Companies and Enterprises	4,130	2.2%	2.3%	2.0%	1.4%
56	Administrative and Support	14,562	7.8%	6.2%	6.9%	6.3%
61	Educational Services (Private)	4,254	2.3%	2.8%	2.5%	2.5%
62	Health Care and Social Assistance	26,379	14.1%	13.4%	13.1%	12.4%
71	Arts, Entertainment, and Recreation	1,414	0.8%	1.5%	1.5%	1.7%
72	Accommodation and Food Services	10,138	5.4%	6.2%	7.1%	8.3%
81	Other Services (except Public Administration)	9,788	5.2%	4.8%	4.6%	4.8%
90	Government	30,355	16.2%	14.1%	15.1%	15.7%
99	Unclassified Industry	29	0.0%	0.3%	0.4%	0.1%
	Total	187,432	100.0%	0.0%	100.0%	100.0%

Source: EMSI

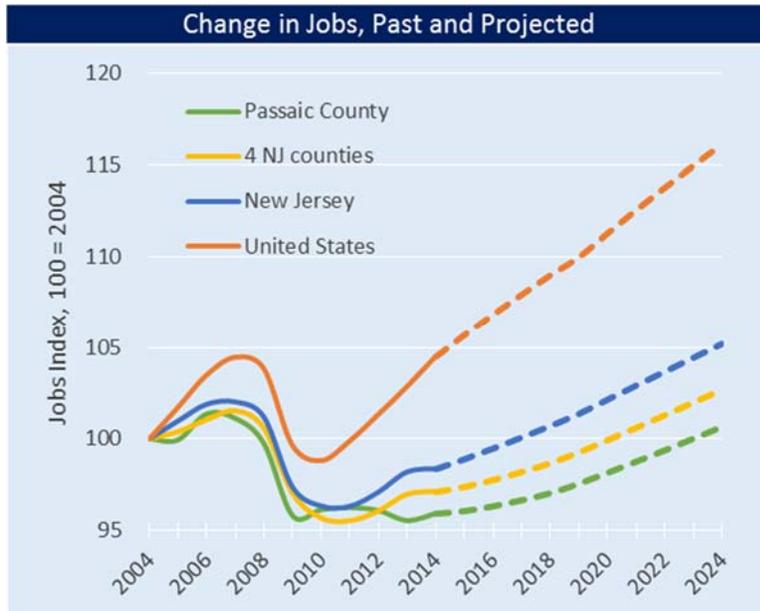
Past and Projected Employment Change

Passaic County suffered substantial job losses during the recession and Hurricane Irene and has yet to fully recover. The number of jobs in the county is down over 4% since 2004, compared to declines of 2.9% in the 4 NJ counties and 1.6% in New Jersey, and an increase of about 5% at the national level.

	Change in Jobs	
	2004–2014	2014–2024 (proj.)
Passaic County	(4.1%)	5.0%
4 NJ Counties	(2.9%)	5.7%
New Jersey	(1.6%)	6.9%
United States	4.5%	11.1%

Source: EMSI

The chart below shows past and projected job growth for the reference geographies, indexed to their respective 2004 job counts. Passaic County has generally lagged behind the reference geographies since 2004, and is projected to continue to do so in the future. After rising slightly between 2004 and 2006, the number of jobs began to slump in 2007, before the recession was felt at the national level. Employment fell precipitously through 2009, mirroring the trend in the 4 NJ counties, New Jersey, and the U.S. Job growth has oscillated in the county since 2009, rising between 2009 and 2011, and falling again through 2013. The job count in 2013 was actually the lowest it has been in the last decade.



Source: EMSI

While employment is projected to increase in the next ten years, it will do so at a slower rate relative to New Jersey and the nation. While the U.S. surpassed peak pre-recession employment in 2014, respectively, New Jersey will not reach pre-recession levels until 2020, and Passaic County is not expected to do so for at least the next ten years.

As shown in the table on the following page, twelve out of twenty sectors shrank between 2004 and 2014. The industries which have experienced the greatest declines include **Construction, Manufacturing, Wholesale Trade, and Finance and Insurance**, all of which have lost several thousand jobs and seen decreases of at least 20%.

There were some industries that grew over this period, including **Administrative and Support**, which added over 2,000 jobs and grew by 16%, as well as **Health Care and Social Assistance**, which added over 3,300 jobs and grew by 15%.

In the next decades, almost all sectors are projected to add employment, with the most notable exception being manufacturing, which will continue to shed jobs. The sector adding the most jobs will be **Health Care and Social Assistance**.

Passaic County Past and Projected Employment Change, 2-digit NAICS

NAICS Code	Description	2004 Jobs	2014 Jobs	2024 Jobs (proj.)	Change 2004–14	% Change 2004–14	Change 2014–24	% Change 2014–24
11	Agriculture, Forestry, Fishing and Hunting	95	192	245	98	103%	53	27%
21	Mining, Quarrying, and Oil and Gas Extraction	152	126	165	(26)	(17%)	38	30%
22	Utilities	655	623	778	(31)	(5%)	155	25%
23	Construction	11,940	8,526	9,417	(3,414)	(29%)	890	10%
31	Manufacturing	24,291	18,671	15,630	(5,620)	(23%)	(3,041)	(16%)
42	Wholesale Trade	10,601	8,329	8,456	(2,271)	(21%)	127	2%
44	Retail Trade	25,503	26,553	28,685	1,050	4%	2,132	8%
48	Transportation and Warehousing	5,052	5,054	5,488	1	0%	434	9%
51	Information	2,197	1,784	1,528	(412)	(19%)	(257)	(14%)
52	Finance and Insurance	6,592	5,271	5,316	(1,321)	(20%)	45	1%
53	Real Estate and Rental and Leasing	3,001	2,930	2,971	(71)	(2%)	41	1%
54	Professional, Scientific, and Technical Services	9,157	8,321	9,667	(837)	(9%)	1,347	16%
55	Management of Companies and Enterprises	4,430	4,130	4,338	(300)	(7%)	208	5%
56	Administrative and Support	12,524	14,562	16,468	2,038	16%	1,905	13%
61	Educational Services (Private)	3,489	4,254	4,927	765	22%	673	16%
62	Health Care and Social Assistance	23,025	26,379	29,346	3,355	15%	2,967	11%
71	Arts, Entertainment, and Recreation	1,674	1,414	1,433	(260)	(16%)	19	1%
72	Accommodation and Food Services	9,286	10,138	10,892	852	9%	753	7%
81	Other Services (except Public Administration)	9,419	9,788	10,860	370	4%	1,072	11%
90	Government	31,561	30,355	30,102	(1,206)	(4%)	(254)	(1%)
99	Unclassified Industry	752	29	-	(723)	(96%)	(29)	(100%)
	Total	195,396	187,432	196,711	(7,964)	(4%)	9,279	5%

Significant Growing Industry
 Significant Shrinking Industry

Source: EMSI

The table below compares the percent change in jobs across geographies. Passaic County underperformed the other geographies in most sectors, with the most important exception being **Administrative and Support**, which was a significant growth sector for the county.

Percent Change in Employment, 2004–2014, 2-digit NAICS					
NAICS Code	Description	Passaic County	4 NJ counties	NJ	US
11	Agriculture, Forestry, Fishing and Hunting	102%	(18%)	1%	(3%)
21	Mining, Quarrying, and Oil and Gas Extraction	(17%)	27%	(19%)	63%
22	Utilities	(5%)	(1%)	(9%)	(3%)
23	Construction	(29%)	(22%)	(22%)	(15%)
31	Manufacturing	(23%)	(26%)	(28%)	(15%)
42	Wholesale Trade	(21%)	(15%)	(8%)	3%
44	Retail Trade	4%	(2%)	(3%)	1%
48	Transportation and Warehousing	0%	(9%)	0%	7%
51	Information	(19%)	(38%)	(26%)	(14%)
52	Finance and Insurance	(20%)	(12%)	(10%)	(2%)
53	Real Estate and Rental and Leasing	(2%)	(10%)	(10%)	(5%)
54	Professional, Scientific, and Technical Services	(9%)	14%	10%	19%
55	Management of Companies and Enterprises	(7%)	7%	27%	26%
56	Administrative and Support	16%	(10%)	5%	11%
61	Educational Services (Private)	22%	20%	12%	23%
62	Health Care and Social Assistance	15%	16%	18%	25%
71	Arts, Entertainment, and Recreation	(16%)	34%	8%	13%
72	Accommodation and Food Services	9%	17%	6%	17%
81	Other Services (except Public Administration)	4%	6%	6%	1%
90	Government	(4%)	(1%)	(2%)	1%
99	Unclassified Industry	(96%)	(51%)	(46%)	(28%)
	Total	(4%)	(3%)	(2%)	5%

Source: EMSI

Concentrated Industries: Location Quotient Analysis

Location Quotient (LQ) analysis compares a specific geographic region to a larger reference area by quantifying how concentrated a particular industry, demographic group, or other variable is as compared to the larger geography. In this section, employment by industry in Passaic County is compared to the nation to identify which industries are more highly concentrated in the region than at the national level.

LQ is calculated by dividing the percent of jobs within each industry locally by the percent of jobs in the same industry at the national level. For example, if the finance and insurance industry accounts for 2% of jobs in a community and at the national level this industry has 1% of the total jobs, the community has a LQ of 2.0 ($0.02 \div 0.01 = 2$). In this example, the local community employs twice as many individuals in the industry as expected based on national employment patterns. Typically, only values above 1.20 or below 0.80 are considered “significant” findings in LQ analysis. Industries with a high LQ and high employment numbers are assumed to produce more than what is needed locally (i.e. a surplus) and export their products and services.

The table below shows employment by 2-digit NAICS for Passaic County, ordered by location quotient (LQ). A high location quotient indicates a higher than average concentration of jobs in a certain industry relative to the nation.

- **Management of Companies and Enterprises** was the sector with the highest concentration of jobs, with an LQ of 1.58.
- **Retail Trade** had an LQ of 1.35. Passaic County is a popular retail destination with many malls and shopping centers.
- The **Manufacturing** sector had an LQ of 1.24. Within this sector, there was an especially high concentration of Leather and Allied Product Manufacturing (LQ = 5.75) and Textile Mills (LQ = 3.92).

Passaic County Employment Concentration, 2-digit NAICS					
NAICS Code	Description	2014 Jobs	% of All Jobs	National Location Quotient	
55	Management of Companies and Enterprises	4,130	2.2%	1.58	
44	Retail Trade	26,553	14.2%	1.35	
31	Manufacturing	18,671	10.0%	1.24	
56	Administrative and Support	14,562	7.8%	1.23	
62	Health Care and Social Assistance	26,379	14.1%	1.14	
42	Wholesale Trade	8,329	4.4%	1.13	
81	Other Services (except Public Administration)	9,788	5.2%	1.10	
90	Government	30,355	16.2%	1.03	
53	Real Estate and Rental and Leasing	2,930	1.6%	0.95	
22	Utilities	623	0.3%	0.93	
61	Educational Services (Private)	4,254	2.3%	0.90	
23	Construction	8,526	4.5%	0.89	
48	Transportation and Warehousing	5,054	2.7%	0.83	
54	Professional, Scientific, and Technical Services	8,321	4.4%	0.71	
52	Finance and Insurance	5,271	2.8%	0.70	
72	Accommodation and Food Services	10,138	5.4%	0.65	
51	Information	1,784	1.0%	0.52	
71	Arts, Entertainment, and Recreation	1,414	0.8%	0.46	
21	Mining, Quarrying, and Oil and Gas Extraction	126	0.1%	0.12	
11	Agriculture, Forestry, Fishing and Hunting	192	0.1%	0.08	
	Total	187,432	100.0%		

Source: EMSI

Competitive Industries: Shift Share Analysis

Shift Share Analysis distinguishes an industry's employment growth in a specific area that is attributable to local competitive advantages or disadvantages from growth which is attributable to overall national employment trends or national employment trends in that industry.

The shift share analysis helps to answer the question of “*Why is employment growing or declining in this regional industry, cluster, or occupation?*” To do this, shift share analysis splits regional job growth into three components: the national change effect, industrial mix effect, and regional competitiveness effect. The following table shows whether Passaic County has a particular competitive advantage compared to the other geographies. A shift share analysis is based on four factors:

- **The Industrial Mix Effect** – The industrial mix effect represents the share of regional industry growth explained by the growth of the specific industry at the national level. To arrive at this number, the national growth rate of the total economy is subtracted from the national growth rate of the specific industry, and this growth percentage is applied to the regional jobs in that industry.
- **The National Growth Effect** – The national growth effect explains how much of the regional industry's growth is explained by the overall growth of the national economy: if the nation's whole economy is growing, you would generally expect to see some positive change in each industry in your local region (the proverbial “rising tide that lifts all boats” analogy).
- **The Expected Change** – This is simply the rate of growth of the particular industry at the national level. Algebraically, the expected change is the sum of the industrial mix and the national growth effects.
- **The Regional Competitive Effect** – The regional competitive effect is the most interesting of the three indicators. It explains how much of the change in a given industry is due to some unique competitive advantage that the region possesses, because the growth cannot be explained by national trends in that industry or the economy as whole. This effect is calculated by taking the total regional growth of the given industry and subtracting the national growth for that same industry. Note that this effect can be positive even as regional employment in the industry declines. This would indicate that regional decline is less than the national decline.

The primary findings of the shift share analysis for Passaic County include:

- Overall Passaic County is lagging behind in overall economic activity based how industries are performing throughout the Country. The negative competitive effect that is shown indicates that taking into account the Great Recession and other economic trends of 2004–2014 the economy in Passaic County performed poorer than would be expected.
- There are a few industries that outperformed the market including: **Retail Trade; Administrative and Support and Waste Management and Remediation Services; Other Services (except Public Administration); Agriculture, Forestry, Fishing, and Hunting; and Real Estate and Rental and Leasing.**
- Looking at Passaic County, the 4 NJ counties, and New Jersey overall, all three underperformed during 2004–2014 compared to the rest of the country and are projected to continue to underperform through 2024.

Passaic County Shift Share Analysis, 2-digit NAICS

NAICS	Description	2004 Jobs	2014 Jobs	2004–2014 Change	2004–2014 % Change	Ind. Mix Effect	Nat'l Growth Effect	Expected Change	Competitive Effect
11	Agriculture, Forestry, Fishing, and Hunting	95	192	97	102%	(7)	4	(3)	100
21	Mining, Quarrying, and Oil and Gas Extraction	152	126	(26)	(17%)	89	7	96	(122)
22	Utilities	655	623	(32)	(5%)	(49)	29	(20)	(12)
23	Construction	11,940	8,526	(3,414)	(29%)	(2,296)	538	(1,758)	(1,655)
31	Manufacturing	24,291	18,671	(5,620)	(23%)	(4,855)	1,094	(3,761)	(1,860)
42	Wholesale Trade	10,601	8,329	(2,272)	(21%)	(158)	477	319	(2,590)
44	Retail Trade	25,503	26,553	1,050	4%	(869)	1,149	280	771
48	Transportation and Warehousing	5,052	5,054	2	0%	147	228	375	(373)
51	Information	2,197	1,784	(413)	(19%)	(406)	99	(307)	(105)
52	Finance and Insurance	6,592	5,271	(1,321)	(20%)	(401)	297	(104)	(1,217)
53	Real Estate and Rental and Leasing	3,001	2,930	(71)	(2%)	(294)	135	(159)	87
54	Professional, Scientific, and Technical Services	9,157	8,321	(836)	(9%)	1,344	412	1,756	(2,593)
55	Management of Companies and Enterprises	4,430	4,130	(300)	(7%)	937	200	1,137	(1,436)
56	Administrative and Support	12,524	14,562	2,038	16%	823	564	1,387	651
61	Educational Services	3,489	4,254	765	22%	636	157	793	(28)
62	Health Care and Social Assistance	23,025	26,379	3,354	15%	4,800	1,037	5,837	(2,482)
71	Arts, Entertainment, and Recreation	1,674	1,414	(260)	(16%)	136	75	211	(471)
72	Accommodation and Food Services	9,286	10,138	852	9%	1,172	418	1,590	(738)
81	Other Services (except Public Administration)	9,419	9,788	369	4%	(362)	424	62	307
90	Government	31,561	30,355	(1,206)	(4%)	(981)	1,421	440	(1,646)
99	Unclassified Industry	752	29	(723)	(96%)	(247)	34	(213)	(509)
	Total	195,396	187,432	(7,964)	(4%)	(843)	8,800	7,957	(15,921)

Source: EMSI - 2014.3 – QCEW Employees, Non-QCEW Employees, and Self-Employed

Competitive Effect Comparison , 2-digit NAICS

NAICS	Description	Passaic County		4 NJ counties		New Jersey	
		2004–2014	2014–2024	2004–2014	2014–2024	2004–2014	2014–2024
11	Agriculture, Forestry, Fishing, and Hunting	100	58	(156)	(76)	567	(180)
21	Mining, Quarrying, and Oil and Gas Extraction	(122)	12	(46)	20	(1,356)	30
22	Utilities	(12)	155	65	396	(832)	1,042
23	Construction	(1,655)	(155)	(4,247)	2,213	(16,438)	5,883
31	Manufacturing	(1,860)	(3,144)	(11,772)	(9,252)	(43,169)	(25,666)
42	Wholesale Trade	(2,590)	(775)	(17,145)	(6,225)	(25,217)	(6,625)
44	Retail Trade	771	22	(4,589)	(4,274)	(18,280)	(8,547)
48	Transportation and Warehousing	(373)	(123)	(13,001)	(3,965)	(11,928)	(2,981)
51	Information	(105)	(324)	(9,786)	(4,339)	(11,852)	(8,725)
52	Finance and Insurance	(1,217)	(439)	(9,696)	(2,799)	(18,746)	(8,334)
53	Real Estate and Rental and Leasing	87	(123)	(1,385)	(416)	(3,164)	121
54	Professional, Scientific, and Technical Services	(2,593)	(313)	(5,621)	(6,783)	(27,364)	(13,530)
55	Management of Companies and Enterprises	(1,436)	(158)	(5,594)	(1,177)	695	(678)
56	Administrative and Support	651	(670)	(20,538)	(9,513)	(15,787)	(6,621)
61	Educational Services	(28)	(165)	(977)	(3,714)	(9,805)	(12,576)
62	Health Care and Social Assistance	(2,482)	(2,901)	(15,742)	(12,653)	(35,721)	(35,537)
71	Arts, Entertainment, and Recreation	(471)	(156)	3,469	(1,079)	(2,599)	(3,741)
72	Accommodation and Food Services	(738)	(470)	213	(2,473)	(30,084)	(14,861)
81	Other Services (except Public Administration)	307	81	3,668	1	10,302	2,383
90	Government	(1,646)	(1,858)	(5,633)	(15,887)	(24,945)	(45,564)
99	Unclassified Industry	(509)	(22)	(1,767)	(2,391)	(4,869)	(9,844)
	Total	(15,921)	(11,468)	(120,281)	(84,385)	(290,592)	(194,550)

Source: EMSI - 2014.3 – QCEW Employees, Non-QCEW Employees, and Self-Employed

Top Industries: 4-digit NAICS

The following table shows the top 30 4-digit NAICS industries in Passaic County by job count. Highlighted industries have location quotients greater than 2.00.

Top 30 Industries by Job Count, 4-digit NAICS							
NAICS	Description	2004 Jobs	2014 Jobs	2004–2014 Change	2004–2014 % Change	National LQ	Average Wages
9036	Education and Hospitals (Local Government)	13,625	15,361	1,736	13%	1.48	\$57,730
7225	Restaurants and Other Eating Places	7,390	8,231	841	11%	0.69	\$16,919
9039	Local Government, Excluding Education and Hospitals	9,075	7,928	(1,147)	(13%)	1.17	\$62,864
5613	Employment Services	5,566	7,321	1,755	32%	1.67	\$16,891
6221	General Medical and Surgical Hospitals	7,360	6,022	(1,338)	(18%)	1.11	\$61,458
4451	Grocery Stores	4,043	5,786	1,743	43%	1.76	\$23,558
5511	Management of Companies and Enterprises	4,430	4,130	(300)	(7%)	1.58	\$121,811
6211	Offices of Physicians	3,209	3,677	468	15%	1.17	\$71,098
6231	Nursing Care Facilities (Skilled Nursing Facilities)	2,310	3,227	917	40%	1.59	\$37,604
5617	Services to Buildings and Dwellings	2,545	3,194	649	26%	0.98	\$25,192
4481	Clothing Stores	3,217	3,080	(137)	(4%)	2.29	\$18,699
9026	Education and Hospitals (State Government)	3,499	2,861	(638)	(18%)	0.79	\$49,236
6244	Child Day Care Services	2,624	2,817	193	7%	1.86	\$20,123
4521	Department Stores	2,710	2,770	60	2%	1.68	\$19,721
2382	Building Equipment Contractors	3,274	2,734	(540)	(16%)	1.09	\$60,214
4461	Health and Personal Care Stores	1,699	2,642	943	56%	2.08	\$29,365
8131	Religious Organizations	2,667	2,307	(360)	(13%)	1.12	\$26,752
6241	Individual and Family Services	1,277	2,302	1,025	80%	0.88	\$25,532
9029	State Government, Excluding Education and Hospitals	3,014	2,126	(888)	(29%)	0.76	\$66,260
5221	Depository Credit Intermediation	3,163	2,108	(1,055)	(33%)	1.01	\$54,415
6111	Elementary and Secondary Schools	2,055	2,036	(19)	(1%)	1.64	\$33,661
4411	Automobile Dealers	1,582	1,836	254	16%	1.23	\$58,716
3231	Printing and Related Support Activities	1,996	1,741	(255)	(13%)	3.07	\$51,354
8121	Personal Care Services	1,523	1,685	162	11%	1.15	\$18,932
8111	Automotive Repair and Maintenance	1,632	1,676	44	3%	1.27	\$30,623
2361	Residential Building Construction	1,650	1,644	(6)	(0%)	1.24	\$35,373
5413	Architectural, Engineering, and Related Services	1,158	1,637	479	41%	0.90	\$79,128
5242	Agencies, Brokerages, and Other Insurance Related Activities	1,563	1,560	(3)	(0%)	0.97	\$79,614
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2,251	1,550	(701)	(31%)	3.26	\$99,656
4441	Building Material and Supplies Dealers	1,536	1,463	(73)	(5%)	1.08	\$34,947

Source: EMSI

The following table shows the top 30 4-digit NAICS industries in Passaic County by location quotient. Highlighted industries had at least 1,000 jobs in 2014.

Top 30 Industries by Location Quotient, 4-digit NAICS							
NAICS	Description	2004 Jobs	2014 Jobs	2004–2014 Change	2004–2014 % Change	National LQ	Average Wages
4852	Interurban and Rural Bus Transportation	45	286	241	536%	12.48	\$20,614
3133	Textile and Fabric Finishing and Fabric Coating Mills	919	494	(425)	(46%)	11.81	\$50,433
3162	Footwear Manufacturing	63	149	86	137%	8.93	\$53,453
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	1,455	716	(739)	(51%)	5.47	\$60,396
3161	Leather and Hide Tanning and Finishing	75	25	(50)	(67%)	4.84	\$90,906
3379	Other Furniture Related Product Manufacturing	327	187	(140)	(43%)	4.23	\$39,250
3314	Nonferrous Metal (except Aluminum) Production and Processing	150	313	163	109%	4.04	\$61,445
4854	School and Employee Bus Transportation	732	920	188	26%	3.99	\$16,120
4246	Chemical and Allied Products Merchant Wholesalers	470	622	152	32%	3.88	\$83,390
3118	Bakeries and Tortilla Manufacturing	1,331	1,391	60	5%	3.73	\$39,364
4859	Other Transit and Ground Passenger Transportation	290	416	126	43%	3.46	\$30,446
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2,251	1,550	(701)	(31%)	3.26	\$99,656
8123	Drycleaning and Laundry Services	881	1,193	312	35%	3.08	\$25,914
3231	Printing and Related Support Activities	1,996	1,741	(255)	(13%)	3.07	\$51,354
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	611	511	(100)	(16%)	2.76	\$51,376
3391	Medical Equipment and Supplies Manufacturing	329	1,059	730	222%	2.71	\$67,802
4453	Beer, Wine, and Liquor Stores	613	519	(94)	(15%)	2.65	\$20,136
3159	Apparel Accessories and Other Apparel Manufacturing	<10	38	--	--	2.62	\$25,177
3222	Converted Paper Product Manufacturing	989	852	(137)	(14%)	2.57	\$56,667
5629	Remediation and Other Waste Management Services	398	430	32	8%	2.53	\$57,418
3141	Textile Furnishings Mills	311	155	(156)	(50%)	2.50	\$41,865
3241	Petroleum and Coal Products Manufacturing	199	347	148	74%	2.49	\$157,778
3169	Other Leather and Allied Product Manufacturing	31	36	5	16%	2.47	\$32,104
5174	Satellite Telecommunications	<10	27	--	--	2.36	\$70,350
3312	Steel Product Manufacturing from Purchased Steel	146	172	26	18%	2.34	\$58,121
3149	Other Textile Product Mills	207	189	(18)	(9%)	2.33	\$31,785
4481	Clothing Stores	3,217	3,080	(137)	(4%)	2.29	\$18,699
4232	Furniture and Home Furnishing Merchant Wholesalers	417	286	(131)	(31%)	2.21	\$48,834
4461	Health and Personal Care Stores	1,699	2,642	943	56%	2.08	\$29,365
5619	Other Support Services	1,545	783	(762)	(49%)	2.07	\$33,740

Source: EMSI

Occupation Analysis

In addition to looking at employment by industry, Camoin Associates analyzed employment by occupation for all jobs located in Passaic County. Occupations refer not to the product or service being provided, but by the defined set of tasks of the employee in question. Occupations are classified using the Standard Occupational Classification (SOC) system. This is the system used by Federal statistical agencies to classify workers into one of 840 occupational categories. For more detail on occupations and the “Standard Occupational Classification” system (SOC), we refer the reader to <http://www.bls.gov/soc/>.

All occupation data for this report was collected from EMSI Complete Employment.

Occupational data is helpful in evaluating how the skills, education, and certifications of a particular community’s residents match up with the area’s occupational needs of the future. The report identifies the top occupations and fastest-growing occupations within each community.

The following tables contain the results of the occupation analysis including employment in occupations at the 2-digit level and the top 25 largest occupations at the 5-digit level.

From the occupation analysis, we find the following:

- The largest percent of employees in Passaic County fall into **Sales and Related Occupations** (12%) or **Office and Administrative Support Occupations** (16%).
- The third largest occupation is **Education, Training and Library Occupations** which account for 17,676 jobs, or 8% of all employees in Passaic County.
- The top five largest industries in Passaic County include **Retail Salespersons; Cashiers; Office Clerks, General; Laborers and Freight, Stock, and Material Movers, Hand; Stock Clerks and Order Fillers**. These occupations all pay less than \$30,000 per year on average.
- Only 8 of the top 30 largest occupations require more than a high school degree.
- The occupation with the most annual openings (available jobs) is **Retail Salesperson**.

Largest Occupations in Passaic County, 2-digit SOC			
SOC	Description	2014 Occupations	% of All Jobs
11-0000	Management Occupations	9,769	5%
13-0000	Business and Financial Operations Occupations	8,539	5%
15-0000	Computer and Mathematical Occupations	3,966	2%
17-0000	Architecture and Engineering Occupations	2,477	1%
19-0000	Life, Physical, and Social Science Occupations	1,162	1%
21-0000	Community and Social Service Occupations	3,651	2%
23-0000	Legal Occupations	1,070	1%
25-0000	Education, Training, and Library Occupations	16,902	9%
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	2,506	1%
29-0000	Healthcare Practitioners and Technical Occupations	9,339	5%
31-0000	Healthcare Support Occupations	6,785	4%
33-0000	Protective Service Occupations	4,305	2%
35-0000	Food Preparation and Serving Related Occupations	11,193	6%
37-0000	Building and Grounds Cleaning and Maintenance Occupations	5,909	3%
39-0000	Personal Care and Service Occupations	6,025	3%
41-0000	Sales and Related Occupations	22,895	12%
43-0000	Office and Administrative Support Occupations	29,391	16%
45-0000	Farming, Fishing, and Forestry Occupations	167	0%
47-0000	Construction and Extraction Occupations	6,671	4%
49-0000	Installation, Maintenance, and Repair Occupations	6,543	3%
51-0000	Production Occupations	13,534	7%
53-0000	Transportation and Material Moving Occupations	13,626	7%
55-0000	Military occupations	1,006	1%
99-0000	Unclassified Occupation	0	0%

Source: EMSI 2014.3 – QCEW Employees, Non-QCEW Employees, and Self-Employed

Top 30 Occupations in Passaic County, 5-digit SOC

SOC	Description	2014 Occupations	2004–2014 % Change	2013 Avg. Annual Earnings	Annual Openings	Typical Entry Level Education
41-2031	Retail Salespersons	8,465	(3%)	\$24,393	412	Less than high school
41-2011	Cashiers	5,034	9%	\$19,347	260	Less than high school
43-9061	Office Clerks, General	3,922	(10%)	\$28,063	121	High school diploma
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	3,569	(4%)	\$29,044	190	Less than high school
43-5081	Stock Clerks and Order Fillers	3,305	0%	\$22,383	125	Less than high school
25-9041	Teacher Assistants	2,990	8%	\$29,153	108	Some college, no degree
29-1141	Registered Nurses	2,933	(4%)	\$81,350	71	Associate's degree
25-2021	Elementary School Teachers, Except Special Education	2,902	11%	\$72,612	104	Bachelor's degree
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2,900	(6%)	\$35,990	59	High school diploma
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,880	6%	\$31,302	108	Less than high school
31-1014	Nursing Assistants	2,541	19%	\$31,538	100	Postsecondary non-degree award
43-4051	Customer Service Representatives	2,488	(9%)	\$36,605	85	High school diploma
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2,328	(12%)	\$39,587	30	High school diploma
43-4171	Receptionists and Information Clerks	2,237	8%	\$27,941	92	High school diploma
25-1099	Postsecondary Teachers	2,206	15%	\$91,079	74	Doctoral or professional degree
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	2,116	(3%)	\$17,880	115	Less than high school
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,104	(22%)	\$70,096	59	High school diploma
39-9011	Childcare Workers	2,097	11%	\$18,485	109	High school diploma
41-1011	First-Line Supervisors of Retail Sales Workers	2,063	(3%)	\$41,454	71	High school diploma
11-1021	General and Operations Managers	2,015	(12%)	\$138,425	44	Bachelor's degree
35-3031	Waiters and Waitresses	1,962	24%	\$21,303	129	Less than high school
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	1,924	5%	\$76,782	76	Bachelor's degree
43-1011	First-Line Supervisors of Office and Administrative Support Workers	1,812	(8%)	\$59,816	49	High school diploma
13-1199	Business Operations Specialists, All Other	1,719	(8%)	\$69,582	38	High school diploma
53-7064	Packers and Packagers, Hand	1,689	4%	\$20,454	75	Less than high school
31-1011	Home Health Aides	1,654	37%	\$20,471	107	Less than high school
13-2011	Accountants and Auditors	1,516	(23%)	\$78,766	64	Bachelor's degree
53-3032	Heavy and Tractor-Trailer Truck Drivers	1,506	(30%)	\$38,654	40	Postsecondary non-degree award
49-9071	Maintenance and Repair Workers, General	1,490	(7%)	\$38,096	40	High school diploma
37-3011	Landscaping and Groundskeeping Workers	1,348	22%	\$29,221	72	Less than high school

*Average annual wage calculated by multiplying average hourly earnings by 2,000 hrs.

Source: EMSI 2014.3 – QCEW Employees, Non-QCEW Employees, and Self-Employed

Establishments by Stage

The following tables show change in the number establishments, jobs, and sales in Passaic County over the five-year period between 2008 and 2013. Tables are subdivided into the five business stages based on employment size:

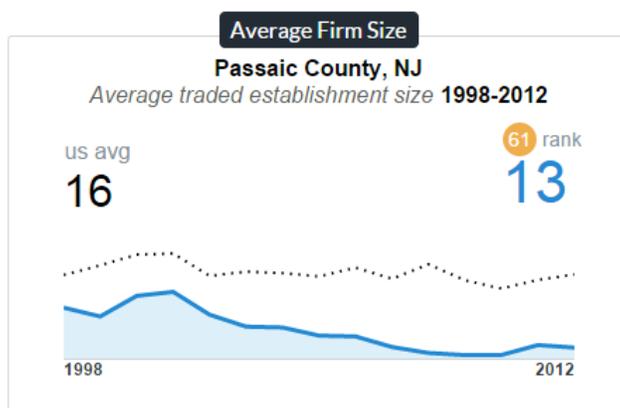
- Self-employed – 1 employee
- Stage 1 – 2 to 9 employees
- Stage 2 – 10 to 99 employees
- Stage 3 – 100 to 499 employees
- Stage 4 – 500 or more employees

Passaic County lost establishments across all stages between 2008 and 2013, accounting for a 14% decrease in the number of establishments. The number of sole proprietorships contracted by almost a third over this period, a net loss of 3,537 businesses. This mirrored the trend at the state and national levels. Stage 1 establishments also closed their doors over this period, with the number of establishments shrinking by 6%. This compares to a loss of 1% in New Jersey and an increase of 3% nationally.

Change in Establishments by Stage							
Stage of Establishment (# of jobs)	Passaic County				4 NJ counties	NJ	US
	2008	2013	Change 2008–13	% Change 2008–13	% Change 2008–13	% Change 2008–13	% Change 2008–13
Self employed (1)	10,945	7,408	(3,537)	(32%)	(29%)	(28%)	(34%)
Stage 1 (2-9)	19,946	18,681	(1,265)	(6%)	(4%)	(1%)	3%
Stage 2 (10-99)	3,740	3,703	(37)	(1%)	(2%)	1%	4%
Stage 3 (100-499)	322	305	(17)	(5%)	(4%)	0%	7%
Stage 4 (500+)	37	32	(5)	(14%)	2%	2%	4%
Total	34,990	30,129	(4,861)	(14%)	(11%)	(9%)	(10%)

Source: YourEconomy.org

The average traded firm size in Passaic County based on information gathered from the U.S. Cluster Mapping project is 13, compared to an average of 16 employees for the rest of the United States. (Source: US Cluster Mapping Project).



Passaic County shed almost 4,900 jobs between 2008 and 2013, a decrease of 2%. Stage 3 establishments and sole proprietorships saw the largest decrease in absolute terms, both categories losing over 3,500 jobs. The largest establishments—those with over 500 employees—were the only group to add jobs. Employment in this category grew by almost 5,000 jobs, an increase of 12%, significantly higher than New Jersey (+6%) and even the U.S. (+9%).

Change in Jobs, by Stage of Establishment							
Stage of Establishment (# of jobs)	Passaic County				4 NJ counties	NJ	US
	2008	2013	Change 2008–13	% Change 2008–13	% Change 2008–13	% Change 2008–13	% Change 2008–13
Self employed (1)	10,945	7,408	(3,537)	(32%)	(29%)	(28%)	(34%)
Stage 1 (2-9)	62,455	59,514	(2,941)	(5%)	(3%)	(0%)	3%
Stage 2 (10-99)	93,174	93,531	357	0%	(1%)	2%	5%
Stage 3 (100-499)	55,071	51,367	(3,704)	(7%)	(3%)	1%	7%
Stage 4 (500+)	40,658	45,589	4,931	12%	5%	6%	9%
Total	262,303	257,409	(4,894)	(2%)	(2%)	1%	4%

Source: YourEconomy.org

Sales fell across all establishment stages except for Stage 4 over the period, decreasing by over \$7 billion, or 23%. This was significantly greater than the decreases experienced by the 4 NJ counties and New Jersey (both -11%) and the U.S. (-6%). Sales by Stage 4 establishments grew by just 4%.

Change in Sales, by Stage of Establishment (sales in \$ millions)							
Stage of Establishment (# of jobs)	Passaic County				4 NJ counties	NJ	US
	2008	2013	Change 2008–13	% Change 2008–13	% Change 2008–13	% Change 2008–13	% Change 2008–13
Self employed (1)	\$828	\$576	(\$253)	(31%)	68%	7%	(18%)
Stage 1 (2-9)	\$6,344	\$5,284	(\$1,060)	(17%)	(25%)	(16%)	(8%)
Stage 2 (10-99)	\$13,667	\$8,973	(\$4,694)	(34%)	(12%)	(22%)	(11%)
Stage 3 (100-499)	\$6,121	\$4,781	(\$1,340)	(22%)	(11%)	1%	1%
Stage 4 (500+)	\$3,879	\$4,038	\$159	4%	(1%)	(2%)	1%
Total	\$30,839	\$23,651	(\$7,188)	(23%)	(11%)	(11%)	(6%)

Source: YourEconomy.org

As shown in the following series of tables, the distribution of establishments, jobs, and sales across establishment stages in Passaic County was generally similar to that of the comparison geographies. Approximately 25% of establishments were sole proprietorships, accounting for roughly 3% of all jobs and 2.4% of all sales. While making up just 12% of all establishments, Stage 2 establishments—those with between 10 and 99 jobs—accounted for 36% of jobs and 38% of sales in the County. The largest establishments (there were 32 in 2013 with at least 500 employees) accounted for 18% of jobs and 17% of sales.

Share of Establishments by Stage, 2013				
Stage of Establishment (# of Jobs)	Passaic County	4 NJ counties	NJ	US
Self employed (1)	24.6%	24.6%	25.0%	24.9%
Stage 1 (2-9)	62.0%	61.5%	61.0%	62.7%
Stage 2 (10-99)	12.3%	12.7%	12.7%	11.3%
Stage 3 (100-499)	1.0%	1.1%	1.1%	1.0%
Stage 4 (500+)	0.1%	0.2%	0.1%	0.1%
Total	100.0%	100.0%	100.0%	100.0%

Source: YourEconomy.org

Share of Jobs, by Stage of Establishment, 2013				
Stage of Establishment (# of Jobs)	Passaic County	4 NJ counties	NJ	US
Self employed (1)	2.9%	2.6%	2.7%	3.0%
Stage 1 (2-9)	23.1%	20.4%	20.9%	23.6%
Stage 2 (10-99)	36.3%	33.1%	34.4%	35.2%
Stage 3 (100-499)	20.0%	20.3%	21.3%	21.0%
Stage 4 (500+)	17.7%	23.7%	20.7%	17.2%
Total	100.0%	100.0%	100.0%	100.0%

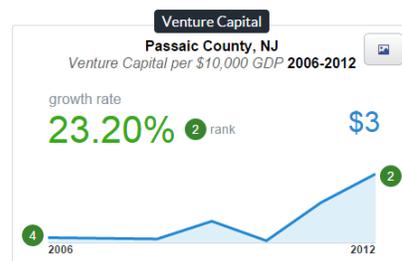
Source: YourEconomy.org

Share of Sales, by Stage of Establishment, 2013				
Stage of Establishment (# of Jobs)	Passaic County	4 NJ counties	NJ	US
Self employed (1)	2.4%	4.3%	3.0%	2.8%
Stage 1 (2-9)	22.3%	16.8%	18.7%	20.3%
Stage 2 (10-99)	37.9%	37.7%	35.1%	35.1%
Stage 3 (100-499)	20.2%	22.1%	24.9%	24.4%
Stage 4 (500+)	17.1%	19.1%	18.4%	17.4%
Total	100.0%	100.0%	100.0%	100.0%

Source: YourEconomy.org

Research and Development

An important aspect of the economy is understanding the amount of investment being made in research and development. The U.S. Mapping Project provides information about these factors as shown in the graphs below. For every \$10,000 of Gross Domestic Product there was \$3 of venture capital invested. This is the second highest amount in New Jersey. Recent years have seen a steep increase in investment as the rate of venture capital increased by 23.20%.



Attachment 1

The following tables compare the different municipalities within Passaic County based on some basic economic indicators.

Community Comparison					
Community	Population (2014)	Pct. Population Growth (2000-2014)	Median Household Income	Median Age	Pct. Unemployed
Bloomington	7,711	1%	\$83,839	43.0	10.7%
Clifton	84,968	8%	\$58,904	38.9	5.6%
Haledon	8,464	3%	\$55,734	33.6	5.6%
Hawthorne	18,996	5%	\$71,581	40.7	7.7%
Little Falls	14,205	31%	\$75,216	32.3	5.6%
North Haledon	8,312	4%	\$102,125	45.7	9.3%
Passaic	70,149	3%	\$31,471	29.5	6.5%
Paterson	148,595	0%	\$33,164	32.3	7.0%
Pompton Lakes	11,142	5%	\$81,821	41.0	8.4%
Prospect Park	5,808	1%	\$56,815	31.6	11.5%
Ringwood	12,283	-1%	\$111,131	43.2	6.3%
Totowa	10,982	11%	\$72,637	43.6	6.7%
Wanaque	11,449	12%	\$84,987	44.9	10.3%
Wayne	54,990	2%	\$102,753	43.9	5.7%
West Milford	25,869	-2%	\$98,387	44.1	7.0%
Woodland Park	12,046	10%	\$64,724	42.9	5.6%

Source: ESRI; 2009-2013 American Community Survey 5-Year Estimates

The following table shows the top 5 largest industries by 2014 jobs in each community. Note that this information is only available at the zip code level and not all zip codes match perfectly to the boundaries of the municipalities. The zip codes used for each community were identified by Passaic County and are listed in the table.

Top 5 Largest Industries by Community				
Community	NAICS	Industry	Jobs	Zip Codes
Bloomingdale	903	Local Government	378	07403
	561	Administrative and Support Services	292	
	238	Specialty Trade Contractors	195	
	623	Nursing and Residential Care Facilities	185	
	531	Real Estate	123	
Clifton	621	Ambulatory Health Care Services	3,630	07013
	541	Professional, Scientific, and Technical Services	3,055	07012
	722	Food Services and Drinking Places	2,459	07011
	531	Real Estate	2,340	07014
	561	Administrative and Support Services	2,151	
Haledon, North Haledon, Prospect Park	903	Local Government	993	07508
	561	Administrative and Support Services	608	
	624	Social Assistance	438	
	611	Educational Services	333	
	445	Food and Beverage Stores	286	
Hawthorne	531	Real Estate	1,367	07506
	238	Specialty Trade Contractors	682	
	561	Administrative and Support Services	475	
	903	Local Government	341	
	813	Religious, Grantmaking, Civic, Professional, and Similar Organizations	328	
Little Falls, Woodland Park	541	Professional, Scientific, and Technical Services	1,762	07424
	903	Local Government	1,612	
	611	Educational Services	1,209	
	722	Food Services and Drinking Places	1,089	
	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	1,047	
Passaic	561	Administrative and Support Services	3,344	07055
	622	Hospitals	2,559	
	621	Ambulatory Health Care Services	1,062	
	445	Food and Beverage Stores	992	
	531	Real Estate	871	
Paterson	903	Local Government	6,514	07502
	624	Social Assistance	2,965	07522
	622	Hospitals	2,560	07524
	561	Administrative and Support Services	2,529	07514
	812	Personal and Laundry Services	2,401	07504
				07513
				07501
				07503
			07505	

Top 5 Largest Industries by Community				
Community	NAICS	Industry	Jobs	Zip Codes
Pompton Lakes	903	Local Government	852	07442
	812	Personal and Laundry Services	684	
	621	Ambulatory Health Care Services	231	
	541	Professional, Scientific, and Technical Services	203	
	722	Food Services and Drinking Places	189	
Ringwood	541	Professional, Scientific, and Technical Services	395	07456
	238	Specialty Trade Contractors	385	
	561	Administrative and Support Services	310	
	621	Ambulatory Health Care Services	185	
	722	Food Services and Drinking Places	153	
Totowa	541	Professional, Scientific, and Technical Services	1,269	07512
	561	Administrative and Support Services	1,144	
	423	Merchant Wholesalers, Durable Goods	795	
	903	Local Government	716	
	621	Ambulatory Health Care Services	703	
Wanaque	903	Local Government	1,285	07465
	623	Nursing and Residential Care Facilities	564	07420
	445	Food and Beverage Stores	508	
	561	Administrative and Support Services	231	
	238	Specialty Trade Contractors	157	
Wayne	903	Local Government	5,548	07470
	551	Management of Companies and Enterprises	3,301	
	722	Food Services and Drinking Places	2,953	
	541	Professional, Scientific, and Technical Services	2,918	
	448	Clothing and Clothing Accessories Stores	2,435	
West Milford	903	Local Government	2,863	07421
	238	Specialty Trade Contractors	621	07480
	541	Professional, Scientific, and Technical Services	539	07435
	445	Food and Beverage Stores	494	
	722	Food Services and Drinking Places	381	

Source: EMSI

Attachment B – Relevant Cluster Analysis



Targeted Cluster Analysis

Comprehensive Economic Development Strategy

Passaic County, New Jersey

March 2015

Prepared for:

Passaic County, New Jersey



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Executive Summary

Introduction

As part of the research for the Comprehensive Economic Development Strategy (CEDS), a relevant cluster and industry sector analysis was conducted to identify industries that are in some way significant and/or relevant to the Passaic County economy. Information gained from this research will be used to inform the planning process and will further refine strategies, initiatives, and projects in the economic development plan. The three clusters that were researched further include:

- Retail Trade
- Health Care
- Manufacturing

These were identified as important clusters for the Passaic County economy following the completion of the Economic Base Analysis and stakeholder interviews. Each of the clusters plays a large role in the county's economy, having a large employment base and historical importance, as well as facing major changes in the coming years that warrant the county to be proactive in its approach to business retention and expansion.

The cluster analysis includes a review of existing conditions in each of the clusters, additional research into the market (both local and global), a summary of existing training opportunities in the county, and recommendations around how the county should proceed in its efforts to support the clusters moving forward. The following is a summary of some of the major findings with additional detail and research included in the full report.

Retail Trade

For Passaic County it was important that additional research be conducted into the Retail Trade industry cluster because of the high levels of employment, sales, and real estate that retail accounts for in the county. Often times Retail Trade is not considered as part of targeted cluster analyses because of the types of jobs that are associated with the industry which are in large part low-wage, part-time, and with little room for growth. However, considering the large role retail plays in Passaic County including the significant amount of space retail occupies, it was clear that additional data collection, market research, and trend analysis was necessary to be sure that Passaic County is prepared for changes in the industry. It is important to note that this analysis is not suggesting that Passaic County go out and put significant resources into retail attraction efforts but rather take steps to support existing business and employment in the industry, retain the existing base, and plan for reuse and diversification of spaces that have and may become vacant.

Major findings:

- Between 2004 and 2014, retail employment in the county grew by 4%, adding about 1,049 jobs on net. This growth was driven primarily by Food and Beverage Stores and Health and Personal Care Stores, while the most significant losses were attributable to Furniture and Home Furnishings Stores.
- The top Retail Trade subsectors by 2014 employment include Food and Beverage Stores, with 26% of jobs, and General Merchandise Stores, with 15%.
- A retail leakage analysis found that Passaic County is a retail destination within Northern New Jersey, with a retail surplus of nearly \$500 million above what county residents themselves are spending.

- A retail vacancy study of Northern New Jersey conducted in July 2014 by The Goldstein Group shows that overall retailers are starting to lease up space with vacancy around 6.4%, compared to the U.S. average of around 10-12%. Retail vacancy is the lowest it has been since at least January of 2009.
- A report prepared by Marcus & Millichap reviews the 2014 retail real estate market and projects that the asking rents for retail space in Northern New Jersey will rise 1.8% through 2014 to \$22.35 per square foot, making 2014 the year with the most significant gain since before the recession. This rise in rental rates is a result of declining vacancy rates and the positive trends in consumer outlook and the economy overall. In Passaic County, rental rates for single-tenant properties rose 11.3% to \$24.62 per square foot.
- The top occupations in the Retail Trade cluster include retail salesperson and cashiers, which together account for almost half of retail employment. Retail occupations are generally low-paying, low-skill jobs, with none of the top occupations paying more than a median of \$20 per hour. All retail occupations are projected to increase in Passaic County in the next 10 years.
- A major industry development is the increasing role that ecommerce plays in the way that consumers purchase products and services. In 2014, total ecommerce sales in the U.S. were \$304.9 billion, accounting for 6.5% of total retail sales, up from 4.0% in 2009. Over this five-year period, total retail sales grew by 29%, while ecommerce soared by 111%.
- Other important trends in retail overall include the increasing popularity of borrowing instead of owning. Companies capitalizing on the borrowing model include Zipcar, Netflix, and Rent the Runway. Customization of products and personalization of the customer experience are also growing in importance.

Recommendations

- Focus on training for service sector workers to improve customer service throughout the county and improve job prospects for existing workers. Work to establish additional training and career pathway programs to help employees in the retail industry succeed and move up the career ladder.
- Provide training on multi-channel marketing techniques to businesses looking to increase their e-commerce presence and multi-channel marketing. Partner with Chambers of Commerce to provide training on social media, online sales, communication/marketing, and other techniques to increase their online presence and increase sale potential.
- Develop opportunities around attracting e-commerce warehousing and logistics companies to capitalize on the trend towards online shopping and direct-to-consumer sales.
- Continuously improve infrastructure and logistics to capitalize on significant transportation assets of Passaic County including access to the Newark Port and metro NYC. Maintain road infrastructure and highlight and market the ease of access to major population centers from Passaic County.
- Establish a task force charged with working with retailers throughout the county to help them identify issues early and respond to changing retail trends.

Health Care and Social Services

Accounting for over 26,000 jobs in Passaic County in 2014, the Health Care sector is a major driver of employment. Significant gains between 2004 and 2014 show that it continues to grow and it therefore continues to be important to support and maintain the existing businesses while attracting new support services to the county. The major hospitals in the county include St. Joseph's Hospital and Regional

Medical Center, St. Mary's Hospital, and Preakness Healthcare Center. Hospitals can be a great driver of economic development as other health care offices, spinoffs, and research and development tend to want to cluster nearby. The mix of educational institutions and health care professionals in Passaic County has the potential to create momentum for various research and development activities, new businesses, and product development that can positively impact the County's economy.

Major Findings

- Within the Health Care sector, the largest employer in the county is Ambulatory Health Care Services, accounting for 36% of jobs. Nursing and Residential Care Facilities has the highest location quotient of 1.28.
- As a sector, Health Care added over 3,300 in the last ten years in Passaic County, an increase of 15%.
- The top occupations in the sector include registered nurses, nursing assistants, and home health aides. Other than registered nurses, who will experience a very slight decline, all of the top 10 occupations are expected to grow in the next 10 years.
- In addition to the courses at the universities and community college, a brand new medical school is planned to be constructed on the old La Roche site in Clifton. The school will be a partnership between Hackensack University Health Network and Seton Hall University and will merge specialties such as internal medicine, pediatrics, obstetrics, and gynecology.
- Hospitals saw 3.7% annual increases in sales growth between 2010 and 2015. This growth rate is expected to increase to 3.9% over the next five years. This growth comes as a result of the increased demand for health care, as a result of health care reform legislation broadening insurance coverage, as well as the aging population.

Recommendations

- Encourage and assist spinoff businesses that would benefit from being located near hospitals and health care providers. Incentivize these types of companies and encourage their location within designated health care growth zones.
- Assist with opportunities for collaboration between education and health care. Focus on areas to increase R&D and care improvement. Facilitate communication between the institutions to identify ways to increase engagement and communication.
- Provide students with the knowledge they need to understand the potential career pathways available within the health care industry and how to transition beyond an entry-level position. Ensure educational institutions are prepared to assist with this transition and appropriate training programs are in place and accessible. Encourage collaboration between educational institutions and employers around skills development, employment pathways training, and general curriculum development.

Manufacturing

Manufacturing of various goods and products has long been an important staple of the Northern New Jersey and Passaic County economy. From food products to pharmaceuticals, New Jersey has been closely tied to manufacturing and the stable and well-paying jobs that accompany the industry. Passaic County has seen an overall decline in manufacturing jobs in the last ten years, but it still accounts for 10% of all jobs in Passaic County and plays a vital role in the County's economy. There are many changes occurring within the manufacturing industry that make now a good time for investment and support of the industry by economic development professionals throughout the region.

Major Findings

Our analysis of the Manufacturing cluster centered around four main categories:

- Chemicals and Plastic Manufacturing
- Food Product Manufacturing
- Metal Product Manufacturing
- Computer and Electronics Product Manufacturing

All four of these groups showed strength or importance for Passaic County and required additional specific research into occupation, industry, and market research.

Chemicals and Plastics Manufacturing

- Within Chemicals and Plastics Manufacturing, there were about 3,100 jobs in 2014, with employment expected to drop to 2,000 by 2024. Virtually all subsectors in the county are projected to lose employment over this period.
- Pharmaceutical and Medicine Manufacturing is the largest employer in the cluster with 664 jobs. Toilet Preparation Manufacturing is the second largest employer with 381 jobs and a high location quotient of 7.12.
- Packaging and Filling Machine Operators was the largest occupation in the cluster, with 156 jobs in 2014, followed by Extruding and Drawing Machine Setters, Operators, and Tenders, with 87. Most of the top occupations are low-wage, low-skill jobs.
- Chemists were the only occupation in the top 10 requiring at least a Bachelor's degree.
- Diverse product lines and the industry's commitment to R&D will help keep revenue growth steady in the Toilet Preparation Manufacturing industry

Food Product Manufacturing

- Within Food Manufacturing, there were about 2,500 jobs in 2014, a number expected to remain relatively flat over the next ten years.
- Bakeries, together with Cookie, Cracker, and Pasta Manufacturing, accounted for about half of all jobs in this cluster
- Animal Slaughtering and Processing is projected to experience 15% job growth over this period, adding 112 jobs, the most of any subsector.
- Top occupations in the food manufacturing clusters are generally low-paying, low-skill positions.
- Growing demand for premium bakery products and rapid gains in exports have helped boost performance of the Bakery industry. Revenue is projected to increase at an annualized 0.5% to \$40.9 billion in the next five years.
- Due to recovering consumer sentiment, population growth and strong export demand, meat-processing revenue is forecast to increase an average 0.7% annually during the five years to 2019.

Metal Product Manufacturing

- The top industries within the Metal Product Manufacturing cluster are Ornamental and Architecture Metal Products Manufacturing, Machine Shops, and Plate Work and Fabricated Structural Product Manufacturing.
- Overall, the cluster is expected to shrink by 105 jobs in the next ten years, although the three largest industries are likely to grow.
- Machinists were the top occupation within the Metal Product Manufacturing industry, accounting for 7% of all jobs.
- Most of the top occupations necessitate no more than a high school diploma, but offer relatively high wages for requiring minimal education.

- Demand for sheet metal and ornamental architectural metalwork will continue to rise from downstream construction markets, with burgeoning residential construction activity driving the bulk of industry growth. Consequently, industry revenue is anticipated to increase at an average annual rate of 2.9% to \$52.8 billion over the next five years.

Computer and Electronics Product Manufacturing

- The majority of jobs in the Computer and Electronic Products Manufacturing cluster were in the Navigational, Measuring, Electromedical, and Control Instruments Manufacturing industry. This industry accounted for over 1,500 jobs, but is expected to decline by over a third in the next ten years.
- Semiconductor and Other Electronic Component Manufacturing is another significant industry, with 345 jobs in 2014. It also expected to shrink in the next ten years.
- Many of the top occupations in this industry are high-paying and require a bachelor's degree. Software Developers and Engineers are well represented in this industry with median hourly earnings up to \$47.00.
- In the next five years, Navigational Instrument Manufacturing revenue is forecast to increase at an annualized rate of 3.0%. An increase in R&D funding will continue to drive product advancement during this period, which will strengthen the already solid demand from downstream industries. Product innovation will also allow the industry to tap into new customer segments, such as renewable energy and biotechnology.

Recommendations

- Maintain infrastructure to ensure location continues to be a competitive advantage for Passaic County.
- Continue to conduct regular business visitation with major employers throughout the county to ensure their needs are being met and help them stay and expand in Passaic County.
- Help establish opportunities for collaboration throughout Passaic County including establishment of a manufacturing collaborative to support existing and future manufacturing. The collaborative should focus on issues facing all manufacturing companies including workforce, education/training, technology/innovation/R&D, market development, and other.
- Train guidance counselors, parents, and students on career opportunities within the manufacturing industry including internships, field trips, career pathway information, etc.

In addition to the data collection compiled in this report Camoin Associates will also be completing focus groups with representatives of the targeted sectors to gain additional insight and on-the-ground information to help refine and enhance the strategies identified above. All strategies related to these targeted sectors will be included in the final Comprehensive Economic Development Strategy and Action Plan Matrix.

Introduction

As a research component for the Comprehensive Economic Development Strategy (CEDS), a relevant cluster and industry sector analysis was conducted to identify industries that are in some way significant and/or relevant to the Passaic County economy. Information gained from this research will be used to inform the planning process and will further refine strategies, initiatives, and projects in the economic development plan.

Michael Porter of the Harvard Business School defines industry clusters as:

Geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region. Clusters arise because they increase the productivity with which companies can compete.¹

Understanding of, and support for, clusters is an important role for governments and economic development professionals because clusters build on existing strengths and grow the global competitive advantage of a community, region, or state to attract additional investment.

High-performing, dense economic clusters are ideals that are often not achieved, and when they are, they are rarely subject to geopolitical boundaries such as counties. Therefore, rather than focus on whether something is truly a cluster, for this analysis we examine groupings of industry sectors and subsectors, and based on employment size, growth, historical strength, and concentration, assess the extent to which there may be cluster characteristics in Passaic County's economy and opportunities among the sectors for growth.

Identifying Relevant Clusters

As the first step in the analysis, Camoin Associates reviewed the information contained in the Economic Base Analysis conducted for the CEDS to identify clusters that might offer opportunities for the county. These initial clusters were reviewed and discussed with the CEDS Committee for input for further consideration.

Then, Camoin Associates conducted additional assessments of the initial clusters and industries to further narrow down the clusters for more detailed, focused analysis. This selection was based on industry performance within the clusters in terms of:

- Size of the industry employment relative to all industries
- Historical employment growth
- Projected employment growth
- Concentration (as measured by location quotient)
- Competitiveness (as measured by shift-share analysis)

From that review, three relevant clusters were selected for further research. The clusters assessed in detail, referred to as the "relevant" or "targeted" clusters, include:

- Health Care
- Retail Trade

¹ Porter, M. (2014, August). *Cluster Studies*. Retrieved from Harvard Business School: <http://www.isc.hbs.edu/competitiveness-economic-development/research-and-applications/Pages/cluster-studies.aspx>

- Manufacturing

For each of the three clusters, additional market research was conducted to provide a deeper understanding of opportunities. This resulting report includes: a definition of the selected clusters including all North American Industrial Classification System (NAICS) codes included at the 3-digit level, historic and projected employment, information about the largest occupations within the cluster, and findings from the market research.

Assessing the Relevant Clusters

Once the relevant clusters were identified, Camoin Associates worked to define each cluster by selecting specific industries—using three-digit NAICS codes—that when grouped together represent each cluster. Clusters can be defined in a variety of ways, so Camoin Associates drew on information gathered from the review of previous documents, past experience working in the northeast, the Economic Base Analysis report completed for this project, and standard definitions to determine which NAICS codes to include in each of the three clusters.

Once the clusters and their NAICS codes were defined, Camoin Associates conducted data collection and analysis. This information allowed Camoin Associates to better understand employment and occupation trends within each of the clusters as well as opportunities that may lie in the future. The data analysis includes existing size, growth projections, and an assessment of the overall size and nature of the occupations in each cluster. Additionally, Camoin Associates looked at the size of establishments as a way to better understand the types of companies that make up the individual clusters.² This information provided for a comprehensive understanding of the existing conditions in Passaic County and what is likely to happen in the future that would impact the economy.

Finally, Camoin Associates conducted market research on each of the relevant clusters to better understand what is occurring nationally for these clusters and the specific industries within the clusters. This provided information on the factors that drive location decisions, the trends professionals are seeing within the clusters, and the opportunities for Passaic County to further capitalize on these clusters.

Presentation of the Data

Most of the data presented in this report are broken down first into the relevant clusters and then further into the industry sectors that make up the clusters, organized using the North American Industrial Classification System (NAICS). Occupational data is reported based on the federal system of classifications referred to as the Standard Occupational Classification (SOC). NAICS and SOC codes are classification codes that are used nationally to group industries and occupations into similar categories from low to high levels of specificity. All data on wages by SOC code represent hourly median wages.

Data Sources

Cluster establishment, employment, and occupation data used in this analysis is provided by [Economic Modeling Specialists](#), Intl. (EMSI). EMSI combines employment data from the Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with data from the Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA) and augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau.

² The average establishment size information may be skewed as a result of a few very large companies within a cluster but it can still be useful background information for the analysts.

Projections are made by EMSI and are statistical projections based on the latest available EMSI industry data combined with past trends in each industry, national growth rates of industries, and data from the Bureau of Labor Statistics. EMSI creates long-term, 10-year industry projections starting from the current year (2013 for this particular report). Note that projections are not “predictions” and projected job growth, for example, is not the same thing as “demand.”

The data used is EMSI’s “complete employment” data set, which includes both covered and uncovered jobs.³ In other words, it includes both traditional employment and non-traditional employment such as the self-employed (self-employed includes sole proprietorships and partnerships). As traditional jobs have been replaced or augmented by freelance work, consulting, and self-employment, these uncovered jobs have become much more important to the economy and EMSI provides researchers with a way to track these trends over time.

Market research was conducted using a variety of sources including previous reports and documents, industry and economic development research from the Web, and data was collected from IBISWorld for select industries. Note that the information in the market research section must continue to rely on projections for 2014 because all information about revenues are not yet reported; therefore, some of the wording may reflect estimates or projections through 2014. Information for company examples in the various clusters is pulled from Business Analyst Online by ESRI and Reference USA, services that maintain business listings by NAICS code. Sources are cited as used.

Retail Trade

Introduction

For Passaic County it was important that additional research be conducted into the Retail Trade industry cluster because of the high levels of employment, sales, and real estate that retail accounts for in the county. Often times Retail Trade is not considered as part of targeted cluster analyses because of the types of jobs that are associated with the industry which are in large part low-wage, part-time, and with little room for growth. However, considering the large role retail plays in Passaic County including the significant amount of space retail occupies, it was clear that additional data collection, market research, and trend analysis was necessary to be sure that Passaic County is prepared for changes in the industry. It is important to note that this analysis is not suggesting that Passaic County go out and put significant resources into retail attraction efforts but rather take steps to support existing business and employment in the industry, retain the existing base, and plan for reuse and diversification of spaces that have and may become vacant.

Hurricane Irene had a major impact on many retailers in Passaic County as there was loss of power, destruction of inventory, and travel bans that kept them from opening their doors during the 2011 peak back-to-school shopping season. Even beyond the immediate impact of Hurricane Irene many clothing retailers felt the effect as consumers had to spend more money on home repair supplies and less on discretionary items.



northjersey.com

³ Jobs covered by unemployment insurance are tracked by the Bureau of Labor Statistics’ Quarterly Census of Employment and Wages. EMSI’s complete employment category uses Bureau of Economic Analysis data (www.bea.gov/bea/regional/) as its primary benchmark. In addition to covered jobs taken care of by QCEW data, BEA data attempt to count all types of paid employment.

Retail in Passaic County includes large malls such as the Willowbrook Mall in Wayne, big box stores along the major thoroughfares, and mom-and-pop shops in the downtowns of some of the cities and towns throughout the county. While some retail subsectors grew substantially in the last 10 years, others contracted, which resulted in minimal change in employment in the sector as a whole. Between 2004 and 2014, retail employment in the county grew by 4%, adding about 1,049 on net. This growth was driven primarily by Food and Beverage Stores and Health and Personal Care Stores, while the most significant losses were attributable to Furniture and Home Furnishings Stores. The top Retail Trade subsectors by 2014 employment include **Food and Beverage Stores**, with 26% of jobs, and **General Merchandise Stores**, with 15%. **Clothing and Clothing Accessories Stores** and **Health and Personal Care Stores** round out the top four. The latter two subsectors also have the highest national location quotients. **Clothing and Clothing Accessories Stores** has an LQ of 2.11, and **Health and Personal Care Stores** has an LQ of 2.08.

Retail Sector, 3-digit NAICS							
NAICS	Description	2004 Jobs	2014 Jobs	2004–2014 Change	2004–2014 % Change	2014 National LQ	% of Total 2014 Jobs
441	Motor Vehicle and Parts Dealers	2,111	2,511	400	19%	1.07	9%
442	Furniture and Home Furnishings Stores	2,072	1,018	(1,054)	(51%)	1.73	4%
443	Electronics and Appliance Stores	994	1,131	137	14%	1.78	4%
444	Building Material and Garden Equipment and Supplies Dealers	1,719	1,554	(165)	(10%)	1.00	6%
445	Food and Beverage Stores	5,476	6,821	1,345	25%	1.80	26%
446	Health and Personal Care Stores	1,699	2,642	943	56%	2.08	10%
447	Gasoline Stations	516	422	(94)	(18%)	0.39	2%
448	Clothing and Clothing Accessories Stores	4,053	3,806	(247)	(6%)	2.11	14%
451	Sporting Goods, Hobby, Musical Instrument, and Book Stores	1,269	988	(281)	(22%)	1.23	4%
452	General Merchandise Stores	3,766	3,953	187	5%	1.02	15%
453	Miscellaneous Store Retailers	1,260	1,290	30	2%	1.12	5%
454	Nonstore Retailers	569	417	(152)	(27%)	0.56	2%
	Retail Sector Total	25,503	26,553	1,049	4%		100%

Source: EMSI

Existing Conditions

Retail Leakage Analysis

An analysis of retail spending leakage confirms Passaic County’s role as a retail destination within Northern New Jersey. As shown in the Retail Leakage table on the following page, the county has a retail surplus of \$493 million, indicating that retail sales are higher than the demand for goods and services by consumers living in the county. This signifies that Passaic County retailers have a significant customer base beyond the county’s borders. When restaurants and bars are excluded, the surplus is even greater—close to \$605 million.

The retail categories with the largest surplus include automobile dealers; beer, wine, and liquor stores; clothing stores; health and personal care stores; other general merchandise stores;⁴ and grocery stores. As shown in the jobs table above, these are also sectors with that employ a large number of workers.

It is important to note the role of nonstore retailers in the county's retail landscape. Within nonstore retailers, electronic shopping and mail-order houses includes the rapidly expanding online retail channel, and accounts for about 7% of retail demand⁵ by Passaic County residents, yet only 3% of Passaic retail sales are attributable to this category. This indicates a high level of sales leakage that is likely to increase as e-commerce continues to expand.

⁴ NAICS 4529 Other General Merchandise Stores is comprised of Warehouse Clubs and Supercenters, as well as Dollar and Variety Stores. It includes establishments such as Walmart Supercenters, Big Lots, Costco, Dollar General, Dollar Tree, Family Dollar, SuperTarget, and others. It excludes traditional format Walmart and Target stores.

⁵ Excluding food and drink (restaurants and bars)

Retail Leakage						
Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor*	Number of Businesses
Motor Vehicle & Parts Dealers	441	\$924,384,640	\$1,417,818,246	-\$493,433,606	-21.1	236
Automobile Dealers	4411	\$803,799,545	\$1,318,500,865	-\$514,701,320	-24.3	100
Other Motor Vehicle Dealers	4412	\$56,675,704	\$33,074,773	\$23,600,931	26.3	48
Auto Parts, Accessories & Tire Stores	4413	\$63,909,391	\$66,242,608	-\$2,333,217	-1.8	88
Furniture & Home Furnishings Stores	442	\$117,165,652	\$142,888,273	-\$25,722,621	-9.9	204
Furniture Stores	4421	\$55,912,071	\$65,447,840	-\$9,535,769	-7.9	79
Home Furnishings Stores	4422	\$61,253,581	\$77,440,433	-\$16,186,852	-11.7	125
Electronics & Appliance Stores	443	\$140,558,486	\$147,922,481	-\$7,363,995	-2.6	136
Bldg Materials, Garden Equip. & Supply Stores	444	\$156,888,980	\$128,806,197	\$28,082,783	9.8	131
Bldg Material & Supplies Dealers	4441	\$135,872,657	\$112,651,414	\$23,221,243	9.3	118
Lawn & Garden Equip & Supply Stores	4442	\$21,016,323	\$16,154,783	\$4,861,540	13.1	13
Food & Beverage Stores	445	\$961,480,381	\$1,128,309,727	-\$166,829,346	-8.0	826
Grocery Stores	4451	\$827,895,951	\$885,354,557	-\$57,458,606	-3.4	527
Specialty Food Stores	4452	\$36,318,520	\$43,252,870	-\$6,934,350	-8.7	162
Beer, Wine & Liquor Stores	4453	\$97,265,910	\$199,702,300	-\$102,436,390	-34.5	137
Health & Personal Care Stores	446,4461	\$359,881,751	\$497,531,702	-\$137,649,951	-16.1	266
Gasoline Stations	447,4471	\$424,563,466	\$319,621,985	\$104,941,481	14.1	131
Clothing & Clothing Accessories Stores	448	\$345,968,039	\$416,656,169	-\$70,688,130	-9.3	459
Clothing Stores	4481	\$259,232,912	\$332,830,958	-\$73,598,046	-12.4	322
Shoe Stores	4482	\$42,701,609	\$43,143,321	-\$441,712	-0.5	43
Jewelry, Luggage & Leather Goods Stores	4483	\$44,033,518	\$40,681,890	\$3,351,628	4.0	94
Sporting Goods, Hobby, Book & Music Stores	451	\$111,252,686	\$159,035,990	-\$47,783,304	-17.7	210
Sporting Goods/Hobby/Musical Instr Stores	4511	\$91,655,250	\$127,547,203	-\$35,891,953	-16.4	139
Book, Periodical & Music Stores	4512	\$19,597,436	\$31,488,787	-\$11,891,351	-23.3	71
General Merchandise Stores	452	\$557,151,648	\$533,204,512	\$23,947,136	2.2	126
Department Stores Excluding Leased Depts.	4521	\$291,834,700	\$190,767,935	\$101,066,765	20.9	49
Other General Merchandise Stores	4529	\$265,316,948	\$342,436,577	-\$77,119,629	-12.7	77
Miscellaneous Store Retailers	453	\$146,310,589	\$141,409,411	\$4,901,178	1.7	468
Florists	4531	\$8,578,122	\$8,546,976	\$31,146	0.2	63
Office Supplies, Stationery & Gift Stores	4532	\$46,676,721	\$44,976,052	\$1,700,669	1.9	126
Used Merchandise Stores	4533	\$8,524,065	\$9,731,861	-\$1,207,796	-6.6	33
Other Miscellaneous Store Retailers	4539	\$82,531,681	\$78,154,522	\$4,377,159	2.7	246
Nonstore Retailers	454	\$400,012,618	\$216,899,148	\$183,113,470	29.7	113
Electronic Shopping & Mail-Order Houses	4541	\$325,236,524	\$169,532,699	\$155,703,825	31.5	30
Vending Machine Operators	4542	\$9,224,605	\$10,332,692	-\$1,108,087	-5.7	32
Direct Selling Establishments	4543	\$65,551,489	\$37,033,757	\$28,517,732	27.8	51
Food Services & Drinking Places	722	\$534,843,334	\$423,337,723	\$111,505,611	11.6	762
Full-Service Restaurants	7221	\$282,222,246	\$227,863,437	\$54,358,809	10.7	296
Limited-Service Eating Places	7222	\$203,940,839	\$141,690,045	\$62,250,794	18.0	279
Special Food Services	7223	\$30,656,410	\$32,486,273	-\$1,829,863	-2.9	48
Drinking Places - Alcoholic Beverages	7224	\$18,023,839	\$21,297,968	-\$3,274,129	-8.3	139
Total Retail Trade	44-45	\$4,645,618,936	\$5,250,103,841	-\$604,484,905	-6.1	3,306
Total Food & Drink	722	\$534,843,334	\$423,337,723	\$111,505,611	11.6	762
Total Retail Trade and Food & Drink	44-45,722	\$5,180,462,270	\$5,673,441,564	-\$492,979,294	-4.5	4,068

*The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area.

Source: ESRI Retail MarketPlace Profile

Retail Vacancy Trends

Understanding existing conditions for retail in Passaic County requires an understanding of both historic and current vacancy rates. Before the Great Recession retail vacancy rates in Northern Jersey were as low as 4.1%, showing great demand for retail space that may never return as the trends in retail have shifted so greatly since that time, including retailers being more conservative about their growth, reduction in the size of floor space necessary, and the increase in online sales.

A twice-annual retail vacancy survey conducted by The Goldstein Group looks at retail vacancy along 22 retail corridors in Northern and Central New Jersey to understand the trends and change in demand. The report conducted in July 2014 shows that overall retailers are starting to lease up space with vacancy around 6.4%, compared to the US average of around 10–12%. The chart below shows that the retail vacancy is the lowest it has been since at least January of 2009.⁶



The Goldstein Group

⁶ Note that this report only looks at vacancy rates along 22 retail corridors and does not consider all property in the region.

The Goldstein Report from July 2014 also notes that the strongest market is Route 3 in Clifton, with only 1.9% vacancy. None of the corridors with the highest vacancy rates are located in Passaic County, indicating a strong market for retail in Passaic. Interestingly the most active type of retail development is in smaller spaces (under 5,000 SF) but there has been an increase in major big box retailers taking advantage of the favorable retail market conditions such as Bloomingdale's Furniture in Wayne and Hobby Lobby in Totowa. Throughout the state well known retailers continued to expand such as Whole Foods, GNC, Dunkin Donuts, CVS, Hobby Lobby, IHOP, Planet Fitness, Subway, Walgreen, Target, and others. However some stores are continuing to close even post-recession such as Staples, Mandee, Office Depot, Rent-a-Center, Arby's, and others who have announced closures throughout New Jersey.

Another trend reported in The Goldstein Report was the continued use of traditional retail spaces and shopping centers by medical tenants. This trend has been on the rise for the last few years and has recently hit a plateau but companies such as PM Pediatrics, Doctors Express, and City MD have opened in New Jersey in 2014.⁷

“We will still see cautious optimism on behalf of many national retailers in their plans to continue opening stores in New Jersey. However, fortunately, New Jersey continues to be one of the most desired states for retailers due to its strong demographics.”

*– Chuck Lanyard, President
The Goldstein Group*

A report prepared by Marcus & Millichap reviews the 2014 retail real estate market and projects that the asking rents for retail space in Northern New Jersey will rise 1.8% throughout 2014 to \$22.35 per square foot, which will make 2014 the year with the most significant gain since before the recession. This rise in rental rates is a result of declining vacancy rates and the positive trends for the overall economy and consumer outlook. In Passaic County, rent rates for single-tenant properties rose 11.3% to \$24.62 per square foot.⁸

The strength of the retail space market is somewhat in contrast to the jobs data, which showed declines in certain industries and growth in others within the retail trade sector. The low vacancies rates could be a result of more non-retail moving into the spaces, such as the medical arts tenants described in The Goldstein Report or retail stores hiring fewer workers to cover the same amount of space in an attempt to reduce their own operational costs.

Training Programs

Most occupations within the Retail Trade cluster do not require advanced education or certification, but there is value to having staff and managers with training in customer service skills, and there is a substantial amount of training available to owners of retail businesses. William Paterson University currently offers a number of professional certification programs that would benefit those in the retail sector including marketing and sales courses:

- Ecommerce & Global Marketing
- Social Media Tools: Design and Implementation/Privacy Ethics Online
- Social Media Management Monitoring & Analysis
- Intro to Social Media Online
- Integrating Social Media into Marketing Strategy
- Social Media Marketing Certificate Course

⁷ (The Goldstein Group, 2014)

⁸ (Marcus & Millichap, 2014)

- Influencing Skills: Innovations in Sales Techniques

Passaic County Community College also offers a certificate program in Hospitality and Retail Management.

Top Occupations

The following table shows the top 10 retail occupations in Passaic County, along with employment projections, hourly earnings, and education, experience, and training requirements. As expected, the top occupations include retail salesperson and cashiers, which together account for almost half of retail employment. Retail occupations are generally low-paying, low-skill jobs, with none of the top occupations paying more than a median of \$20 per hour. All retail occupations are projected to increase in Passaic County in the next 10 years.

Top 10 Occupations in the Retail Sector (NAICS 44-45)										
SOC	Description	Employed in Sector (2014)	Employed in Sector (2024)	Change (2014 - 2024)	% Change (2014 - 2024)	% of Total Jobs in Sector (2014)	Median Hourly Earnings	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
41-2031	Retail Salespersons	8,063	8,765	702	9%	30.4%	\$10.19	Less than high school	None	Short-term on-the-job training
41-2011	Cashiers	4,286	4,612	326	8%	16.1%	\$8.78	Less than high school	None	Short-term on-the-job training
43-5081	Stock Clerks and Order Fillers	2,442	2,530	88	4%	9.2%	\$9.66	Less than high school	None	Short-term on-the-job training
41-1011	First-Line Supervisors of Retail Sales Workers	1,936	2,059	123	6%	7.3%	\$19.07	High school diploma or equivalent	Less than 5 years	None
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	594	627	33	6%	2.2%	\$12.10	Less than high school	None	Short-term on-the-job training
53-7064	Packers and Packagers, Hand	509	574	65	13%	1.9%	\$9.02	Less than high school	None	Short-term on-the-job training
43-4051	Customer Service Representatives	417	475	58	14%	1.6%	\$17.10	High school diploma or equivalent	None	Short-term on-the-job training
29-2052	Pharmacy Technicians	409	509	100	24%	1.5%	\$15.47	High school diploma or equivalent	None	Moderate-term on-the-job training
49-3023	Automotive Service Technicians and Mechanics	407	462	55	14%	1.5%	\$16.40	High school diploma or equivalent	None	Long-term on-the-job training
35-2021	Food Preparation Workers	352	416	64	18%	1.3%	\$11.17	Less than high school	None	Short-term on-the-job training

Source: EMSI Staffing Patterns

Market Research

Retail Trends

There are a number of overarching trends in the retail industry that will dictate the way retail evolves in the future. A major industry development is the increasing role that ecommerce plays in the way that consumers purchase products and services. While ecommerce still represents a relatively small share of retail sales overall, it is growing quickly. In 2014, total ecommerce sales in the U.S. were \$304.9 billion, accounting for 6.5% of total retail sales, up from 4.0% in 2009. Over this five-year period, total retail sales grew by 29%, while ecommerce soared by 111%.⁹

⁹ (U.S. Census Bureau, 2015)

The percent of sales attributable to ecommerce is rising in every retail category, with the top categories for online purchases being electronics, media, and clothing. Amazon is the largest online retailer, accounting for 14% of all ecommerce in North America. Globally, companies like Alibaba and JD.com are gaining ground as international consumers change their purchasing habits.

The growing role of ecommerce has resulted in hundreds of store closures across the country. Barnes and Noble, Staples, GameStop, The Gap, and JCPenney are among some of the many retailers that have been forced to shutter stores in recent years.

In response to lackluster sales at brick-and-mortar locations, innovative retailers are undertaking efforts to jumpstart customer interest in physical stores. For example, cross-channel retailing has gained ground. In cross-channel retailing, a customer might browse and research a product online, and then visit the store to purchase that product in person. Retailers have developed mobile apps to make this a more seamless process and enhance the customer experience.

Some retailers offer the option of using self-checkout apps, which enable the customer to scan products with their mobile devices as they shop in a physical store and checkout electronically, eliminating the need to stand in line. Other apps offer on-demand customer service, through which customers can get more information on products through their mobile devices as they shop. These sorts of apps are expected to gain in popularity as retailers seek to enhance the physical store experience and appeal to tech-savvy shoppers.

Other retailers are repurposing brick-and-mortar stores into “powerful media points from which retailers can articulate their brand story, excite consumers about products and then funnel their purchase to any number of channels, devices, and distributors.”¹⁰ The goal of these “experiential retailers” is to deliver a memorable experience to consumers. It becomes less important whether the customer actually purchases the product in the physical store versus through an electronic channel. These repurposed stores will be more open and gallery-like, instead of being filled with shelves, and will offer space for in-store media and customer interaction with products.

New revenue models for retail will also gain traction. Instead of generating revenue solely from moving product, retailers will charge vendors an upfront fee or “card rate” based on the volume of positive exposure they bring to the products they represent in-store. In this model, the retailer does not lose out if the customer ends up purchasing the product through an online channel, but still capitalizes on the value it adds to the selling process.

Other important trends in retail overall include the increasing popularity of borrowing instead of owning. Companies capitalizing on the borrowing model include Zipcar, Netflix, and Rent the Runway. Customization of products and personalization of the customer experience are also growing in importance.

Warehouse Clubs and Supercenters

The warehouse clubs and supercenters subsector, which includes Walmart Supercenters, Sam’s Club, Costco, BJ’s, and SuperTarget showed strong growth over the last five years, with revenues growing by 3.5% annually over this period. Growth is projected to continue at 2.1% per year through 2019. It is important that a portion of this growth is attributable to department stores being converted into supercenters. Department stores also sell general merchandise items but not groceries. Many traditional

¹⁰ <http://www.retailprophet.com/uncategorized/the-future-of-retail-is-the-end-of-wholesale/>

format Walmart and Target stores are being converted to supercenters as consumers increasingly value the convenience of purchasing groceries along with other goods.

This industry remains resilient through tough economic times because of its generally low prices. It is forecast to expand its share of the retail sector in the next five years. The one-stop-shop format is aligned with customers' demand for convenience.

There has also been a notable shift in the industry from big box stores to smaller format stores that carry a similar variety of products (including perishable groceries) but in a more compact form. This has allowed for big box retailers to gain a presence in urban markets where space is at a premium. Both Walmart and Target will be opening smaller format stores in the coming years.¹¹

Clothing Stores

Clothing stores have fared well since the recession, with family clothing stores specifically showing 2.3% annual sales growth between 2009 and 2014. Growth is projected to continue at 2.2% annually for the next five years. The key drivers of sales is per capita disposable income, especially for wealthier households that are more likely to make purchases at stores that exclusively sell clothing rather than department stores and supercenters. As the economy improves, consumers will continue to purchase clothes for fashion rather than just function, and new stores will likely open to meet this new demand.

Clothing stores have faced increasing competition from discount supercenters and online retailers in attracting consumer segments who most value low prices. Some ecommerce sites have begun to open physical spaces at which potential customers are able to make appointments to try on products before buying. In this "appointment shopping" model, consumers can select a time slot, walk into a physical showroom, and decide whether they want to complete, cancel, or adjust the orders they initiated online.

Higher-end stores that are well established with strong brands are expected to experience a surge in sales over the next five year, while revenue from more competitively priced retail may stagnate due to increasing competition. Key success factors for the industry include establishment of brand names, having a clear market position, and having an experienced workforce that can ensure excellent customer service.¹²

Food Stores

Supermarkets & Grocery Stores experienced 1.3% annual growth between 2010 and 2015, and are expected to grow by 0.8% per year through 2020. Despite the fact that warehouse clubs and supercenters, as well as dollar and convenience stores, are capturing a growing market share of grocery purchases, traditional supermarkets and grocery stores still account for 86% of the total grocery retail market.

Increased consumer incomes since the recession have enable many consumers to trade up to pricier premium, organic, and all-natural brands, thereby lifting industry revenues. At the same time, intensifying competition from alternative retailers have triggered supermarkets to offer substantial discounts and promotions to strengthen customer loyalty.

Health and environmental concerns have driven consumers to purchase more all-natural and organic products, prompting traditional grocers to expand these types of offerings. In addition, Whole Foods, Sprouts Farmers Market, Fresh Market each opened more than 20 locations in 2014. Organic currently

¹¹ IBISWorld industry reports

¹² IBISWorld industry reports

accounts for just 4% of total U.S. food sales, which leaves much room for growth. Larger supermarket chains have been encroaching on the growth of smaller specialty food stores as they continue to diversify their offerings of specialty products. These smaller stores are unable to match low prices, but compete on quality, expertise, and shopping experience.¹³

Recommendations

If retailers and supporting industries do not transition with the changes in the retail industry these changes will have a negative impact on Passaic County. Passaic County economic development efforts should be focused on helping retailers through this transition, identifying other opportunities, and improving the overall customer service of businesses in Passaic County to meet the changing needs of consumers.

- Focus on training for service sector workers to improve customer service throughout the county and improve job prospects for existing workers. Work to establish additional training and career pathway programs to help employees in the retail industry succeed and move up the career ladder.
- Provide training on multi-channel marketing techniques to businesses looking to increase their e-commerce presence and multi-channel marketing. Partner with Chambers of Commerce to provide training on social media, online sales, communication/marketing, and other techniques to increase their online presence and increase sale potential.
- Develop opportunities around attracting e-commerce warehousing and logistics companies to capitalize on the trend towards online shopping and direct to consumer sales.
- Continuously improve infrastructure and logistics to capitalize on significant transportation assets of Passaic County including access to the Newark Port and metro NYC. Maintain road infrastructure and highlight and market the ease of access to major population centers from Passaic County.
- Establish a task force charged with working with retailers throughout the county to help them identify issues early and respond to changing retail trends.

Health Care

Introduction

Accounting for over 26,000 jobs in Passaic County in 2014, the Health Care sector is a major driver of employment. Significant gains between 2004 and 2014 show that it continues to grow and it therefore continues to be important to support and maintain the existing businesses while attracting new support services to the county. The major hospitals in the county include St. Joseph's Hospital and Regional Medical Center, St. Mary's Hospital, and Preakness Healthcare Center. Hospitals can be a great driver of economic development as other health care offices, spinoffs, and research and development tend to want to cluster close by. The mix of educational institutions and health care professionals in Passaic County has the potential to create momentum for various research and development activities, new businesses, and product development that can positively impact the county's economy.

Within the Health Care sector, the largest industry by employment in the county is **Ambulatory Health Care Services**, accounting for 36% of jobs. This sector includes establishments like physicians' offices, dentist offices, and other outpatient facilities. **Nursing and Residential Care Facilities** has the highest location quotient, 1.28.

¹³ IBISWorld industry reports

Over the last 10 years there has been a decrease in employment in the Hospital industry, likely resulting from the closure of Passaic General Hospital and Barnard Hospital in Paterson. The Passaic General Hospital building is currently vacant, but the Barnard Hospital was purchased by a medical arts company and much of the building has been reused by other types of medical offices, accounting for the increase in the Ambulatory Health Care Services industry.

Existing Conditions

As a sector, Health Care added over 3,300 jobs in the last ten years in Passaic County, an increase of 15%. This growth was driven primarily by **Ambulatory Health Services**. **Hospitals** saw employment declines, but these losses were more than made up for by the other health care industries.

Health Care Sector, 3-digit NAICS							
NAICS	Description	2004 Jobs	2014 Jobs	2004–2014 Change	2004–2014 % Change	2014 National LQ	% of Total 2014 Jobs
621	Ambulatory Health Care Services	7,434	9,547	2,113	28%	1.11	36%
622	Hospitals	7,381	6,118	(1,263)	(17%)	1.05	23%
623	Nursing and Residential Care Facilities	3,694	5,137	1,443	39%	1.28	19%
624	Social Assistance	4,516	5,577	1,061	23%	1.17	21%
	Health Care Sector Total	23,025	26,379	3,354	15%		100%

Source: EMSI

The top occupations in the sector include registered nurses, nursing assistants, and home health aides. Other than registered nurses, who will experience a very slight decline, all of the top 10 occupations are expected to grow in the next 10 years. While many of the fastest-growing occupations are relatively low-paying, health care is a field with opportunities for advancement into higher-skilled jobs. Personal Care Aides, for example, who will grow by 40% by 2024, have a median pay of just \$10.50, but people in this occupation can typically advance to better paying jobs relatively quickly.

Top 10 Occupations in the Health Care Sector (NAICS 62)										
SOC	Description	Employed in Sector (2014)	Employed in Sector (2024)	Change (2014 - 2024)	% Change (2014 - 2024)	% of Total Jobs in Sector (2014)	Median Hourly Earnings	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
29-1141	Registered Nurses	2,575	2,548	(27)	(1%)	9.8%	\$40.65	Associate's degree	None	None
31-1014	Nursing Assistants	2,347	2,673	326	14%	8.9%	\$15.85	Postsecondary non-degree award	None	None
31-1011	Home Health Aides	1,532	1,554	22	1%	5.8%	\$9.99	Less than high school	None	Short-term on-the-job training
39-9011	Childcare Workers	1,527	1,824	297	19%	5.8%	\$9.09	High school diploma or equivalent	None	Short-term on-the-job training
43-4171	Receptionists and Information Clerks	1,087	1,221	134	12%	4.1%	\$13.48	High school diploma or equivalent	None	Short-term on-the-job training
21-1093	Social and Human Service Assistants	757	807	50	7%	2.9%	\$15.65	High school diploma or equivalent	None	Short-term on-the-job training
43-6013	Medical Secretaries	742	872	130	18%	2.8%	\$19.14	High school diploma or equivalent	None	Moderate-term on-the-job training
31-9092	Medical Assistants	717	844	127	18%	2.7%	\$13.74	Postsecondary non-degree award	None	None
25-2011	Preschool Teachers, Except Special Education	567	623	56	10%	2.1%	\$21.99	Associate's degree	None	None
39-9021	Personal Care Aides	507	708	201	40%	1.9%	\$10.50	Less than high school	None	Short-term on-the-job training

Source: EMSI Staffing Patterns

Training

Educational institutions in Passaic County offer a variety of training programs associated with the Health Care cluster. For example, Passaic County Community College has a Healthcare Training Initiative (HCTI) which is a series of classes designed to train unemployed individuals and entry-level workers for those high-demand jobs in the health care field. The HCTI is funded through the Department of Labor and offers training at no cost to participants. There are six training modules being offered, including:

- Pharmacy Technician
- Phlebotomy
- Electronic Medical Records
- Medical Coding
- Supervisory/Front Line Management
- Customer Service Training

The Community College also offers associates degrees and certificate programs in:

- Health Information Technology (AAS)
- Medical Informatics (AAS)
- Nurse Education (AAS)
- Radiography (AAS)
- Medical Coding (Certificate)
- Implementation and Management of Health Information Technology Systems (Certificate)

William Paterson University also offers programs in health care fields, such as a Nursing and Public Health. Montclair University offers courses in public health and mental health.

In addition to the courses at the universities and community college, a brand new medical school is planned to be constructed on the old La Roche site in Clifton. The school will be a partnership between Hackensack University Health Network and Seton Hall University and will merge specialties such as internal medicine, pediatrics, obstetrics, and gynecology. The school is slated to open in the fall of 2017.

Market Research

Hospital care is the largest single category of health care expenditure in the U.S. Hospitals saw 3.7% annual increases in sales growth between 2010 and 2015. This growth rate is expected to increase to 3.9% over the next five years. The annual revenue growth rate of nursing care facilities over the next five years is expected to be the rate of the last five.

This growth comes as a result of the increased demand for health care, as health care reform legislation broadened insurance coverage. In addition, increased government healthcare funding will increase reimbursement for industry services and raise industry revenues. The aging population will also play into increased revenues—per capita spending on health care is 3 to 5 times higher for those 65 and up as it is for those under 65.

Hospitals have very high labor costs, with wages making up 47% of all costs. Nationwide there is a shortage of physicians, nurses, and other health care workers, resulting from a scarcity of relevant educational programs which have suffered from budget constraints. A skilled workforce is critical in this industry.

Home healthcare will become more popular as Medicare and Medicaid begin imposing penalties for readmission. In addition, there will be a shift from nursing homes to cheaper at-home managed care and

community care services. This will be supported through technologies such as EHR (electronic health records) and telemedicine apps.

The Patient Protection and Affordable Care Act (PPACA) adds new requirements for charitable hospitals to become, or remain, exempt from federal taxation, including performance of periodic community needs assessments and development of a policy on financial assistance to patients. This could further the trend toward consolidations between nonprofit and for-profit operators. For-profit acquisitions of non-profits are expected to increase in next five years, and the number of operators overall will decrease.

Another type of industry consolidation is occurring as primary care physicians join group practices or hospitals.¹⁴

Recommendations

The Health Care and Social Services industry is exceedingly important for Passaic County as it is a major employer with the potential to create spinoff companies and economic activity. The following recommendations have been designed to support the health care industry in Passaic to attract new activity and retain existing industry businesses.

- Encourage and assist spinoff businesses that would benefit from being located near hospitals and health care providers. Incentivize these types of companies and encourage their location within designated health care growth zones.
- Assist with opportunities for collaboration between educational and health care. Focus on areas to increase R&D and care improvement. Facilitate communication between the institutions to identify ways to increase engagement and communication.
- Provide students with the knowledge they need to understand the potential career pathways available within the health care industry and how to transition beyond an entry-level position. Ensure educational institutions are prepared to assist with this transition and appropriate training programs are in place and accessible. Encourage collaboration between educational institutions and employers around skill development, training to employment pathways, and general curriculum development.

Manufacturing

Introduction

Manufacturing of various goods and products has long been an important staple of the Northern New Jersey and Passaic County economy. From food products to pharmaceuticals, New Jersey has been closely tied to manufacturing and the stable and well-paying jobs that accompany the industry. Passaic County has seen an overall decline in manufacturing jobs in the last ten years, but it still accounts for 10% of all jobs in Passaic County and plays a vital role in the County's economy.

There are many changes occurring within the manufacturing industry that make now a good time for investment and support of the industry by economic development professionals throughout the region. Some of the changes occurring within the industry include:

- On-shoring/near-shoring of employment creating new opportunities for U.S. manufacturing being driven by:

¹⁴ IBISWorld industry reports

- Increase in labor costs in China
- Added cost of transportation and logistics for production that occurs off-shore
- Increases in American oil and natural gas production making it more cost effective to produce in the U.S.
- Lack of quality control and intellectual property protection in some countries outside of the U.S.
- Advanced technologies that require higher skilled labor and technical skills to meet the changing demands of manufacturing
- Global supply chains that make it possible for parts to be made in the most cost-effective place rather than needing to be directly adjacent to the other aspects of the chain
- On-demand manufacturing requiring close proximity to highly skilled/highly technical processes to create the products being demanded
- Overall increase in global demand for U.S. products

Within the Manufacturing sector, the top subsectors by 2014 employment include **Food Manufacturing**, accounting for 13% of manufacturing jobs in the county, followed by **Computer and Electronic Product Manufacturing**, and **Chemical Manufacturing**, each representing 10% of manufacturing jobs. The Computer and Electronic Product Manufacturing industry represents the employment at companies such as BAE Systems and Kearfott, both of which have a major but declining presence in Passaic County.

Subsectors with national location quotients over 2.00 include several industries related to clothing manufacturing—**Leather and Allied Product Manufacturing** (5.75), **Textile Mills** (3.92), and **Textile Product Mills** (2.40)—in addition to **Printing and Related Support Activities** (3.07) and **Petroleum and Coal Products Manufacturing** (2.49).

Manufacturing Sector, 3-digit NAICS

NAICS	Description	2004 Jobs	2014 Jobs	2004–2014 Change	2004–2014 % Change	2014 National LQ	% of Total 2014 Jobs
311	Food Manufacturing	2,244	2,444	200	9%	1.33	13%
312	Beverage and Tobacco Product Manufacturing	70	101	31	44%	0.39	1%
313	Textile Mills	1,238	574	(664)	(54%)	3.92	3%
314	Textile Product Mills	518	344	(174)	(34%)	2.40	2%
315	Apparel Manufacturing	359	253	(106)	(30%)	1.41	1%
316	Leather and Allied Product Manufacturing	169	210	41	24%	5.75	1%
321	Wood Product Manufacturing	192	144	(48)	(25%)	0.30	1%
322	Paper Manufacturing	1,119	866	(253)	(23%)	1.89	5%
323	Printing and Related Support Activities	1,996	1,741	(255)	(13%)	3.07	9%
324	Petroleum and Coal Products Manufacturing	199	347	148	74%	2.49	2%
325	Chemical Manufacturing	3,800	1,853	(1,947)	(51%)	1.88	10%
326	Plastics and Rubber Products Manufacturing	1,929	1,291	(638)	(33%)	1.58	7%
327	Nonmetallic Mineral Product Manufacturing	472	308	(164)	(35%)	0.64	2%
331	Primary Metal Manufacturing	403	920	517	128%	1.89	5%
332	Fabricated Metal Product Manufacturing	2,298	1,753	(545)	(24%)	0.98	9%
333	Machinery Manufacturing	1,030	821	(209)	(20%)	0.60	4%
334	Computer and Electronic Product Manufacturing	3,309	1,940	(1,369)	(41%)	1.50	10%
335	Electrical Equipment, Appliance, and Component Manufacturing	816	499	(317)	(39%)	1.08	3%
336	Transportation Equipment Manufacturing	50	58	8	16%	0.03	0%
337	Furniture and Related Product Manufacturing	1,100	719	(381)	(35%)	1.51	4%
339	Miscellaneous Manufacturing	978	1,485	507	52%	1.96	8%
	Manufacturing Sector Total	24,291	18,671	(5,618)	(23%)		100%

Source: EMSI

Chemicals and Plastics Manufacturing

Existing Conditions

Within Chemicals and Plastics Manufacturing, there were about 3,100 jobs in 2014, with employment expected to drop to 2,000 by 2024. Virtually all subsectors in the county are projected to lose employment over the next ten years. Still, this cluster accounts for an important component of the county's manufacturing economy. **Pharmaceutical and Medicine Manufacturing**, for instance, is the largest employer in the cluster with 664 jobs. **Toilet Preparation Manufacturing**¹⁵ is the second largest employer with 381 jobs and a high location quotient of 7.12. There are another 338 jobs in **Plastics Packaging Materials**, which is among the few subsectors that is projected to add jobs in the next ten years.

¹⁵ This industry comprises establishments primarily engaged in preparing, blending, compounding, and packaging toilet preparations, such as perfumes, shaving preparations, hair preparations, face creams, lotions (including sunscreens), and other cosmetic preparations

Chemicals and Plastics Manufacturing						
NAICS	Description	2014 Jobs	2024 Jobs	2014–2024 Change	2014–2024 % Change	2014 National LQ
32511	Petrochemical Manufacturing	0	0	0	0%	0.00
32512	Industrial Gas Manufacturing	0	0	0	0%	0.00
32513	Synthetic Dye and Pigment Manufacturing	28	0	(28)	(100%)	1.78
32518	Other Basic Inorganic Chemical Manufacturing	0	0	0	0%	0.00
32519	Other Basic Organic Chemical Manufacturing	143	197	54	38%	2.35
32521	Resin and Synthetic Rubber Manufacturing	128	35	(93)	(73%)	1.57
32522	Artificial and Synthetic Fibers and Filaments	0	0	0	0%	0.00
32531	Fertilizer Manufacturing	<10	<10	Insf. Data	Insf. Data	0.04
32532	Pesticide and Other Agricultural Chemical	<10	<10	Insf. Data	Insf. Data	0.48
32541	Pharmaceutical and Medicine Manufacturing	664	196	(468)	(70%)	1.92
32551	Paint and Coating Manufacturing	52	<10	Insf. Data	Insf. Data	1.09
32552	Adhesive Manufacturing	66	<10	Insf. Data	Insf. Data	2.70
32561	Soap and Cleaning Compound Manufacturing	254	68	(186)	(73%)	3.84
32562	Toilet Preparation Manufacturing	462	381	(81)	(18%)	7.12
32591	Printing Ink Manufacturing	11	<10	Insf. Data	Insf. Data	0.98
32592	Explosives Manufacturing	0	0	0	0%	0.00
32599	All Other Chemical Product and Preparation	37	27	(10)	(27%)	0.43
32611	Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing	338	380	42	12%	3.18
32612	Plastics Pipe, Pipe Fitting, and Unlaminated Profile Shape Manufacturing	136	198	62	46%	2.18
32613	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	156	105	(51)	(33%)	7.41
32614	Polystyrene Foam Product Manufacturing	<10	0	Insf. Data	Insf. Data	0.25
32615	Urethane and Other Foam Product (except Polystyrene) Manufacturing	63	69	6	10%	1.56
32616	Plastics Bottle Manufacturing	53	28	(25)	(47%)	1.38
32619	Other Plastics Product Manufacturing	405	180	(225)	(56%)	1.15
32621	Tire Manufacturing	0	0	0	0%	0.00
32622	Rubber and Plastics Hoses and Belting Manufacturing	0	0	0	0%	0.00
32629	Other Rubber Product Manufacturing	133	121	(12)	(9%)	2.02
	Total, NAICS 325, 326	3,146	2,005	(1,141)	(36%)	

Source: EMSI

Jobs in the Chemicals and Plastics cluster are spread over many occupations, with no single occupation accounting for more than 6.4% of employment. Packaging and Filling Machine Operators was the largest occupation in the cluster, with 156 jobs in 2014, followed by Extruding and Drawing Machine Setters, Operators, and Tenders, with 87. Most of the top occupations are low-wage, low-skill jobs. Chemists were the only occupation in the top 10 requiring at least a Bachelor’s degree. This was also the highest-paying job with a median hourly wage of \$35.07. Hand Packers and Packers had the lowest wage of \$9.02.

Top 10 Occupations in Chemicals and Plastics Industries										
SOC	Description	Employed in Sector (2014)	Employed in Sector (2024)	Change (2014 - 2024)	% Change (2014 - 2024)	% of Total Jobs in Sector (2014)	Median Hourly Earnings	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-9111	Packaging and Filling Machine Operators and Tenders	156	94	(62)	(40%)	6.4%	\$10.20	High school diploma or equivalent	None	Moderate-term on-the-job training
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	118	87	(31)	(26%)	4.8%	\$13.74	High school diploma or equivalent	None	Moderate-term on-the-job training
51-1011	First-Line Supervisors of Production and Operating Workers	94	73	(21)	(22%)	3.9%	\$28.52	Postsecondary non-degree award	Less than 5 years	None
53-7064	Packers and Packagers, Hand	90	69	(21)	(23%)	3.7%	\$9.02	Less than high school	None	Short-term on-the-job training
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	88	58	(30)	(34%)	3.6%	\$17.28	High school diploma or equivalent	None	Moderate-term on-the-job training
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	80	58	(22)	(28%)	3.3%	\$11.62	High school diploma or equivalent	None	Moderate-term on-the-job training
19-2031	Chemists	80	38	(42)	(53%)	3.3%	\$35.07	Bachelor's degree	None	None
19-4031	Chemical Technicians	77	44	(33)	(43%)	3.2%	\$16.96	Associate's degree	None	Moderate-term on-the-job training
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	71	58	(13)	(18%)	2.9%	\$16.80	High school diploma or equivalent	None	Moderate-term on-the-job training
51-9011	Chemical Equipment Operators and Tenders	70	54	(16)	(23%)	2.9%	\$21.82	High school diploma or equivalent	None	Moderate-term on-the-job training

Source: EMSI Staffing Patterns

Market Research

Pharmaceutical Manufacturing

Brand-name pharmaceutical manufacturers have grappled with one of the largest waves of drug patent expirations in history. As the patent cliff occurred from 2010 to 2012, many blockbuster drugs lost patent exclusivity, which allowed low-price generic drugs to inundate the market. Due to this trend, many brand-name pharmaceutical manufacturers have dealt with intensifying competition from generic manufacturers, which has cut into revenue growth. In response, many industry operators have consolidated and entered into agreements with generic drug manufacturers, such as licensing the right for generic drug manufacturers to sell generics that are identical to brand-name drugs that have lost their patent. Furthermore, many brand-name manufacturers have moved toward including biotechnology, particularly biologic drugs, in their product portfolio.

While some companies have struck deals with generic drug providers, government and health insurance providers have attempted to stimulate generic drug use by setting favorable reimbursement rates for generic drugs because of mounting healthcare costs, threatening overall industry growth. For example, generic drugs make up 64.0% of Medicaid prescriptions, yet account for 18.0% of Medicaid drug spending, according to US Pharmacist, hampering industry revenue growth. In the five years to 2014, industry revenue is expected to decline at an annualized rate of 1.8% to \$163.5 billion, including 0.9% growth in

2014. Profit is expected to rise from 17.0% of industry revenue in 2009 to 20.4% in 2014, as pharmaceutical manufacturers have focused on high-margin biologic drugs, which have a 12-year patent exclusivity period. Also, consolidation and merger and acquisition activity have boosted profitability, as more manufacturers had the financial resources to invest in research and development (R&D) and share development risk.

In the five years to 2019, industry revenue is forecast to grow at an annualized rate of 2.0% to \$180.7 billion. Many pharmaceutical manufacturers will likely derive sales volumes from biological drugs, while also contending with the entrance of biosimilar, or generic biological drugs, into the market. Investing in R&D that will generate a high return on investment will occur as many pharmaceutical manufacturers strengthen their drug pipeline with orphan drugs, which typically have a smaller disease population, lower requirement for the number of patients needed during clinical trials.¹⁶

Cosmetic and Beauty Products Manufacturing (also known as Toilet Preparation Manufacturing)

The wide range of beauty and personal care goods produced by the Cosmetic and Beauty Products Manufacturing industry protects its participants from drastic changes in disposable income. Fluctuating incomes do affect cosmetics, but essential goods, such as shampoo, experience steadier demand. Industry revenue has increased steadily in recent years, aside from double-digit revenue growth in 2012 spurred by recovering demand in overseas markets, as some of the industry's largest export partners began to experience post-recessionary growth. Due to steady demand, IBISWorld expects revenue to grow 5.6% in 2015 to \$56.2 billion, in line with the industry's 5.6% annualized revenue growth in the five years since 2010.

The number of industry employees declined in the wake of the recession, but has since begun to recover. Nonetheless, in the five years to 2015, industry employment rose at an average annual rate of just 0.5%. Keeping labor costs low has helped players sustain relatively high average margins of more than 10.0% of revenue, even as spiking oil costs have threatened profit. Average industry profit has been further bolstered by increased market opportunities overseas. The total value of industry exports has grown 3.5% per year on average since 2010. Overseas retailers depend on the perceived high quality of US-made goods, and the weakness of the US dollar made domestic products cheaper on the global market throughout 2011. The currency's growing value has, however, limited export growth in recent years.

The characteristics that have supported the Cosmetic and Beauty Products Manufacturing industry's growth during the past five years will also drive its success in the five years to 2020. The industry's diverse product lines and commitment to research and development (R&D) will keep revenue growth steady; IBISWorld expects revenue to increase at an average annual rate of 3.4% to \$66.4 billion, with average profit margins exceeding 12.0% by 2020. Operators will likely continue to develop premium product lines to satisfy domestic consumers with rising disposable incomes, as well as foreign customers who expect US-made goods to be high quality. As a result, exports are forecast to climb to 17.3% of revenue by 2020. To meet this growing demand, IBISWorld expects employment and wages to increase during the next five years as industry players invest more into facilities and human resources and expand their R&D teams to remain competitive.¹⁷

Plastic Film, Sheet, and Bag Manufacturing

The Plastic Film, Sheet, and Bag Manufacturing industry has been recovering steadily in line with the broader economy, as increased consumer demand and demand from downstream markets drives growth

¹⁶ IBISWorld Industry Report 32541a. Brand Name Pharmaceutical Manufacturing in the US.

¹⁷ IBISWorld Industry Report 32562. Cosmetic and Beauty Products Manufacturing in the US.

in industry revenue. In the five years to 2014, industry revenue is anticipated to grow at an annualized rate of 5.4%. In 2014, industry revenue is expected to continue growing by 1.7% to \$43.1 billion, as demand from consumers and food manufacturers grows and other downstream markets continue demanding plastic film, sheet and bag products. Industry profitability is also anticipated to increase over the five years to 2014.

Consumer spending was repressed during the downturn, particularly in response to rising unemployment rates. Companies in the retail supply chain experience decreased demand for products, which reduced the need for the industry's plastic bags and packaging materials. Despite this economic uncertainty, consumers still required consumer staples and, as the economy improved, the industry saw revenue increase with consumer spending. Overall consumer spending increased at an annualized rate of 2.1% over the five years to 2014, driving demand and revenue growth for plastic film, sheet and bag manufacturers.

In the five years to 2019, consumer spending is expected to grow at an annualized rate of 2.6%. As consumers increase spending and require additional plastic film, sheets and bags to package and distribute goods, demand for this industry's products will rise. This will encourage industry revenue to grow at an average annual rate of 3.5% to \$51.2 billion over the five-year period. Meanwhile, US exports of packaged foods will also grow, as domestic plastic packaging manufacturers develop and implement newer, more efficient technologies. Manufacturers that offer advanced barrier-protection technologies will gain market share in the food exports market, giving the industry some defense against low-cost imported plastic packaging material.

Operators are expected to benefit from economies of scale, as mergers and acquisitions persist. In 2010, the industry's largest company, Bemis, acquired Food Americas, which was a division of Rio Tinto Alcan Inc.'s business unit Alcan Packaging. This move demonstrates that companies are turning to acquisitions to gain a competitive edge and expand operations. As a result, IBISWorld anticipates that the number of industry operators will fall at an average annual rate of 0.1% to 1,020 in the five years to 2019.¹⁸

Plastic Pipe and Parts Manufacturing

After significant revenue declines in 2008 and 2009, demand from downstream industries, most notably construction and automobile manufacturing, have helped revenue recover from recessionary losses. In 2009, dramatic reductions in revenue occurred across the board, leading to major job losses. The decline was dramatic, but short-lived; by 2011 downstream industries were recovering, helping to drive a rebound in demand. Over the same period, the industry has been buoyed by the utilities and agriculture industry. Rising population rates have increased the need for plastic pipes to replace older infrastructure and efficiently distribute water to farms. Improved downstream demand spurred by favorable government policies and the replacement of old infrastructure have helped drive growth over the five years to 2014. Revenue increased at an annualized rate of 6.7% to \$14.7 billion over the period. While growth has been strong over the past five years, figures are slightly distorted by the steep declines that occurred at the onset of the period.

Industrial manufacturing and construction account for an estimated 77.2% of the industry's revenue. The domestic automotive manufacturing market, which makes up most industrial sales, has recovered strongly since the recession and is expected to grow 2.9% in 2014. The construction industry has been slower to recover, as credit contracted and both consumers and businesses hesitated to make large capital investments. However, thanks to low interest rate policies and tax incentives, construction has begun to

¹⁸ IBISWorld Industry Report 32611. Plastic Film, Sheet, and Bag Manufacturing in the US.

recover, spurring demand for plastic pipes and parts. The value of construction is expected to grow 7.6% in 2014, pushing revenue up 0.9% in 2014.

Companies have consolidated to achieve greater operating efficiencies in an increasingly competitive economic climate. For instance, major player Advanced Drainage Systems made three acquisitions from 2010 to 2013. As a result of acquisition activity, the number of industry operators declined at an estimated annualized rate of 0.4% per year to 674 over the five years to 2014. In the coming years, growth in the utilities and agriculture markets will help offset volatility in demand from other markets, leaving industry operators less vulnerable to market conditions outside their control. Over the five years to 2019, IBISWorld forecasts revenue will grow at an annualized rate of 1.9% per year to \$16.2 billion.¹⁹

¹⁹ IBISWorld Industry Report 32612. Plastic Pipe and Parts Manufacturing in the US.

Food Manufacturing

Existing Conditions

Within Food Manufacturing, there were about 2,500 jobs in 2014, a number expected to remain relatively flat over the next ten years. Employment in this cluster is concentrated in a handful of subsectors, including **Bakeries**, which together with **Cookie, Cracker, and Pasta Manufacturing** accounted for about half of all jobs in this cluster; **Animal Slaughtering and Processing**; and **Fruit and Vegetable Canning**. **Animal Slaughtering and Processing** is projected to experience 15% job growth over this period, adding 112 jobs, the most of any subsector.

Food Manufacturing						
NAICS	Description	2014 Jobs	2024 Jobs	2014–2024 Change	2014–2024 % Change	2014 National LQ
31111	Animal Food Manufacturing	0	0	0	0%	0.00
31121	Flour Milling and Malt Manufacturing	36	<10	Insf. Data	Insf. Data	1.57
31122	Starch and Vegetable Fats and Oils Manufacturing	0	0	0	0%	0.00
31123	Breakfast Cereal Manufacturing	0	0	0	0%	0.00
31131	Sugar Manufacturing	0	0	0	0%	0.00
31134	Nonchocolate Confectionery Manufacturing	0	0	0	0%	0.00
31135	Chocolate and Confectionery Manufacturing	22	<10	Insf. Data	Insf. Data	0.48
31141	Frozen Food Manufacturing	0	0	0	0%	0.00
31142	Fruit and Vegetable Canning, Pickling, and Drying	93	139	46	49%	0.94
31151	Dairy Product (except Frozen) Manufacturing	75	57	(18)	(24%)	0.52
31152	Ice Cream and Frozen Dessert Manufacturing	23	<10	Insf. Data	Insf. Data	0.90
31161	Animal Slaughtering and Processing	743	855	112	15%	1.25
31171	Seafood Product Preparation and Packaging	<10	<10	Insf. Data	Insf. Data	0.06
31181	Bread and Bakery Product Manufacturing	992	1,044	52	5%	3.52
31182	Cookie, Cracker, and Pasta Manufacturing	372	343	(29)	(8%)	5.50
31183	Tortilla Manufacturing	27	18	(9)	(33%)	1.16
31191	Snack Food Manufacturing	<10	<10	Insf. Data	Insf. Data	0.10
31192	Coffee and Tea Manufacturing	0	0	0	0%	0.00
31193	Flavoring Syrup and Concentrate Manufacturing	<10	0	Insf. Data	Insf. Data	0.38
31194	Seasoning and Dressing Manufacturing	<10	0	Insf. Data	Insf. Data	0.02
31199	All Other Food Manufacturing	47	<10	Insf. Data	Insf. Data	0.57
	Total, NAICS 311	2,444	2,489	45	2%	

Source: EMSI

With the exception of Supervisor positions, top occupations in the food manufacturing clusters are generally low-paying, low-skill positions. Bakers comprised the largest occupation, with 236 jobs in 2014, followed by Hand Packers and Packaging Machine Operators. Occupations in this industry are expected to grow slightly over the next ten years.

Top 10 Occupations in Food Manufacturing Industries

SOC	Description	Employed in Sector (2014)	Employed in Sector (2024)	Change (2014 - 2024)	% Change (2014 - 2024)	% of Total Jobs in Sector (2014)	Median Hourly Earnings	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-3011	Bakers	236	235	(1)	(0%)	10.7%	\$11.50	Less than high school	None	Long-term on-the-job training
53-7064	Packers and Packagers, Hand	175	189	14	8%	8.0%	\$9.02	Less than high school	None	Short-term on-the-job training
51-9111	Packaging and Filling Machine Operators and Tenders	163	175	12	7%	7.4%	\$10.20	High school diploma or equivalent	None	Moderate-term on-the-job training
51-3092	Food Batchmakers	151	162	11	7%	6.8%	\$10.11	High school diploma or equivalent	None	Moderate-term on-the-job training
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	137	160	23	17%	6.2%	\$10.47	Less than high school	None	Short-term on-the-job training
51-9198	Helpers--Production Workers	128	139	11	9%	5.8%	\$9.23	Less than high school	None	Short-term on-the-job training
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	77	87	10	13%	3.5%	\$12.10	Less than high school	None	Short-term on-the-job training
51-1011	First-Line Supervisors of Production and Operating Workers	70	77	7	10%	3.2%	\$28.52	Postsecondary non-degree award	Less than 5 years	None
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	56	59	3	5%	2.6%	\$8.75	Less than high school	None	Short-term on-the-job training
41-2011	Cashiers	55	54	(1)	(2%)	2.5%	\$8.78	Less than high school	None	Short-term on-the-job training

Source: EMSI Staffing Patterns

Market Research

Bread and Bakery Product Manufacturing

Changing consumer tastes and declining sales volume for the industry's key product segments have hampered growth in the Bread Production industry over the past five years. Although bread has long been a staple of the American diet, recent health trends have caused consumers to moderate their consumption of a variety of industry goods. Meanwhile, a shift in consumer preferences toward premium varieties has narrowed the market for conventional bread products. In order to attract health-conscious consumers, some operators have introduced alternatives that are more nutritious, while others have extended their product offerings to include specialty varieties that command a premium price.

Despite major efforts to reinvigorate the bread market, the industry has faced decelerating demand from food service and other key downstream markets during the first half of this five-year period. In the past three years, however, growing demand for premium products and rapid gains in exports has helped boost industry performance. Accordingly, industry revenue is expected to increase an annualized 0.8% to \$39.8 billion in the five years to 2015, including a 0.3% rise in 2015.

Along with frugal consumer spending, producers have had to contend with America's ever-changing palate. While artisan-style breads produced by retail bakeries have been selling like hotcakes, major commercial bakeries such as Grupo Bimbo and Flowers Foods have faced falling sales volume for their brands during the past few years. In particular, demand for conventional bread products, such as white loaf and shelf-stable whole-wheat, has faltered, while demand for flatbreads, such as tortilla and pita, has risen. In response, commercial bakeries have developed new bread varieties to cater to these changing

consumer tastes. For example, Bimbo Bakeries USA introduced Thomas' Bagel Thins, while Flowers Foods expanded its Cobblestone specialty breads selection.

Over the next five years, these trends in health consciousness and consumer preferences are expected to continue changing the industry's product mix as operators increasingly focus on expanding their portfolio of nutritious and specialty breads. On the other hand, similar developments in neighboring countries like Mexico and Canada will also drive growth in exports, helping boost the performance of domestic industry participants. As a result, revenue is projected to increase at an annualized 0.5% to \$40.9 billion in the five years to 2020.²⁰

Meat, Beef, and Poultry Processing

While per capita meat consumption is expected to fall only marginally in the five years to 2014, the recession has exacerbated consumption declines. Consumers scaled back the quality and quantity of meat purchases due to reduced disposable income and low confidence in the economy, and reduced consumption has persisted even as the economy recovered. Also, adverse health effects associated with red meat consumption have driven some consumers toward alternative protein sources. In addition to broad trends related to consumer preference and disposable income, disease outbreaks have limited industry growth during specific years. In 2013, for example, Porcine Epidemic Diarrhea (PED) virus began decimating pig litters, depleting the supply of hogs. Reduced herd numbers have pushed prices up, deterring some consumers from purchasing pork products.

Despite these detriments, meat remains a staple product; greater economic issues largely do not affect overall meat sales. During the five years to 2014, revenue for the Meat, Beef and Poultry Processing industry is expected to grow at an annualized rate of 4.3%. Key downstream markets, including those in frozen foods and animal food production, have also exhibited growth over the past five years, leading to greater demand for meat products. Meanwhile, competition from substitute seafood products has been minimal, thanks to seafood's comparatively high prices and consumers' reluctance to spend on relatively extravagant meals. Consumers' returning purchasing power is expected to bolster consumer spending on meat. However, an expected dip in the price of corn and other crops used for feed is projected to decrease industry revenue 2.3% to \$220.5 billion in 2014.

Due to recovering consumer sentiment, population growth and strong export demand, meat-processing revenue is forecast to increase an average 0.7% annually during the five years to 2019, to reach \$228.9 billion. Despite the stability of consumer demand for meat-based products, unpredictable weather conditions and disease outbreaks can cause volatility from year to year. For example, a sudden drought in the Midwest, Plains or Rocky Mountains could reduce livestock numbers, lower meat supplies and increase food prices. Also, a single case of livestock infection could result in substantial short-term losses and international trade bans for the affected meat. To combat such volatility, the industry has developed technologies intended to reduce disease outbreaks.²¹

²⁰ IBISWorld Industry Report 31181. Bread Production in the US.

²¹ IBISWorld Industry Report 31161. Meat, Beef, and Poultry Processing in the US.

Metal Product Manufacturing

Existing Conditions

The top industries within the Metal Product Manufacturing cluster are **Ornamental and Architecture Metal Products Manufacturing**, with 433 jobs in 2014; **Machine Shops**, with 392 jobs; and **Plate Work and Fabricated Structural Product Manufacturing**, with 227 jobs. Overall, the cluster is expected to shrink by 105 jobs in the next ten years, although the three largest industries are likely to grow.

Fabricated Metal Product Manufacturing						
NAICS	Description	2014 Jobs	2024 Jobs	2014–2024 Change	2014–2024 % Change	2014 National LQ
33211	Forging and Stamping	87	54	(33)	(38%)	0.71
33221	Cutlery and Handtool Manufacturing	68	113	45	66%	1.49
33231	Plate Work and Fabricated Structural Product Manufacturing	227	279	52	23%	1.12
33232	Ornamental and Architectural Metal Products Manufacturing	433	533	100	23%	1.86
33241	Power Boiler and Heat Exchanger Manufacturing	48	50	2	4%	1.52
33242	Metal Tank (Heavy Gauge) Manufacturing	<10	<10	Insf. Data	Insf. Data	0.01
33243	Metal Can, Box, and Other Metal Container (Light Gauge) Manufacturing	49	<10	Insf. Data	Insf. Data	1.13
33251	Hardware Manufacturing	0	0	0	0%	0.00
33261	Spring and Wire Product Manufacturing	15	<10	Insf. Data	Insf. Data	0.30
33271	Machine Shops	392	398	6	2%	1.06
33272	Turned Product and Screw, Nut, and Bolt Manufacturing	73	26	(47)	(64%)	0.74
33281	Coating, Engraving, Heat Treating, and Allied Activities	197	172	(25)	(13%)	1.15
33291	Metal Valve Manufacturing	67	17	(50)	(75%)	0.60
33299	All Other Fabricated Metal Product Manufacturing	99	<10	Insf. Data	Insf. Data	0.42
	Total, NAICS 332	1,753	1,648	(105)	(6%)	

Source: EMSI

Machinists were the top occupation within the Metal Product Manufacturing industry, accounting for 7% of all jobs. There were 123 machinists in the county in 2013, with median hourly earnings of \$18.66. The number of machinists is projected to grow by 7% in the next ten years. Other top occupations include Machine Setters and Operators and First-Line Supervisors. Most of the top occupations necessitate no more than a high school diploma, but offer relatively high wages for requiring minimal education.

Top 10 Occupations in Fabricated Metal Product Manufacturing										
SOC	Description	Employed in Sector (2014)	Employed in Sector (2024)	Change (2014 - 2024)	% Change (2014 - 2024)	% of Total Jobs in Sector (2014)	Median Hourly Earnings	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-4041	Machinists	123	131	8	7%	7.0%	\$18.66	High school diploma or equivalent	None	Long-term on-the-job training
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	89	78	(11)	(12%)	5.1%	\$12.78	High school diploma or equivalent	None	Moderate-term on-the-job training
51-1011	First-Line Supervisors of Production and Operating Workers	88	82	(6)	(7%)	5.0%	\$28.52	Postsecondary non-degree award	Less than 5 years	None
51-9198	Helpers--Production Workers	75	70	(5)	(7%)	4.3%	\$9.23	Less than high school	None	Short-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	56	68	12	21%	3.2%	\$17.62	High school diploma or equivalent	None	Moderate-term on-the-job training
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	55	52	(3)	(5%)	3.2%	\$17.30	High school diploma or equivalent	None	Moderate-term on-the-job training
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	51	48	(3)	(6%)	2.9%	\$12.96	High school diploma or equivalent	None	Moderate-term on-the-job training
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	44	43	(1)	(2%)	2.5%	\$29.67	High school diploma or equivalent	None	Moderate-term on-the-job training
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	44	34	(10)	(23%)	2.5%	\$16.80	High school diploma or equivalent	None	Moderate-term on-the-job training
11-1021	General and Operations Managers	41	41	0	0%	2.3%	\$62.13	Bachelor's degree	Less than 5 years	None

Source: EMSI Staffing Patterns

Market Research

Sheet Metal, Window and Door Manufacturing

Operators within the Sheet Metal, Window and Door Manufacturing industry manufacture windows and doors, sheet metal products and ornamental and architectural metalwork. The construction sector comprises the overwhelming majority of demand for all industry products, so industry performance over the five years to 2015 reflects the stagnation and subsequent gradual rebound in downstream construction activity during this period. Exasperated by volatile input prices, industry revenue fluctuated during the five years to 2015, shrinking 4.3% in 2010 in the immediate aftermath of the housing market slump, and rebounding 7.7% in 2013, as housing starts surged for the second uninterrupted year amid economic recovery. Overall, improved demand from the construction sector is expected to boost revenue at an average annual rate of 4.9% to reach \$45.7 billion in the five years to 2015.

The immediate aftermath of the housing market collapse brought new construction activity to a near standstill throughout most of the country, with the value of construction stagnant until late 2011. Since 2012, however, recovery of the US construction market has renewed downstream demand for industry products, thereby leading to a quick recovery in industry performance. In particular, the rising value of private nonresidential construction, which is a major driver of demand for industry goods, has increased

at an average annual rate of 5.1% during the five-year period. In 2015 alone, the value of nonresidential construction is expected to surge another 4.3%, thereby driving up industry revenue an estimated 3.9% during that year.

Over the five years to 2020, operators that manufacture core products, such as windows and doors, are expected to continue consolidating, while smaller ornamental sheet metal product manufacturers increasingly leave the industry or merge with larger competitors. Although the price of key inputs such as steel and aluminum are expected to rise slightly, industry consolidation is anticipated to improve overall profit margins. Moreover, demand will continue to rise from downstream construction markets, with burgeoning residential construction activity, which is forecast to increase an annualized 6.8% during the period, driving the bulk of industry growth. Consequently, industry revenue is anticipated to increase at an average annual rate of 2.9% to \$52.8 billion over the five years to 2020.²²

Machine Shop Services

The Machine Shop Services industry steadily expanded in the five years to 2015, as the industry posted revenue growth in each of the past five years. Much of this growth was driven by a robust rebound in the industry's major markets, including commercial aerospace and transportation manufacturing, which picked up in 2011. In fact, nearly all of this industry's downstream markets have thrived during the past five years and are currently operating with improved market conditions. As a result, industry revenue is expected to increase at an annualized 8.7% to \$55.2 billion during the five years to 2015. Machinists' postrecessionary recovery has been strong and is expected to continue trending upward, with revenue forecast to increase 6.0% in 2015.

Technological advancement in machining is largely driven by the defense and aerospace markets. These markets require parts that are as light as possible, made to exceptionally tight tolerances and shaped into complex geometries. Industry operators serving these markets have increased their investment in computer numerical control (CNC) machines that increase automation and precision during the past five years, prompting a sizeable increase in capital investment for many machinists. As defense spending has tapered off due to the United States' withdrawal from Iraq and scaling back in Afghanistan, many of these operators' machines have been repurposed to satisfy growing demand from the manufacturing sector. Consequently, productivity improvements driven by high-tech markets have aided industry operations. Higher productivity has allowed for a declining share of wage-related costs. Consequently, industry wages as a proportion of revenue are expected to shrink from 30.2% of revenue in 2010 to 25.4% in 2015.

During the five years to 2020, operators will devote further resources to satisfying growing demand from manufacturers in industries like automobile manufacturing, commercial aircraft manufacturing and metal forging. Demand from medical device manufacturers is also expected to increase, due to a progressively aging US population with an increasing need for medical care. This, in turn, will heighten the need for micromachined products. As a result, industry revenue is forecast to grow at an annualized rate of 3.9% to \$66.9 billion during the next five years.²³

²² IBISWorld Industry Report 33232. Sheet Metal, Window and Door Manufacturing in the US.

²³ IBISWorld Industry Report 33271. Machine Shop Services in the US.

Computer and Electronic Products Manufacturing

Existing Conditions

The majority of jobs in the Computer and Electronic Products Manufacturing cluster were in the **Navigational, Measuring, Electromedical, and Control Instruments Manufacturing** industry. This industry accounted for over 1,500 jobs, but is expected to decline by over a third in the next ten years. **Semiconductor and Other Electronic Component Manufacturing** is another significant industry, with 345 jobs in 2014. It also expected to shrink in the next ten years.

Computer and Electronic Product Manufacturing						
NAICS	Description	2014 Jobs	2024 Jobs	2014–2024 Change	2014–2024 % Change	2014 National LQ
33411	Computer and Peripheral Equipment Manufacturing	<10	0	Insf. Data	Insf. Data	0.00
33421	Telephone Apparatus Manufacturing	<10	0	Insf. Data	Insf. Data	0.02
33422	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	34	22	(12)	(35%)	0.49
33429	Other Communications Equipment Manufacturing	<10	<10	Insf. Data	Insf. Data	0.34
33431	Audio and Video Equipment Manufacturing	0	0	0	0%	0.00
33441	Semiconductor and Other Electronic Component Manufacturing	345	278	(67)	(19%)	0.76
33451	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	1,550	992	(558)	(36%)	3.26
33461	Manufacturing and Reproducing Magnetic and Optical Media	<10	0	Insf. Data	Insf. Data	0.04
	Total, NAICS 334	1,940	1,294	(646)	(33%)	

Source: EMSI

Many of the top occupations in this industry are high-paying and require a bachelor's degree. Software Developers and Engineers are well represented in this industry with median hourly earnings up to \$47.00. Lower-skilled occupations in this industry included Equipment Assemblers and Product Inspectors and Testers. All of the top occupations in this industry are expected to decline in the county within the next ten years.

Top 10 Occupations in Computer and Electronic Products Manufacturing

SOC	Description	Employed in Sector (2014)	Employed in Sector (2024)	Change (2014 - 2024)	% Change (2014 - 2024)	% of Total Jobs in Sector (2014)	Median Hourly Earnings	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-2022	Electrical and Electronic Equipment Assemblers	167	113	(54)	(32%)	8.6%	\$13.60	High school diploma or equivalent	None	Short-term on-the-job training
15-1132	Software Developers, Applications	84	49	(35)	(42%)	4.3%	\$45.84	Bachelor's degree	None	None
51-2023	Electromechanical Equipment Assemblers	77	46	(31)	(40%)	4.0%	\$15.50	High school diploma or equivalent	None	Short-term on-the-job training
15-1133	Software Developers, Systems Software	73	54	(19)	(26%)	3.8%	\$46.40	Bachelor's degree	None	None
17-3023	Electrical and Electronics Engineering Technicians	54	37	(17)	(31%)	2.8%	\$28.60	Associate's degree	None	None
17-2141	Mechanical Engineers	53	33	(20)	(38%)	2.7%	\$36.74	Bachelor's degree	None	None
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	50	34	(16)	(32%)	2.6%	\$16.80	High school diploma or equivalent	None	Moderate-term on-the-job training
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	48	29	(19)	(40%)	2.5%	\$37.29	Bachelor's degree	None	Moderate-term on-the-job training
51-1011	First-Line Supervisors of Production and Operating Workers	44	29	(15)	(34%)	2.3%	\$28.52	Postsecondary non-degree award	Less than 5 years	None
17-2071	Electrical Engineers	39	30	(9)	(23%)	2.0%	\$43.43	Bachelor's degree	None	None

Source: EMSI Staffing Patterns

Market Research

Navigational Instrument Manufacturing

The Navigational Instrument Manufacturing industry produces a wide range of devices, including search, detection and navigational instruments and electricity measuring and testing tools. The industry thus has a diverse clientele, including industries in air-traffic control, shipbuilding, construction, healthcare and research industries. Because of the industry's diverse revenue base, it has experienced low volatility in the past five years, even when the recession decreased demand for industry products.

In the five years to 2014, industry revenue is expected to increase an annualized 2.9% to \$118.4 billion, including a 1.8% increase in 2014. As the economy improved, rising corporate profit has allowed private research and development (R&D) budgets to expand during this period, providing the investments needed for industry product innovation. New products have allowed the industry to remain competitive in the face of rising foreign competition and changing demand in downstream markets, thus contributing to revenue growth. Additionally, growth in customer industries such as aircraft manufacturing, lab services and construction have provided stable demand for various instruments and devices.

More robust revenue growth in the five years to 2014 has been limited by an appreciating dollar, which threatens the industry's trade performance. The trade-weighted index, a measure of the dollar's strength relative to other major currencies, has been increasing since 2012, and is expected to increase an additional 1.5% in 2014. A stronger dollar has led to a decrease in industry exports in 2013 and 2014, as industry products become more expensive on the world market. The appreciation has also increased the purchasing power of American consumers, leading to a significant rise in import volumes in the past five years.

In the five years to 2019, industry revenue is forecast to increase at an annualized rate of 3.0% to \$137.4 billion. An increase in R&D funding will continue to drive product advancement during this period, which will strengthen the already solid demand from downstream industries. Product innovation will also allow the industry to tap into new customer segments, such as renewable energy and biotechnology. However, the industry's export segment will continue to decline due to an appreciating dollar and greater international competition. Imports are also expected to rise during this period and, by 2019, will satisfy 31.4% of domestic demand.²⁴

Recommendations

The Manufacturing industry in Passaic County is very diverse and includes employment in a wide variety of subsectors. Overall Passaic County should ensure that they are providing a good business climate for the businesses that includes business friendly policies, high quality transportation and logistics infrastructure, and an available workforce armed with the skills needed to be successful. The following strategies have been developed to help the county support manufacturing in Passaic.

- Maintain infrastructure to ensure location continues to be a competitive advantage for Passaic County.
- Maintain a detailed property inventory of all available property in Passaic County to be able to assist manufacturers looking to expand or relocate their business. Make this information up to date and available on the internet for site-selectors and others doing research on behalf of companies.
- Continue to conduct regular business visitation with major employers throughout the county to ensure their needs are being met and help them stay and expand in Passaic County.
- Help establish opportunities for collaboration throughout Passaic County including establishment of a manufacturing collaborative to support existing and future manufacturing. The collaborative should focus on issues facing all manufacturing companies including workforce, education/training, technology/innovation/R&D, market development, and other.
- Train guidance counselors, parents, and students on career opportunities within the manufacturing industry including internships, field trips, career pathway information, etc.

²⁴ IBISWorld Industry Report 33451a. Navigational Instrument Manufacturing in the US.

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Attachment C – SWOT Analysis





Notes from the Advisory Group Meeting

Dynamic SWOT

October 23, 2014

1. The context: What are the major trends in the world having an impact (positive or negative) on Passaic County, e.g. global market, social, technological and economic trends, real estate, weather events, etc.? Respond like this: [Trend]: [Its impact.] Please be specific and use as much detail as you can.

- Brownfield Redevelopment: Positive environmental cleanup and new sources of revenue
- Challenges in urban education k-12, impact: less skilled workforce
- Climate change, impact : flooding
- Climate change: increased flooding negative impact on business, environment, and local communities. Positive impact blue acres buyout and creating open space.
- Disconnect between workforce and business: Difficult for businesses to expand and get employees
- Ease of access of global communication. Impact: Larger variety of goods and services being exported to a wider variety of global destinations.
- Economic trends: ability of companies to move to low cost areas and its impact on real estate
- Economic: aging physical structures sustainability creates a demand for new tech
- Flooding impact: empty homes & businesses
- Global climate change. Impact: More severe weather events leading to natural disasters that impact on transportation, housing, and the overall economy.
- Global health Impact-need for increase awareness and capabilities
- Global market: [1) lost manufacturing; 2) manufacturing moving to cheaper markets; 3) fewer workers; 4) technology's impact on productivity]
- Global Market: new businesses and growing business from all over the world.
- Global markets
- Higher education is becoming more of a private good impact : cost
- Immigration: changing demographics
- Immigration: Develop new markets
- Increasing income inequality in urban areas impact: declining middle class
- Job Growth: Diversity improves skills
- Loss of manufacturing: moving to lower cost markets3
- Manufacturing: Growing local economy. The diversity in Passaic County can fill these positions.
- More money than jobs are flowing to healthcare impact: PPACA had direct increase in people seeking preventive care

- Poor transit system: We can't get people to work
- Population Shift: People moving back to cities.
- Real Estate: obsolete office space and reuse
- Redevelopment: Bringing \$ into our communities to improve tax base
- Reduced graduation rates Impact: increase wage disparity and earning potential on population
- Social: telecommuting reducing need for space; technology/internet communication increases movement of service jobs as productivity increases
- Technology Advancements: Improves different areas of manufacturing.
- Technology: expectation of access
- Tourism: More people visiting and staying in our County
- Urban revitalization: new opportunity to market areas as a destination and grow businesses, places for younger generation to live/work without car
- Value of Real Estate: Proper tax assessments, valuations

Themes: Change, climate change, technology, workforce: planning, hiring developing, training and skill development, qualified workers, corps. looking for low cost areas, education: few kids graduating, Abbott districts, Paterson, challenges, transportation, graduate ed. linking course work to business skillset needs, need for brownfields redevelopment, aging infrastructure, trend toward international commerce

2. Dynamic SWOT: Thinking about the trends we have described, what are we doing well in Passaic County that contributes to our economic well-being and resilience that we want to KEEP? What is an obstacle or barrier to our success that we might ABANDON? What new activities or revised activities are we drawn to INVENT/REINVENT that if we did would make a huge difference to our success?

KEEP:

- Brownfield redevelopment
- Brownfields funding for sites available for redevelopment³
- Development of our heritage and tourism industry.
- Diversity of population - maintain and support continued diversity of county population.
- E-bay for Brownfields
- Existing Businesses
- Garbage, snow removal services are working
- Garden State Growth Zones and increase communications to business owners
- Increase program for job skills through colleges
- Keep and increase Economic Development program. 3
- Keep and reinvent stakeholder communication
- Long Range Planning at all levels, investment in public facilities, supporting diversity, protecting water, smart growth
- Preservation of open space.
- Services
- Small business development center and business counseling for community

- Transit village

ABANDON:

- Development that is not supported by mass transit, status quo, 2 separate counties, town not working with others
- Duplication of services and the need for streamlining
- Government regulations.
- Red tape, bureaucracy of getting redevelopment done
- SILOS

INVENT:

- Business incentives for Passaic county
- Central communication point for business incentives in Passaic county
- Identify and attract major corporations
- Incentives for new businesses to move here.
- Link between vocational education and new technology
- Obtain grant funding to bring in light rail to the county to improve transportation
- Programs in the high schools to learn how to manage money

REINVENT:

- Ability to import and export
- Adaptive reuse of abandoned building
- Civic preparedness for natural disasters
- Delivery of public goods and services through more shared services.
- Develop light rail system through DOT funding and connect to surrounding counties
- Enhancing safety in urban areas
- Global initiatives--recapture export potential
- Great Falls and river as tourist and recreation destinations.
- Growth with key partners
- Improve communications from county/towns to business owners regarding disasters (pre-, during and post)
- Land use mgmt. And embrace smart growth development to reduce flooding
- Mechanism to repurpose former industrial sites in our urban centers.
- New infrastructure that build towards major needs (wifi access, climate resiliency, mass transit access)
- Passaic County is actually two different counties. (Reinvent to make whole)
- People visiting and spending money in PC, redeveloping brownfields,
- Private transit
- Public Transportation - More rail (light rail need to complement bus service to get people to work and back and reduce congestion on roads.

- Reputation around public safety--helps attract businesses and new residents.
- Rivers, reclaim them as a part of the community rather than a means for manufacturing, our image as a destination for visitors and residents,
- The flood mitigation programs
- The process/regulations for the redevelopment of brownfield sites.
- Tourism activities
- Transportation networks, light rail

Themes and additional thoughts: smart growth, better transit, brownfields redevelopment, tourism, perception and reputation, diversity (retain/promote), streamline government services, education: in high schools and for business owners, inter-governmental communication bet. towns/county, etc., encourage development of green businesses and tech., protect natural resources,

3. Key stakeholders for our future: What stakeholders (internal and external) are important to our future, what are their interest and how might we collaborate so that their interests and those of the county and its communities are served? E.g. Passaic County Community College: They want a robust, successful institution and student body. We could engage them in innovative workforce training that allows our community members to find and keep great jobs.

- Academia
- Banking institutions
- Businesses and collaboration with chamber of commerce.
- Businesses in the county and state as a whole; work together to boost jobs and the economy
- Businesses need better connections to other business; interactions, idea exchanges
- Chamber of Commerce
- Chambers and business networks
- ChooseNJ key for growth and incentive programs
- Collaboration between chamber of commerce and local companies to facilitate imports and exports
- College and university students; link through internships and research projects
- Colleges and students--increased programs for internships & increased publicity in the business community of the availability of interns; interns receive income and real life experience
- Courts: provide legal system
- Economic development
- EDA
- Fabricated metal product, technology and entrepreneurship
- Faith and community-based non-profits
- Food industry
- Grassroots community engagement
- Great Falls
- Green business: support through NJPACE,
- Healthcare industry - economic growth, healthy population.
- Higher education

- Higher education, employee training, prepare future workforce.
- Higher education: town and gown relationship building
- Hospitals and health care
- Import/export bank; links to their programs, especially in terms of local companies import/export capacities.
- International partners: import/export
- International trade associations
- Investors - need ways to link investors to businesses
- Labor Workforce Development and the PCCC and One Stop Career Center = Stakeholders
- Major manufacturers
- Managers and owners in businesses
- Medical services providers: senior and long term patients
- Municipal and county planning
- Municipalities and County Departments (economic development)
- National businesses
- Need for regional entity to link counties and municipalities
- Organizational service offices
- Parks: serves whole population
- Passaic County Education systems b/c they mold our future leaders.
- Property owners. Need ways to reduce property taxes to retain property owners and business owners. Seniors are forced to leave their communities because they can't afford the taxes.
- Public Safety
- Residents of the county.
- Small business owners and business development folks
- St. Joe's Hospital
- St. Mary's Hospital
- Teacher incentives entrepreneurs
- Tourism: site operators, accommodation industry, visitors and local governments
- Town-Gown-Business relationship.
- Transportation: passenger and freight operators
- Un- and under-employed, property owners, e.g. Mall owners, etc.
- Voters and tax payers information sharing/ mass media
- Warehouse distribution
- Workforce investment, (WIB board and workforce development center)
- Young people (children, teens, & young adults) Future stake holders. Need to keep them in the county and leave for them a healthy, vibrant environment.
- Young students. Need incentives to stay in school, need life skills

Themes and additional thoughts: Higher education: WP University, Montclair State, Berkley, Community College, Development community, non-profits, one-stop career centers, St. Joe's, internships, on the job training, customized training, libraries, transportation operators, faith based orgs., young people!, economic development that will create jobs. We see a need for people with certain skills that will make the county more attractive to businesses, in addition, vocational education.

4. Initiatives: Thinking about our conversation thus far, describe one or more projects/programs we would like to start right away that would help us create our preferred future for the County, its residents and those who visit, work and do business here (5-word catchy title and 25-word description).

1. Countywide chamber of commerce
2. Work-study classroom programs
3. Socioeconomic Development through Town-Gown-Business Relationship: Checklist of need of the resources; where we can find them; how we can ensure their involvement to accomplish our goals, without any additional financial burden.
4. Develop a County Import Export Council (Art Vandalay): Identify local businesses that are already involved or want to be involved in import/export and link them to experts and resources in their fields. (Mentoring)
5. Chamber of Commerce: Unify the countywide business environment that more clearly links business and resources and reinforces the county identity as a place to attract employers and support development
6. Improve and enhance public access: improve public transportation through fixing issues and expanding the system to connect our towns within the county and other counties; to improve the movement of people to work and move the goods/services; to increase tourism and recreation; to get people to stay in the County after work
7. School/Work Paid Program: Schools work with local business to get paid internships or part-time jobs in the community. Focus on high school students in economically depressed neighborhoods to give them business exposure. Business owner receives small type of incentive. Gives business owner a good rep in the neighborhood. Keeps kids off the streets.
8. Discover Passaic County: explore our history, culture and natural beauty
9. Countywide light rail system - Improve the public transportation system, connecting all of the municipalities within the county.
10. A blending of economic development, community development, education to develop training for downsized workers (regionalized full service community school model)
11. Specific county business incentives
12. Abandon: concrete covers over reservoirs!!
13. Passaic County Business Relocation Incentive Package - Grants, employee training, tax abatements, stream-lined permitting process.
14. Passaic Bergen Rail: Build a constituency to advance the project that will reactivate passenger service on the NYS&W rail line through Passaic County
15. Invite people to our communities: Make our entrances and access points more attractive; improve signage to landmarks and destination points; beautify the river
16. Police and safety initiatives to promote secure environment
17. Straphangers Group: Create an outlet for current mass transit users to voice their opinion on the type of service and operations of service
18. Dredge the Passaic river: Dredge entire river and remove debris
19. County Comprehensive Marketing Initiative - Market Passaic county as a great place to live, work and play.

20. County-wide collaborations that facilitates innovative start-ups. Local colleges and universities work with, real estate professionals, local businesses and leaders to incubate innovative ideas and new business models. For example, reuse former industrial sites as vertical farms. This includes internships, academic programs, and business needs with the end goal of creating new jobs with value added potential.
21. Money to buy out businesses in flood prone areas and relocate them in Passaic county
22. Countywide website for visitor attractions and destinations
23. Additional funding for business counseling
24. Let's Talk: Increase communications from OEM/Law enforcement to business owners and stakeholders/multi-media marketing strategy
25. Student Entrepreneur Program (after school) to target middle and high school students. Recruit retired business owners to promote student entrepreneurs
26. More customized training funding



Risk Assessment Meeting

October 23, 2014

1. Thinking about all the different kinds of events that could have an impact on Passaic County (hurricane, ice storm, flooding, terrorist attack, nuclear event, economic shock, riot, disease outbreak) what preparations have been put in place or resources are available of which you are aware?

- Ability to return to normal
- Adequate materials and supplies
- Avail of employees
- Back-up power supplies (generators)
- Buyouts/elevations
- Community containment plan
- County and state hazard mitigation plans
- Dissemination of information, emnet, mutual link, nj lincs, radio communications on vhf, uhf, 800 mhz, etc.....
- Emergency alert systems & notifications
- Emergency email distributions
- Emergency operations plans
- Emergency operations plans & sops
- Employee avail to be at work
- Eops
- E-team
- Flood mapping
- Fuel supplies
- Generators in working order
- GIS capabilities, emergency operations plan, hazard mit plan, 911 dispatch (reverse 911),
- Hazard mitigation plan
- Hazard mitigation plans
- Influenza plan
- Mutualink
- Networking
- Networking with state and local OEM
- NIXL
- OEM - county and municipal
- Pandemic plan

- Policies and procedures
- Pre stage resources
- Red Cross
- Resources: high wheel vehicles, generators, western shelter tent, shelter equipment, cart trailer, vaccines
- Salvation Army
- Shelters ready to open
- SNS plan
- Social media
- Statewide communications systems
- Stockpile
- Stream gauges/warning systems
- Testing all systems
- Testing backup systems
- Testing communication systems

Additional ideas: Alternate fuel vehicles, human resources e.g. MRC volunteer, CERT teams, CART team, VOAD, debris removal, HAZMAT team, EOCs, relationship with utilities (part of EOCs),

2. Thinking about all the different kinds of events that could have an impact on Passaic County (hurricane, ice storm, flooding, terrorist attack, nuclear event, economic shock, riot, disease outbreak) what gaps exist in planning, communication, action strategies, etc.?

- A realignment of the electrical grid so that flood prone areas can be shut down without affecting the rest of the area
- Businesses not knowing whom to contact in case of emergency
- Cohesive traffic plan
- Communications/overloaded systems. Inter-agency operability. Air support
- Conflicting priorities responding to emergencies
- Critical facilities: identify via inventory and prioritize. Agreement about what they are and what the order is
- Deployment of equipment from County and State and where the apparatus is being sent
- Emergency management center would be very helpful with all parties in one place
- Flooding: A lack of road closure information between towns... How do we navigate around the county and know what areas are accessible?
- Funding for equipment and personnel.
- Funding for pre-disaster mitigation projects
- Gaps in communication from the top down.
- Generators, staffing: OEM and extended response, communications: knowing what is happening on county level (e team not properly working)
- Increase storm water capacity on County roads
- Lack of preparedness for business community
- Location sites for PODS for OEM and Health

- Manpower (depends on incident as to type)
- Manpower- trained personnel in health and medical, language barriers.
- Mobile generators for critical facilities (water system)
- More fixed facilities for distribution of vaccines, shelters.
- Mutualink conflicting priorities among departments
- Need a shared county radio channel
- Personnel shortage, constraints, on duty time limits
- Radio Interoperability
- Regional traffic diversion plan
- Resource Management
- Timeliness of information, damage assessment, communication to proper entity

3. Thinking about POWER/ENERGY, COMMUNICATIONS, TRANSPORT, ROAD TRAVEL, TOWN PLANS (flooding, etc.) during and after Sandy and other major events that do we want to KEEP, ABANDON and INVENT/REINVENT? Respond like this: POWER: KEEP the.....because

KEEP:

- CERT volunteers and other related groups
- Communication channels, radio/ REI: cell service,
- Communication: Keep morning and evening updates. Utilities need to improve outage and restoration info
- Community group support
- Coordination with utilities at EOC as well as coordination with all County agencies (health, dpw, sheriffs dept. And all other partners.
- Emergency communications
- Generators at gas stations
- Good community information channels
- Grants available
- Interdepartmental communications, reverse 911, alternate power sources,
- Keep beer coolers cold
- Natural gas generators
- Plans and their updates
- Shared Shelters Keep: social media and alert systems Reinvent: inventory backup generators and ID other suppliers
- Shelters
- Surplus military vehicles

ABANDON:

- E team
- Local sheltering operations
- Low band radio systems
- Regional sheltering
- The location for the RSS site

INVENT:

- Available resource list (equipment and personnel)
- Backup power for traffic signals or portable stop signs to assist with traffic management during power outage events
- Charging/warming and/or cooling centers
- County sheltering system
- Countywide live GIS system
- Mutual aid system during storms

REINVENT:

- Backup power to cell sites
- Communication and updates
- Cooperation from red cross reinvent: better sharing of resources including manpower
- Fuel distribution systems
- Improve relationships with partner agencies
- Improved access to generators for emergencies
- Quality of communication and information
- Road and public transportation
- Sheltering at the local level works best
- Storm water capacity

Additional thoughts: Flood stage/other road closure mapping: GIS map system for this, pre- during a disaster, see Rockland County NY, OEM coordinators know all the appropriate policies so they can act, a place where the information can be obtained, esp. power companies, how do we prioritize and understand what's appropriate

4. Project: Thinking about the topic categories, describe a project that will help mitigate—or enable Passaic County to recover from—events such as Irene/Sandy. Respond like this: Category + (3-5 word Catchy Name for the project) and 25 word description.

1. Increase storm water capacity on County roads
2. Interactive GIS mapping

3. Countywide GIS system to notify road closures, detours, etc (real time)
4. County GIS System: maps, road closures, shelters, available resources and open key businesses on one map
5. Separation of storm water and sanitary sewer systems
6. A central county emergency center that municipalities can tap into: to help businesses know what to do and where to go. Need to have a central information source.
7. All utility systems put underground
8. Elevation and buyouts Goals: to alleviate emergency responders response and alleviate repetitive loss. Also, responding and mechanism for responding to emergency flooding situations. Think about mitigation.
9. Shared Service Agreement Funding: Provide shared resources for DPW, OEM or any service a town provides (both personnel policies and equipment)
10. County wide critical facility list
11. Dredging of Passaic River
12. State of Emergency Shared Service Agreements
13. County coordination of road closures
14. Office of River Maintenance/ bill presented to legislature. Will provide continual maintenance on all of our major rivers.
15. Dredging Passaic river
16. Live GIS Mapping Tool: (Application or web based) Used for event mapping (road closures, equipment deployment, flood locations etc.)
17. Static GIS Tool/Mapping: maps available for static facilities and conditions (critical infrastructure, flood stage mapping, storage areas)
18. Funding for flood buy-outs so that home owners do not have to put in a local match
19. Resource Management: food supplies, ice, water, prepared or ready to eat meals for shelters - identify vendors that are still operating
20. County radio system: Countywide Wi-Fi and radio access system that is deployable and independent of local systems during major events. (an existing possibility: New Jersey Interoperable Communication System. State of NJ OIT. General opinion is that it isn't used.)
21. Project: Multi utility exercise with County and Municipal level OEM. Goal: OEMS and utility to understand each others priorities during an emergency. Whole systems approach, everyone together.
22. Microgrids to prevent widespread future outages
23. Mutual aid plan during storms
24. Development of alternate energy throughout the County, access to the new energy
25. De-silting/de-snagging projects
26. Dam safety program, identification of all dams and their status, availability of \$\$\$\$\$\$
27. Charging stations: solar powered for electric vehicles. How do you unplug from the grid?

Attachment D – Interview List



Interview List

- 1. Ken Morris, SVP**
St. Joseph's Hospital and Medical Center
- 2. George Waitts, President**
Crown Roll Leaf
- 3. Nancy Kontos, CFO**
Kontos Foods
- 4. George Jacobs, President**
Jacobs Enterprises
- 5. Howard Weinberg**
Jones Land LaSalle
- 6. Rob Pavlick**
Red Cross
- 7. Gene Reynolds**
Orange and Rockland Utilities
- 8. Steve Tiboni**
NJ State Police
- 9. Charlene Gungil, Director**
Department of Health, Passaic County, NJ
- 10. Captain Steve Pellington**
Passaic County Sheriff Department
- 11. Nicole Fox, Executive Director**
Passaic County Improvement Authority
- 12. Michael LaPlace, Director, Planning and Economic Development**
Passaic County
- 13. Michael Lysicatos, Transportation Planner**
Passaic County
- 14. Amy Ferdinand, Facilities Manager**
Montclair State University
- 15. Philip Wagenti, SVP**
M&T Bank
- 16. Steve Edmond, County Engineer**
Passaic County
- 17. Shojai Siamack, Dean Business School**
William Paterson University
- 18. Kathleen Muldoon, Executive Director**
WPU SBDC
- 19. Bernadette Tiernan, Director of Continuing Education**
William Paterson University
- 20. Mayor and Business Administrator**
Borough of Bloomingdale
- 21. Mayor and Business Administrator**
City of Clifton
- 22. Mayor and Business Administrator**
City of Paterson
- 23. Mayor and Business Administrator**
Borough of Hawthorne
- 24. Mayor and Business Administrator**
Borough of Prospect Park
- 25. Mayor and Business Administrator**
Borough of Haledon
- 26. Mayor and Business Administrator**
Borough of North Haledon
- 27. Mayor and Business Administrator**
Borough of Woodland Park
- 28. Mayor and Business Administrator**
Township of Wayne
- 29. Mayor and Business Administrator**
Township of Little Falls
- 30. Mayor and Business Administrator**
Borough of Totowa
- 31. Business Administrator**
Borough of Pompton Lakes
- 32. Mayor and Business Administrator**
Borough of Wanaque
- 33. Mayor and Business Administrator**
City of Passaic
- 34. Mayor and Business Administrator**
Borough of West Milford
- 35. Anthony DeNova, County Administrator**
Passaic County
- 36. Donn Rossi and Harriet Davis, Owners**
The Original Miami Onion Roll
- 37. Lisa Hirsh, President**
Accurate Box Company
- 38. Michael Seeve, President**
Mountain Development Corp
- 39. Richard Baird**
William Paterson University
- 40. Brian Tangora**
North Jersey Chamber of Commerce
- 41. Lourdes Cortez, CEO/President**
North Jersey Federal Credit Union
- 42. Jamie Dykes**
Greater Paterson Chamber of Commerce and Tri-County Chamber of Commerce

Please see Situational Analysis section of the report for the major findings from these interviews.



Attachment E – Focus Group List and Themes



Focus Group List and Themes

To gather additional information related to the relevant clusters, Camoin Associates held three focus groups with key representatives to hear about the core issues and opportunities. The information collected during these focus groups was then used to help inform the development of targeted strategies to be incorporated into the Action Plan Matrix. The following is a brief summary of some of the key points from these meetings.

Retail

Attendees:

- Ekaterina Valiotis, Manager, Center City Mall, Paterson, NJ
- Sheri Ferreria, Manager, Downtown Paterson Special Improvement District, Paterson, NJ
- George Jacobs, President, Styretowne Shopping Center, Clifton, NJ
- Chris Irving, Executive Director, Passaic County WIB
- Elmhada Abdel Aziz, Manager, Botany Village Special Improvement District, Clifton, NJ
- Michael Fabrizio, Manager, Pompton Lakes Special Improvement District, Pompton Lakes, NJ (on conference call into meeting)

Notes:

- There has been growth in the food market including grocery stores, specialty stores, health food stores, etc. These have seen an increase as other sectors of the retail industry have started to decline. This fits well with the county's history of food product manufacturing as it provides an outlet for producers.
- Low-cost retail is seeing a downward trend.
- E-Commerce having major impact on supply and demand for the retailers in Passaic County and throughout the country. The impact is growing as more and more people are choosing to shop this way. Retailers in the county will need to find ways to participate in this trend and capitalize on consumers' desires to make purchases online.
- Brick-and-mortar footprints are getting smaller – even among the big box categories
- Passaic County's highly diverse population is an opportunity for retailers as the diversity provides an increased demand for a wide variety of new products.
- Regulations and other fees are high in Passaic County and can make it difficult for businesses to grow or locate.
- The lack of affordable housing and transportation is an obstacle to workforce leading to high turnover rates and low retention.

Healthcare

Attendees:

- Lucinda Corrado, Executive Director, Preakness Healthcare Center, Wayne, NJ
- Fred Feinstein, CEO, Daughters of Miriam, Clifton, NJ

- Mayer Werzberger, Owner, The Wanaque Center (Nursing Home and Rehabilitation Center, Wanaque, NJ)
- Bernadette Tiernan, WPU, Continuing Education, Wayne, NJ
- Kenneth Morris, SVP, St. Joseph's Hospital and Medical Center, Paterson, NJ

Notes:

- The health care industry is seeing a trend towards getting people back in their homes quicker and/or treat them at their homes which is having the resulting impact of reducing long-term beds at facilities throughout the county.
- Managed care contracts and the providers needing to negotiate with insurance companies for reimbursement amounts has impacted the ability for health care facilities to be successful and grow financially.
- There has been a trend towards privatization of healthcare as well as mergers and consolidations which has reduced the number of smaller service providers.
- Some health care providers are having difficulty with job-readiness of the job applicants which is leading to a shortage of nurses and nursing assistants.
- The county's lack of affordable housing and transportation is an obstacle to workforce.

Manufacturing

Attendees:

- Lisa Hirsh, President/CEO, Accurate Box
- Darren Silverstein, CEO, CLI Group
- Alia Suqi, President, NextWave

Notes:

- The available incentives (local, regional, and statewide) to support development and expansion have had positive impact on manufacturing. However there are still some constraints to doing business in Passaic County that make it difficult to expand.
- Significant tensions over unions related specifically to inability to allow "cross training" of employees and the impact this has on smaller businesses.
- Many businesses are located in Passaic County because that is where they were originally started and there is significant capital investment made in the region that would make it difficult for them to move elsewhere.





Attachment F – Pre and Post Irene Impact Assessment



Pre- and Post-Irene Impact Analysis Comprehensive Economic Development Strategy Passaic County, New Jersey

April 2015

Prepared for:
Passaic County, New Jersey



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Introduction

The following report will present and analyze employment data in Passaic County, New Jersey in the timeframe just prior to, during, and after Hurricane Irene, 2008-2014. This data will complement the Economic Base Analysis completed by Camoin Associates in March 2015. Additional data on demographic profiles, population change and general employment data can be found in that Demographic and Economic Base Analysis (CEDS Attachment A).

President Obama designated Passaic County, as well as the rest of the state of New Jersey, as a Federal Disaster Area on August 27, 2011 following the events of Hurricane Irene. The economic effects of a natural disaster and an emergency situation can be far-reaching and longstanding. To begin to understand the employment and industry effects of Hurricane Irene on Passaic County, Camoin Associates narrowed in on industry data to investigate trends leading up to, and after Hurricane Irene. Once it is better understood how local industries have changed during this time period, efforts to rebuild within the county can be concentrated in areas that are particularly depressed.

The time period between 2008 and 2014 contains a dramatic economic event and two substantial natural disasters that convolute what event is “responsible” for the economic and employment changes in Passaic County. The 2008 recession, along with Hurricane Irene in 2011 and Hurricane Sandy in 2012 undoubtedly touched Passaic County, but to what extent any of the events are directly responsible for employment changes can only be determined through further in-depth research. This report aims to observe the general trends in top industries in Passaic County between 2008 and 2014.

Business Inventory

The purpose of this report is to provide a summary of the inventory of businesses in Passaic County both before and after Hurricane Irene to determine the impacts. This inventory is based on Mod-IV tax parcel data from 2011 (Pre-Irene) and 2014 (Post-Irene). Changes in assessed property values were analyzed to identify properties that were damaged by Irene. Equalization ratios for 2011 and 2014 were utilized to adjust the assessed values for each municipality to approximate market value. This also eliminates the artificial inflation or deflation of property values for those municipalities that reassessed their properties between 2011 and 2014.

Commercial and Industrial Parcels

According to the 2014 Mod-IV data, there are 9,539 non-residential properties in Passaic County, consisting of 8,053 commercial and 1,486 industrial properties. In 2011, there were 9,604 non-residential properties, consisting of 8,102 commercial and 1,502 industrial properties. County-wide, the decrease in the number of nonresidential parcels is nominal and is likely attributable to normal fluctuations in property utilization. Some municipalities saw increases in the number of non-residential properties, while others saw decreases. Of those non-residential properties, the most substantial loss was in Paterson, which saw a 2 percent loss of both commercial and industrial parcels.

Passaic County Commercial and Industrial Parcels									
Municipality	Commercial			Industrial			Non-residential		
	Parcels			Parcels			Parcels		
	2011	2014	Change	2011	2014	Change	2011	2014	Change
Bloomingtondale	102	107	5%	2	4	100%	104	111	7%
Clifton	1,100	1,102	0%	443	429	-3%	1,543	1,531	-1%
Haledon	128	145	13%	26	25	-4%	154	170	10%
Hawthorne	273	273	0%	109	116	6%	382	389	2%
Little Falls	201	196	-2%	40	40	0%	241	236	-2%
North Haledon	83	87	5%	6	6	0%	89	93	4%
Passaic	1,142	1,139	0%	117	116	-1%	1,259	1,255	0%
Paterson	3,356	3,276	-2%	499	488	-2%	3,855	3,764	-2%
Pompton Lakes	166	164	-1%	11	11	0%	177	175	-1%
Prospect Park	59	60	2%	2	2	0%	61	62	2%
Ringwood	57	58	2%	25	25	0%	82	83	1%
Totowa	240	239	0%	63	64	2%	303	303	0%
Wanaque	92	105	14%	18	18	0%	110	123	12%
Wayne	591	600	2%	84	84	0%	675	684	1%
West Milford	285	279	-2%	28	29	4%	313	308	-2%
Woodland Park	227	223	-2%	29	29	0%	256	252	-2%
County Total	8,102	8,053	-1%	1,502	1,486	-1%	9,604	9,539	-1%

Source: 2014 Mod-IV data

Equalized Assessed Property Values

An analysis of changes in equalized assessed property values for non-residential parcels at the county level between 2011 and 2014 indicates a 4 percent gain in value of industrial properties and a 0.05 percent loss in commercial properties. Property value changes at the municipal level, however, indicate much more dramatic changes between 2011 and 2014. Some municipalities had tremendous growth in commercial and industrial values over the three year period, while others saw decreases in values.

Equalized Assessed Property Values									
Municipality	Commercial Value			Industrial Value			Non-Residential Value		
	2011	2014	Change	2011	2014	Change	2011	2014	Change
Bloomingtondale	\$15	\$54	263%	\$0.10	\$5	7755%	\$15	\$59	296%
Clifton	\$413	\$459	11%	\$328	\$340	3%	\$741	\$799	8%
Haledon	\$20	\$74	280%	\$7	\$23	249%	\$26	\$97	272%
Hawthorne	\$60	\$63	5%	\$39	\$42	6%	\$99	\$104	6%
Little Falls	\$304	\$210	-31%	\$65	\$49	-24%	\$368	\$259	-30%
North Haledon	\$6	\$53	840%	\$1	\$5	702%	\$6	\$59	825%
Passaic	\$116	\$123	6%	\$33	\$33	-1%	\$149	\$156	4%
Paterson	\$2,024	\$1,970	-3%	\$676	\$640	-5%	\$2,699	\$2,610	-3%
Pompton Lakes	\$28	\$29	7%	\$9	\$10	10%	\$37	\$40	8%
Prospect Park	\$9	\$10	18%	\$2	\$2	17%	\$10	\$12	18%
Ringwood	\$64	\$52	-20%	\$32	\$24	-25%	\$97	\$76	-21%
Totowa	\$671	\$645	-4%	\$345	\$310	-10%	\$1,016	\$955	-6%
Wanaque	\$18	\$78	328%	\$4	\$19	333%	\$23	\$97	329%
Wayne	\$557	\$571	2%	\$103	\$102	-1%	\$660	\$673	2%
West Milford	\$39	\$196	399%	\$4	\$42	857%	\$44	\$238	445%
Woodland Park	\$288	\$280	-3%	\$56	\$54	-4%	\$344	\$334	-3%
County Total	\$6,642	\$6,882	4%	\$3,715	\$3,714	-0.05%	\$8,346	\$8,582	3%

Source: 2014 Mod-IV data

Equalized Assessed Improvement Values

In order to provide a more meaningful assessment of the pre- and post-Irene business inventory, an analysis was performed at the property level to identify properties that decreased in equalized assessed value after Hurricane Irene. The data indicates that there were 13,136 parcels County-wide that experienced a decrease in equalized assessed value of improvements from 2011 to 2014, ranging from 1 percent to 100 percent loss of the 2011 value. Municipalities with properties that saw the greatest loss of improvement value, on average, were Clifton, Totowa, and Wayne. Paterson had the greatest number of non-residential properties that experienced decreases in improvement values.

Equalized Assessed Improvement Values					
Municipality	Parcels	Equalized Assessed Improvement Value			
		2011	2014	Loss	Percent
Bloomingtondale	112	\$38.50	\$37.40	(\$1.10)	-3%
Clifton	1,940	\$2,076.00	\$1,434.10	(\$641.90)	-31%
Haledon	288	\$123.50	\$112.50	(\$11.00)	-9%
Hawthorne	486	\$109.70	\$101.90	(\$7.80)	-7%
Little Falls	64	\$5.80	\$5.60	(\$0.30)	-4%
North Haledon	174	\$17.80	\$17.00	(\$0.80)	-4%
Passaic	1,904	\$201.90	\$193.00	(\$9.00)	-4%
Paterson	5,202	\$1,192.60	\$1,100.30	(\$92.30)	-8%
Pompton Lakes	286	\$91.80	\$85.50	(\$6.30)	-7%
Prospect Park	114	\$21.20	\$19.80	(\$1.50)	-7%
Ringwood	20	\$6.90	\$6.50	(\$0.50)	-7%
Totowa	398	\$223.20	\$83.70	(\$139.50)	-63%
Wanaque	210	\$66.10	\$61.60	(\$4.50)	-7%
Wayne	990	\$396.40	\$277.80	(\$118.60)	-30%
West Milford	550	\$140.00	\$135.20	(\$4.80)	-3%
Woodland Park	398	\$86.40	\$83.50	(\$3.00)	-3%
County Total	13,136	\$4,798.00	\$3,755.10	(\$1,042.80)	-22%

Source: 2014 Mod-IV data

Economic Inventory

Economic Inventory: 2-digit NAICS codes

To take into account the events and aftermath of Hurricane Irene, 2-digit NAICS code data were examined between 2008-2011 and 2011-2014.

Between 2008 and 2011 there were eight industries that experienced positive overall growth. In that same time frame, there were 13 industries that experienced a decrease in their total employment numbers. Between 2011 and 2014, there were slightly more industries that had increases in their employment totals, 11 in total. Ten industries suffered decreases between 2011 and 2014. Management of Companies and Enterprises lost almost 25% of its workforce in that four year time frame.

Industries that had losses at the end of both time frames include: Manufacturing, Construction, Other Services (Excluding Public Administration), Real Estate and Rental and Leasing. The industries that experienced growth at the close of 2011 and 2014 include: Health Care and Social Assistance, Accommodation and Food Services, and Transportation and Warehousing.

Passaic County Percent Change in Jobs Pre and Post Hurricane Irene, 2-digit NAICS					
NAICS Code	Description	2008-2011 Change	2011-2014 Change	2008-2011 % Change	2011-2014 % Change
11	Crop and Animal Production	(15)	50	(1 0%)	36%
21	Mining, Quarrying, and Oil and Gas Extraction	(52)	17	(3 3%)	16%
22	Utilities	57	(24)	10%	(4%)
23	Construction	(1,636)	(528)	(1 5%)	(6%)
31	Manufacturing	(1,576)	(999)	(8%)	(5%)
42	Wholesale Trade	(2,556)	107	(2 3%)	1%
44	Retail Trade	(289)	1,938	(1%)	8%
48	Transportation and Warehousing	463	451	11%	10%
51	Information	(356)	(342)	(1 4%)	(1 6%)
52	Finance and Insurance	46	(509)	1%	(9%)
53	Real Estate and Rental and Leasing	(190)	(245)	(6%)	(8%)
54	Professional, Scientific, and Technical Services	(878)	460	(1 0%)	6%
55	Management of Companies and Enterprises	83	(1,271)	2%	(2 4%)
56	Administrative and Support and Waste Management and Remediation Services	1,288	(1,237)	9%	(8%)
61	Educational Services	(759)	954	(1 7%)	26%
62	Health Care and Social Assistance	1,023	493	4%	2%
71	Arts, Entertainment, and Recreation	(175)	21	(1 1%)	2%
72	Accommodation and Food Services	124	195	1%	2%
81	Other Services (except Public Administration)	(174)	(24)	(2%)	(0%)
90	Government	(1,464)	7	(5%)	0%
99	Unclassified Industry	194	(1,096)	20%	(9 4%)

Passaic County Employment Trends 2008-2014, 2-digit NAICS

NAICS Code	Description	2008 Jobs	2009 Jobs	2010 Jobs	2011 Jobs	2012 Jobs	2013 Jobs	2014 Jobs	Trend Line
11	Crop and Animal Production	153	140	130	138	166	187	188	
21	Mining, Quarrying, and Oil and Gas Extraction	155	124	97	103	110	128	120	
22	Utilities	582	642	641	639	634	614	615	
23	Construction	10,923	10,206	9,462	9,287	9,333	9,479	8,760	
31	Manufacturing	20,625	18,640	18,608	19,049	18,717	18,401	18,050	
42	Wholesale Trade	10,994	9,488	9,185	8,438	8,416	8,402	8,545	
44	Retail Trade	24,914	23,767	24,189	24,625	25,028	25,652	26,563	
48	Transportation and Warehousing	4,210	4,281	4,300	4,673	4,696	4,968	5,123	
51	Information	2,520	2,363	2,382	2,164	2,073	1,905	1,821	
52	Finance and Insurance	5,657	6,083	5,888	5,703	5,658	5,413	5,194	
53	Real Estate and Rental and Leasing	3,203	3,067	3,068	3,013	2,868	2,852	2,768	
54	Professional, Scientific, and Technical Services	8,929	8,896	8,445	8,051	8,300	8,300	8,511	
55	Management of Companies and Enterprises	5,278	4,805	4,777	5,361	4,882	4,736	4,090	
56	Administrative and Support and Waste Management and Remediation Services	13,985	11,803	14,413	15,272	15,292	13,931	14,036	
61	Educational Services	4,470	4,634	3,891	3,710	3,741	3,879	4,665	
62	Health Care and Social Assistance	24,631	24,819	25,474	25,654	25,665	26,090	26,147	
71	Arts, Entertainment, and Recreation	1,552	1,487	1,345	1,376	1,403	1,473	1,397	
72	Accommodation and Food Services	9,760	9,810	9,740	9,884	10,381	10,170	10,079	
81	Other Services (except Public Administration)	9,609	9,467	9,290	9,435	9,600	9,297	9,411	
90	Government	31,782	31,818	31,514	30,317	29,900	30,483	30,325	
99	Unclassified Industry	975	860	994	1,169	893	35	73	

Top 25 Industries: 4-digit NAICS codes

Only a year after Hurricane Irene touched down on the Eastern Seaboard, Hurricane Sandy tore through a similar geography, creating further havoc in the rebuilding effort. Rutgers University released a report in 2013 that assessed New Jersey’s damage after Hurricane Sandy hit the Atlantic coast in October of 2012. The report stated that Passaic County’s commercial sector was one of New Jersey’s most devastated areas.¹ The report also states that Passaic County suffered \$61,200,438 in lost wages due to the Hurricane Sandy. The following job data ranges from 2008 to 2014 and therefore includes two significant natural disasters and the major economic downturn in 2008.

Management of Companies and Enterprises had significant losses 2011-2014, and lost nearly a quarter of its jobs between 2008 and 2014. This confirms what the Economic Base Analysis stated previously, that between 2008 and 2013, Passaic County lost over 4,800 establishments, or 14% of all establishments in the County. A majority of this loss was in sole-proprietorships, which lost over 3,500 establishments during this time.

Employment Services also had substantial losses between 2011 and 2014, losing nearly 20% of total jobs. But overall, between 2008 and 2014, only lost 5% of total jobs. The Navigational, Measuring, Electromedical and Control Instruments Manufacturing industry lost just less than 40% of the total jobs

¹ *The Impact of Superstorm Sandy on New Jersey towns and households*, Rutgers School of Public Affairs and Administration, <http://njdatbank.newark.rutgers.edu/sites/default/files/files/RutgersSandyImpact-FINAL-25Oct13.pdf>

in that sector and consecutively lost jobs in the 2008-2011 and 2011-2014 time periods. Referring back to the Economic Base Analysis, it was noted that the manufacturing industry had been in general decline in Passaic County, and it had lost more the 20% of its employment over the last ten years. Therefore, the job loss in this industry probably cannot all be attributed to natural disasters.

In terms of industries that grew between 2008 and 2014, Health and Personal Care Stores added 25% to its workforce between 2008 and 2011. Grocery stores added 20% to its workforce by the end of 2014. Elementary Schools added the greatest percentage of jobs 2011-2014, enlarging by the sector by 44% in just three years.

Passaic County Top 25 Industries, 4-digit NAICS

NAICS Code	Description	2008-2011 Change	2011-2014 Change	2008-2011 % Change	2011-2014 % Change
9036	Education and Hospitals (Local Government)	245	887	2%	6%
9039	Local Government, Excluding Education and Hospitals	(795)	(163)	(9%)	(2%)
7225	Restaurants and Other Eating Places	200	163	3%	2%
5613	Employment Services	1,106	(1,412)	16%	(18%)
6221	General Medical and Surgical Hospitals	(24)	(199)	(0%)	(3%)
5511	Management of Companies and Enterprises	83	(1,271)	2%	(24%)
4451	Grocery Stores	11	913	0%	20%
9026	Education and Hospitals (State Government)	(387)	(204)	(11%)	(7%)
4481	Clothing Stores	(302)	(18)	(9%)	(1%)
6211	Offices of Physicians	81	362	2%	11%
9029	State Government, Excluding Education and Hospitals	(565)	(375)	(18%)	(14%)
2382	Building Equipment Contractors	(133)	(8)	(4%)	(0%)
4521	Department Stores	(59)	4	(2%)	0%
6244	Child Day Care Services	(14)	(188)	(0%)	(6%)
6231	Nursing Care Facilities (Skilled Nursing Facilities)	105	314	4%	11%
5617	Services to Buildings and Dwellings	55	414	2%	15%
5221	Depository Credit Intermediation	(236)	(256)	(9%)	(11%)
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	(725)	(272)	(28%)	(15%)
8131	Religious Organizations	(100)	(334)	(4%)	(15%)
3231	Printing and Related Support Activities	(166)	(275)	(8%)	(15%)
4461	Health and Personal Care Stores	478	164	25%	7%
2361	Residential Building Construction	(302)	(115)	(17%)	(8%)
6111	Elementary and Secondary Schools	(40)	747	(2%)	44%
6241	Individual and Family Services	(5)	526	(0%)	31%
2383	Building Finishing Contractors	(129)	(232)	(8%)	(15%)

Passaic County Employment Trends 2008-2014, 4-digit NAICS

NAICS Code	Description	2008	2009	2010 Jobs	2011 Jobs	2012 Jobs	2013 Jobs	2014 Jobs	Trend Line
9036	Education and Hospitals (Local Government)	14,235	14,587	14,725	14,480	14,519	15,216	15,367	
9039	Local Government, Excluding Education and Hospitals	8,771	8,506	8,462	7,976	7,963	7,949	7,813	
7225	Restaurants and Other Eating Places	7,753	7,958	7,797	7,953	8,470	8,193	8,117	
5613	Employment Services	6,739	4,859	7,180	7,844	8,671	6,901	6,432	
6221	General Medical and Surgical Hospitals	6,277	6,190	6,368	6,253	6,275	6,106	6,055	
5511	Management of Companies and Enterprises	5,278	4,805	4,777	5,361	4,882	4,736	4,090	
4451	Grocery Stores	4,667	4,646	4,776	4,678	5,068	5,478	5,591	
9026	Education and Hospitals (State Government)	3,424	3,356	3,071	3,037	2,828	2,925	2,833	
4481	Clothing Stores	3,334	2,961	3,112	3,032	2,986	2,939	3,014	
6211	Offices of Physicians	3,331	3,330	3,297	3,413	3,528	3,561	3,775	
9029	State Government, Excluding Education and Hospitals	3,175	3,170	2,903	2,610	2,446	2,286	2,235	
2382	Building Equipment Contractors	3,136	3,146	2,891	3,003	3,192	3,143	2,994	
4521	Department Stores	2,935	2,635	2,663	2,876	2,857	2,825	2,880	
6244	Child Day Care Services	2,918	2,902	3,032	2,904	2,858	2,865	2,716	
6231	Nursing Care Facilities (Skilled Nursing Facilities)	2,799	2,824	2,868	2,905	3,376	3,291	3,219	
5617	Services to Buildings and Dwellings	2,748	2,584	2,617	2,802	2,930	3,033	3,217	
5221	Depository Credit Intermediation	2,673	2,637	2,535	2,437	2,381	2,239	2,181	
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2,564	2,120	1,937	1,839	1,688	1,690	1,567	
8131	Religious Organizations	2,404	2,302	2,425	2,304	2,318	1,968	1,970	
3231	Printing and Related Support Activities	2,058	1,921	1,890	1,893	1,771	1,707	1,617	
4461	Health and Personal Care Stores	1,950	2,144	2,149	2,428	2,524	2,470	2,591	
2361	Residential Building Construction	1,760	1,610	1,592	1,458	1,488	1,515	1,343	
6111	Elementary and Secondary Schools	1,729	1,679	1,672	1,689	1,754	1,935	2,436	
6241	Individual and Family Services	1,679	1,764	1,794	1,674	1,695	2,141	2,199	
2383	Building Finishing Contractors	1,658	1,547	1,505	1,529	1,429	1,492	1,297	

Attachment G – Project Priority List



Priority Project List

Priority Project List						
Tasks	Lead Stakeholder / Partner	Time-frame	Public Cost	Private Investment	Jobs	Performance Measures
Goal 1 - Maintain and Improve Infrastructure to Support Sustainable Development						
Work with local municipalities and public works officials to create a prioritized and ongoing inventory of water and sewer infrastructure replacement and repairs to be financed as funds are available.	Passaic County / All 16 municipalities	Ongoing	Staff time to create inventory	None	None	Number of projects completed each year
Enhance the Montclair-Boonton service from NYC to Passaic County to establish morning service to bring metro area workers into Passaic County.	NJ Transit / NJ Department of Transportation	Mid-Term	Up to \$5 million in annual operations costs	None	Up to 100 FTE operations and maintenance positions	Morning service established
Replace the Spruce Street bridge and fund other infrastructure upgrades as necessary.	US DOT / Passaic County	Short-Term	\$200 per square foot	None	100+ FTE construction jobs	Bridge replaced
Eliminate major bottlenecks including Route 80 at Paterson and Woodland Park.	NJ Transit / NJ Department of Transportation/US DOT	Short-Term	\$50 million +	None	500+ FTE construction jobs	Reduction in number and length of traffic delays
Implement Route 3/46 intersection improvements.	NJ Transit / NJ Department of Transportation/US DOT	Short-Term	\$50 million +	None	500+ FTE construction jobs	Number of improvements made
Prioritize improvements in any areas with significant deferred maintenance.	NJ Transit / NJ Department of Transportation/US DOT / Passaic County	Ongoing	\$100 million +	None	1,000+ FTE construction jobs	Prioritized list of projects

Priority Project List

Tasks	Lead Stakeholder / Partner	Time-frame	Public Cost	Private Investment	Jobs	Performance Measures
Provide suitable and appropriate housing for workforce through private and non-profit sectors. Provide safe and affordable housing alternatives for seniors, veterans, disabled, and low income residents. Ensure a diversity of housing types (e.g. co-housing and accessory apartments) and tenure options (e.g. homeownership, rental, shared equity). Encourage mixed-income and mixed-use residential development.	Private Sector / Non-Profits / Passaic County / All 16 Municipalities / Habitat for Humanity	Ongoing	\$125,000 per housing unit	\$125,000 per housing unit	1,000+ FTE construction jobs	Number of new affordable units built per year

Goal 2 - Enhance Passaic County's image as "Open for Business"

Work to re-brand Passaic County to improve the internal and external perception of Passaic County as a positive location for businesses and residents through new messaging and marketing efforts. Re-branding efforts should assuage safety concerns, while highlighting the county's cultural diversity and amenities such as Paterson's Great Falls National Historic Park.	Passaic County / All 16 Municipalities	Ongoing	\$200,000 branding strategy study	Contributions from business community	n/a	Complete branding process
Update County's economic development web presence to make sure contact information is clear and defined. Increase use of social media and other new technologies to reach a wide variety of markets and promote assets of Passaic County. Ensure that all web tools are mobile enabled for ease of use on smart phones and tablets.	Passaic County	Short-Term	\$25,000 annually	None	n/a	Complete website update
Provide increased resources and support for county economic development activities. Implement a "Power Passaic" campaign to increase the existing "one-stop shop" for information on business incentives, job training programs, available real estate, zoning information, redevelopment information, and financial options, etc.	Passaic County Division of Economic Development	Short-Term	\$100,000 annually	None	1-2 positions	

Priority Project List

Tasks	Lead Stakeholder / Partner	Time-frame	Public Cost	Private Investment	Jobs	Performance Measures
Increase capacity for the SBDC to assist businesses in the county and provide training, seed money, and other assistance as necessary. Coordinate business attraction and expansion efforts with the SBDC.	Passaic County Division of Economic Development	Ongoing	\$100,000 annually	None	1-2 positions	Number of businesses assisted per year
Goal 3 - Prepare the County's Workforce for Present and Future Employment Opportunities						
Assist William Paterson University, Montclair State University, Passaic County Community College, Berkeley College and local high schools to connect students with private companies and local/county government agencies to increase the number of internships, mentoring opportunities, collaborations and potential employment opportunities.	Passaic County Division of Economic Development / WPU / Montclair State University / PCCC, etc.	Mid-Term	Staff time	Contributions from business community	None	Add two new internships per year
Expand the Full Service Community School pilot program that is currently offered in Paterson which utilizes the school as community resource center, providing services and job training to the entire family.	All 16 Municipalities / WPU	Long-Term	\$200,000 per year per school	None	2 FTE per school	Add one new program per year
Increase funding for pre-college prep programs and technical training programs that connect students throughout Passaic County with guidance for their future.	State of NJ / US / WPU	Short-Term	\$1 million annually	None	10 training positions	Number of students served
Establish an ongoing forum of higher education, municipal leaders, corporate leaders, all levels of K-12 educators, and others to align the skills of local residents with the appropriate training programs and curriculums with global trends and local demand by employers.	Passaic County Workforce Development Center / WPU	Ongoing	Staff time	None	None	Host 2 meetings per year

Priority Project List

Tasks	Lead Stakeholder / Partner	Time-frame	Public Cost	Private Investment	Jobs	Performance Measures
Focus on the expansion of training programs to address the shortage of adequate labor force skills and offer training to workforce within the county. Align college course offerings with the needs of county businesses.	Passaic County Workforce Development Center / WPU / PCCC	Mid-Term	\$1 million grant to expand training programs	None	10 training positions	Create one new training program
Develop promotional material that clearly describes the career pathways associated with the health care industry, including available educational programs and employment opportunities within the county. Support job readiness programs that target the health care industry to ensure that the workforce is being properly trained for higher-paying positions as well as potential career pathway opportunities.	Passaic County Workforce Development Center	Short-Term	Staff time; \$10,000 to development promotional material	None	None	Creation of promotional materials
Goal 4 - Support Industry Development through Business Attraction, Retention and Expansion Efforts						
Create "Rapid Response Teams" that are comprised of local business leaders, educational, state, county and municipal representatives who can assist the needs and challenges of companies in specific industry clusters. Industry concerns could include connecting the cluster with global marketplaces, identification of a skilled workforce, proactively identifying and assisting businesses respond to industry trends, and growing the clusters in Passaic County.	Passaic County Division of Economic Development	Long-Term	Staff time	None	None	Establish teams
Work with SBDC and chambers of commerce to provide training to businesses looking to increase their e-commerce presence and multi-channel marketing efforts.	Passaic County Division of Economic Development / WPU SBDC / Greater Paterson Chamber of Commerce / Tri-County Chamber of Commerce / North Jersey Chamber of Commerce	Mid-Term	\$10,000 annually to provide training	None	None	Facilitate one e-commerce training program per year

Priority Project List

Tasks	Lead Stakeholder / Partner	Time-frame	Public Cost	Private Investment	Jobs	Performance Measures
Increase development and promotion of unique assets such as trails and cycle-ways, races and other events, artisans, eco- and agri-tourism opportunities, etc. Expand opportunities to increase visitation from the NYC area.	Passaic County Division of Economic Development / PCIA Destination Marketing Organization / Morris Canal Working Group	Mid-Term	\$1 million annually to fund new amenities and events	Private funding of events	25 jobs	Number of visitors from NYC area
Support activities of the Destination Marketing Organization to implement a Discover Passaic County initiative to increase understanding and promotion of the County's history, culture, and natural resources.	PCIA Destination Marketing Organization	Ongoing	\$100,000 annual marketing budget	None	None	Number of county visitors
Support SBDC in their efforts to provide financial and technical assistance to small businesses and entrepreneurs throughout the county. Focus on financial management, business planning, and how to open a business.	WPU SBDC / Passaic County Division of Economic Development	Short-Term	\$1 million grant	None	1-2 positions	Number of businesses assisted per year
Implement a Shop Passaic campaign to support small, local retailers in Passaic County.	Passaic County Division of Economic Development / PCIA Destination Marketing Organization	Mid-Term	\$50,000 marketing campaign	Contributions from business community	None	Local retailers engaged
Goal 5 - Help Communities and Businesses Prepare For and Prevent Losses From Future Major Disaster Events						
Encourage increased coordination between federal, state, county and municipal agencies to reduce time delays and duplication of efforts. Identify resources to assist during a disaster event.	Passaic County OEM / Municipal OEMs / Passaic County Division of Economic Development	Ongoing	Staff time	None	None	Average time to respond to calls
Work with municipalities to reduce development in flood-prone areas. County officials can provide training, best practices, planning standards, incentives, green infrastructure solutions, and other assistance.	Passaic County Department of Planning and Economic Development	Mid-Term	Staff time	None	None	Municipalities engaged

Priority Project List

Tasks	Lead Stakeholder / Partner	Time-frame	Public Cost	Private Investment	Jobs	Performance Measures
Upgrade storm water infrastructure capacity in all municipalities.	US / State of NJ	Ongoing	\$100 million +	Per project basis	1,000+ FTE construction jobs	Miles of stormwater infrastructure upgraded
Assist municipalities improve their rating in the Community Rating System to help reduce flooding and flood insurance premiums.	Passaic County Department of Planning and Economic Development	Long-Term	Staff time / Consultant	None	Consultant positions	Number of municipalities with improved rating
Establish a countywide Wi-Fi and radio access system that is deployable and independent of local systems during major events to disseminate information to businesses.	Passaic County OEM / Municipal OEMs / Passaic County Sheriff's Office	Mid-Term	\$10 million	None	10 short-term jobs	Research most cost effective way to implement new communicatin system
Utilize new technologies to communicate with residents. County to prepare mass emails for delivery to business and residential community with tips on how to prepare for the upcoming emergency and how to safely return to homes/places of business. Supplement emails with text messaging.	Passaic County OEM / Municipal OEMs	Long-Term	\$50,000	None	None	Prepare template for mass email
Establish a funding mechanism that is available to businesses impacted by an emergency event to assist with working capital, inventory and fixed asset replacement, etc. necessary to re-open the company.	Passaic County Division of Economic Development	Short-Term	\$10 million in seed money	None	None	Establish funding stream
Increase the number of businesses that have an Emergency Disaster Plan in place, encourage rehearsals, updating, and provide technical assistance as necessary.	Passaic County Division of Economic Development	Ongoing	Staff time	None	None	Increase the number of businesses with a plan by 5 per year
Establish a qualified contractor list to be utilized following a natural disaster.	Passaic County OEM / Municipal OEMs	Long-Term	Staff time	None	None	Establish list



Attachment H – Business Continuity Disaster Plan for County



BUSINESS CONTINUITY AND DISASTER PLAN (BCDP)

Prepared by

Millennium Strategies

As a Supplement to

Passaic County's Comprehensive Economic Development Strategy (CEDS)

July 31, 2015

Draft



MILLENNIUM
STRATEGIES

Preface:

This Business Continuity and Disaster Plan (BCDP) report was prepared in conjunction with Passaic County's Comprehensive Economic Development Strategy (CEDS) and the Impact Analysis (IA) of Hurricane Irene. It is intended to be part of the overall deliverable of the scope of work envisioned. Throughout the document there are references to our partners Camoin Associates (CEDS) and Maser Consulting (IA) for the work they contributed. Their research relative to the specific tasks has provided additional bases for the development of the BCDP.

As much as the BCDP is part of the CEDS it is also a standalone document. In particular the Executive Summary along with the "pull out section" on how to create a Business Continuity Plan should be standard operations for all county departments and private sector businesses. It is our intent that these sections be referred to and utilized over and over again.

Acknowledgements:

Steering Committee Members:

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I. EXECUTIVE SUMMARY

This report is meant to be a guide for municipalities and businesses in Passaic County as they plan for natural or man-made disasters. The objectives of this report are to:

- 1) Create the rationale for creating a business and disaster continuity plan (BCDP);
- 2) Outline the resources currently available in Passaic County;
- 3) Provide step-by-step guidelines for creating a business and disaster continuity plan;
- 4) Provide a list of short-term and long-term goals and objectives for Passaic County's strategic recovery process; and,
- 5) Create a list of assets, initiatives, and actions for the County's consideration.

The underlying principle in the creation of a business continuity and disaster plan is resilience planning. The overarching objective of the BCDP is the reduction of the risks and disruptions caused by crises and the quick and seamless return to normal operations. A continuity plan gives businesses the tools necessary to recover and to grow resilience. Continuity plans incorporate four components: risk aversion, loss reduction, a quick return to operations, and protection of investment(s).

A. WHY PLAN?

All businesses start with an idea: of an individual's desire to create something or to give something to the public or to create something that will uplift one's life or to develop something that will help revitalize each person.

The businesses of today are more inter-dependent than ever before. No longer can one have a dream without working with ten's, hundred's, even thousands of different resources to fulfill the mission. Whether it is a "mom and pop" local family business or a mid-size manufacturer or a large corporate entity—all rely on a chain of suppliers and workers to perform in harmony.

As the business grows from the seed planted and nurtured to become a fully expanded entity the course of events outside of your own sphere of influence expands too. Today not

only are natural disasters a danger; but, so too are man-made difficulties and calamities that may confront your business' survival! How you react to such calamities will determine your business' ability to survive.

Just as you planned to see your dream become a reality so to must you plan to see your dream continue. A Business Continuity Plan (BCDP) is the blue print for the future of the work you created. It is your guide to growth, uplifting human spirit, doing public good and revitalizing your community.

Using basic demographic profiles of the county a quick sketch of the economic conditions businesses confront is developed. In this context we can see why and how business continuity and disaster planning occurs. Consequently, what happens when a disaster occurs? How is the business climate affected?

Passaic County is a rich and diverse county. The main industry drivers are: retail, health care and manufacturing. These three sectors contribute greatly to the economy of the county.

- In Passaic County both the retail and health care clusters have 14% of the 2014 jobs while 10% of the jobs are in manufacturing.
- There are more jobs in these clusters in Passaic County than in the state as a whole.
- Combined roughly 38% of the 2014 jobs, or 71,603 jobs.

Thus, their potential loss has a great impact on the county as a whole; and why their ability to recover and restore normal operations is so critical.

Though the overall economic outlook for Passaic County is strong, and there are growing industry and employment sectors, there are a couple of areas of concern as well. The educational attainment in the county lags behind the state; and two of the tree top industry clusters average wages are lower than the county and state averages. This can be problematic when looking from the standpoint of business continuity moving forward: if a business in these sectors closes where will the employment go to and is there training?

B. BUSINESS CONTINUITY AND DISASTER PLANNING

A Business Continuity Plan (BCDP) is an important resilience planning tool. A Business Continuity Plan prepares you to: 1) assess potential risks; 2) plan for every potential event; 3) disseminate the plan; 4) implement the plan; and, 5) practice the plan.

The processes for creating a BCDP are:

- 1) An assessment all possible threats;
- 2) Planning for the threats and building the plan;
- 3) Disseminating the plan; and,
- 4) Implementing the plan.

The BCDP should include the following components:

1. Executive summary;
2. Emergency management elements;
3. Emergency response procedures;
4. Support documents;
5. Training schedule;
6. Review and revise schedule; and, Distribution to all stakeholders.

How to do this via small businesses is crucial. As we saw in the cluster section, one of the largest sectors of employment is the Retail Cluster. Thus, ensuring these businesses have a plan should be a priority of the County.

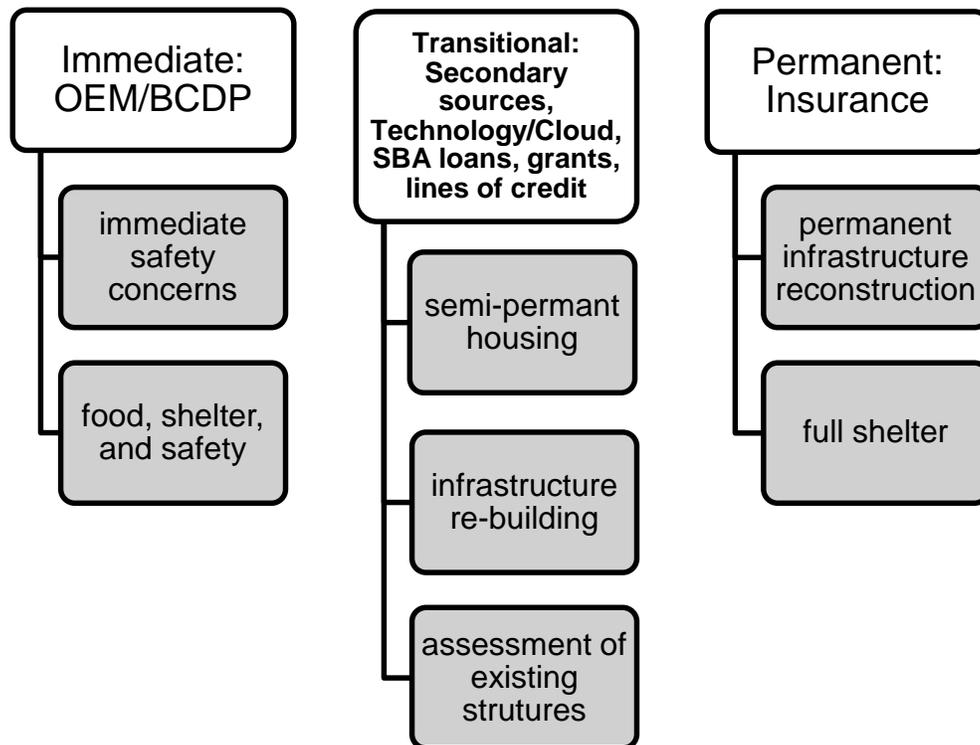
C. RESOURCES IN PASSAIC COUNTY

As we shall see, the purpose of a business continuity plan or disaster plan is “to recover and to return” to business as soon as possible. The increasingly global business climate and unpredictable weather patterns mean that businesses and municipalities must plan for any possible crisis. “Recover and Return” is goal of the process and therefore planning is crucial in doing so.

The report uses interviews with key stakeholders and focus group sessions to detail what Passaic County is doing to ensure business and disaster continuity. Data was gathered through interviews, a focus group session with the county’s emergency responders, and several visioning sessions with county and municipal officials.

Additionally, this report utilizes the county’s disaster planning documentation and preparedness plans. We would like to acknowledge the County Office of Emergency Management (OEM) for their support and guidance. In our preparations for this report through the review of numerous resources we have determined that the County OEM is one of the finest in the State of New Jersey; and should be commended and utilized to the utmost extent.

Once an emergency occurs, the immediate crisis dictates which aid responders are utilized, but the function is to provide immediate care and resources. After the immediacy of the event subsides and life threatening situations are mitigated, the needs of individuals, businesses and communities' shifts to longer term, semi-permanent needs. Finally, the response moves to permanent structure and infrastructure reconstruction to return those affected to full capacity. The chart below shows the flow:



Immediately after a crisis there are several agencies available to provide assistance. Immediate crises responders include but are not limited to:

- 1) New Jersey and Passaic County Offices of Emergency Management (OEM): coordinates the emergency management response in the county which includes the actions of the first responders and all emergency personnel in the county.
- 2) The American Red Cross: provides immediate crises responses through the use of a network of volunteers and support organizations.
- 3) Federal Emergency Management Agency (FEMA): provides national emergency responses to disasters and emergencies; also mitigates against future events.

- 4) Centers for Disease Control and Prevention (CDC): develops and applies disease prevention and control, environmental health, and health promotion and health education activities.
- 5) New Jersey Department of Health: provides state-level disease prevention and control, environmental health, and health promotion.
- 6) New Jersey State Police: ensures public safety and maintains civil authority.
- 7) Utilities: provides emergency responses to outages and infrastructure damage.

As noted, data was gathered through interviews, focus groups and several visioning sessions. The county's function in a disaster is to bring the resources of the government on-line as efficiently as possible. According to the interviews and focus groups conducted, most of the emergency responders and county-level agencies have continuity and disaster plans in place. The highlights of which are below:

❖ Three areas were identified for improvement:

- 1) Communications; 2) Partnerships; 3) Education.

- Communications: respondents described the issues as such: a need to have a disaster center to contact; access to who to call about resources, water clean-up, etc.; and, a place for the public to get updated information about where to stay away from during an emergency.
- Partnerships: new partnerships are needed to meet new and emerging challenges. The new partnerships should prioritize economic revitalization as well as public safety.
- Education: this issue involves the dissemination of information in an emergency and on-the-ground direction by first responders.

❖ Two types of barriers emerged:

- 1) The movement of information through the channels of authority, especially the movement of information to front-line responders and local businesses.

- 2) The communication of status updates through established channels of communication.

In Passaic County, we found the issues described as: a need to have a disaster center to contact; access to who to call about resources, water clean-up, etc.; and, a place for the public to get updated information about where to stay away from during an emergency.

❖ Below is a summary of the responses from stakeholder interviews, in categories:

I. IMPEDIMENTS OR BOTTLENECKS

- Access to who to call about resources, water clean-up, etc.
- Place for the public to get updated information about places to stay away during an emergency;
- Better Communications with PSE&G;

II. ASSISTANCE NEEDED

- One agency to do donation management for the county;
- A way for local contracts to get in place;
- Work with NGOS to set up a place with basic needs;
- Maintain power continuity; particularly, for major employers and educational institutions;
- Better communications with PSE&G;
- Silt removal; it is building up in the river basin and the riverbed is rising making the river closer to the outflow pipe;
- Raise Route 23; when it closes it impacts Wayne, need to raise the roadway to allow for growth along Route 23;
- Remove barriers down the center of Hamburg Turnpike which are bad for businesses and first responders;
- Put all utilities below ground;
- Improve roads to make it possible for big trucks to get up there safely.
- Housing: after a disaster;

- Flooding: remediate the Passaic River flooding. Route 20 and 46 frequently flood due to heavy rains, snow pack melting, and rising tides;
- Radio communications when to declare a disaster is difficult and poor with the state.

D. GOALS AND RECOMMENDATIONS

Using the information gathered through interviews and a survey of emergency management documentation this report highlights several key recommendations for the county government. These recommendations provide a guide for actions to be undertaken by the county during and immediately after an emergency or disaster. These recommendations are meant as guides to ensure that after a disaster businesses and municipalities "recover and return."

In order to best understand the recommendations made the following goals have guided this report; which has been answered throughout:

- Highlight the steps to recovery after a man-made or natural disaster with a focus on the strategies and priorities needed for public safety and economic revitalization.
 - To facilitate self-sufficiency and resiliency;
 - To promote the social and economic well-being of the community.
- To maximize the resources of the county and its municipalities and businesses.
 - To identify the gaps in preparedness;
 - To facilitate self-sufficiency and resiliency;
 - To develop strategic partnerships between the government, nongovernmental organizations, businesses, and community members.
- To understand the current level of preparedness and to assess the strategic needs of the business community.

And, the report has the following recommendations (See Appendix for sources/interviews):

1. **Establish one agency/organization for donation management.**
2. **Increase education and communication about issues around flooding prevention and recovery issues in the county:**
 - Establish standing emergency contracts to reduce delays during emergency around procurement issues.

- o Increase non-emergency communication around why the precautions are made and why it is imperative that the public comply.
 - o Market and promote disaster center and available programs.
3. **Work regionally to reduce flooding:**
- o Continue to buy out properties that are in flood prone areas.
 - o Work with municipalities to understand the issues around development in flood prone areas to reduce flooding.
 - o Upgrade storm water infrastructure capacity in all municipalities.
 - o Conduct debris removal on all watercourses as needed.
 - o Create a tool for the county and individual communities to share best practices, etc. County offices can manage and provide review of master plan and codes for municipalities as necessary.
 - o Update the County's master planning document to include a section on severe and repetitive flooding.
4. **Improve the ability to communicate during and immediately after a natural disaster:**
- o Establish a countywide Wi-Fi and radio access system that is deployable and independent of local systems.
 - o Update and review regularly all State of Emergency Shared Service Agreements.
 - o Create a publicly available live GIS System that can be updated in real-time to provide information about where there are road closures and other hazards.
 - o Develop a static map that provides information on the roads that are likely to close in case of various levels of flooding or other natural disasters.
 - o County to prepare mass emails to go out to business with tips on how to prepare for the upcoming emergency.
5. **Support businesses in their ability to increase resiliency and survive emergency events:**
- o Establish a countywide list of available real estate that can be accessed following an event to house inventory and move operations of businesses.
 - o Establish a funding stream that is available to businesses impacted that they can access quickly and easily to assist with working capital, inventory replacement, and other issues that may arise.
 - o Increase communication of available programs to assist businesses impacted by disaster.

The following is a list of assets and initiatives for consideration:

1. Assets

- Federal/State aid
- Recovery Financing: Private insurance, SBA loans, Secured and Unsecured loans
- Incentives: incentivize the creation of Business Continuity and Disaster plan by county businesses

2. Initiatives

- Inclusion of key stakeholders in practices: employers, employees, clients, suppliers, distributors, and political leaders in emergency management drills and exercises
- Business Continuity and Disaster Plan communication: encourage businesses and individuals to prepare continuity plans
- Regional coordination: facilitate the continued coordination between the county's municipalities

Timing is everything... and the time to plan is now.

E. OVERVIEW OF PASSAIC COUNTY

The following is an overview of Passaic County. It offers a brief summary of the county's building stock, estimated losses due to storm damage, total direct annualized losses. The information presented here comes from data gathered and presented by our partners Camoin Associates.

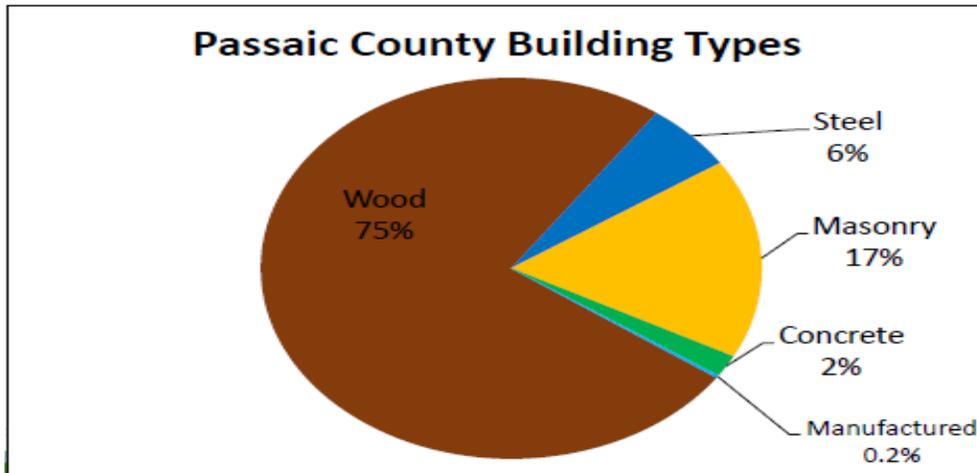
There are three major industry clusters in Passaic County: retail, hospital care, and manufacturing.

The retail cluster represents 14% of all of the jobs in the county; that is, 26,553 jobs. Retail establishments also represent 15% of all establishments in the county and it is projected to grow by 8% through 2024. The average wage for the retail cluster in Passaic County is \$28,553; which is \$29,101 lower than the county's average for wages.

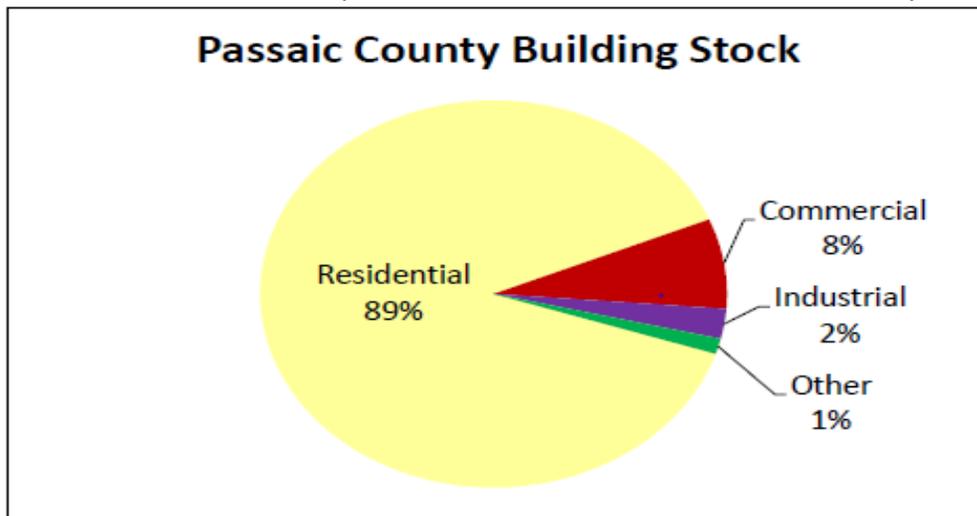
Hospital care is the largest single category of health care expenditure in the U.S with sales growing nearly 4% between 2010-2015. In Passaic County, the health care cluster represents 14% of the jobs in the county (26,379 jobs) and health care establishments represent 14% of all establishments in the county. The health care cluster is projected to grow by 11% through 2024 and the average wage is \$45,447.

The manufacturing sector is experiencing mixed growth. For example, although there are some signs of growth, in the past ten years manufacturing has declined 23% and the sector is projected to decline by 17% by 2024. In Passaic County is projected, the manufacturing sector is a strong cluster. The cluster represents 10% of all jobs in the county and 6% of all of the establishments in the county. Furthermore, the average wages for the sector are high. In Passaic County the average wages in this cluster are \$60,237 which is above the overall average for the county.

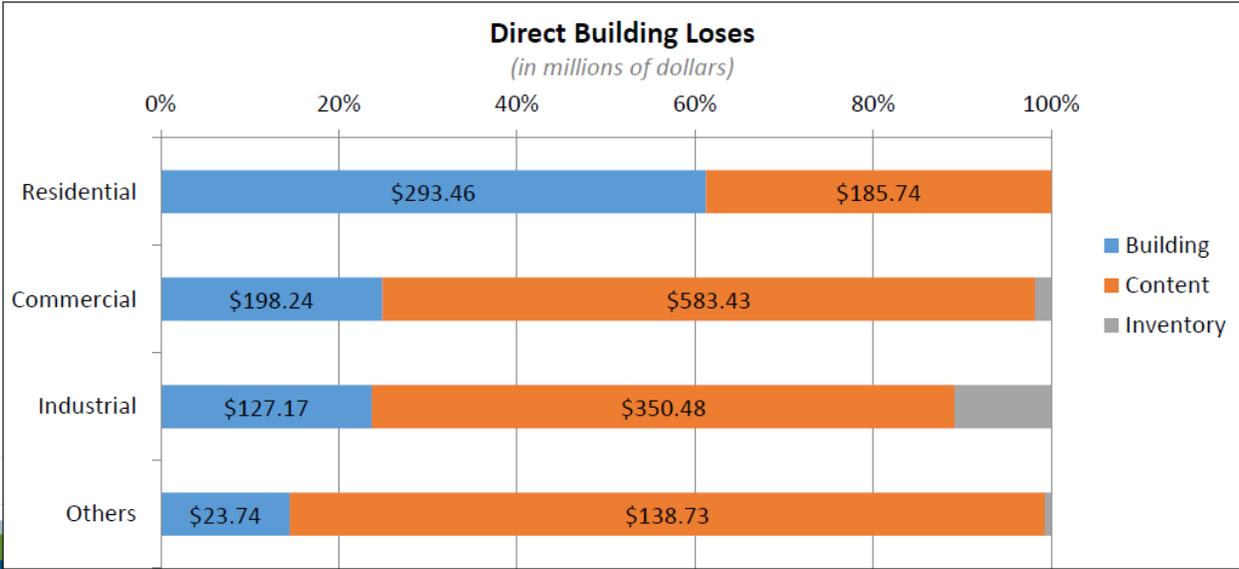
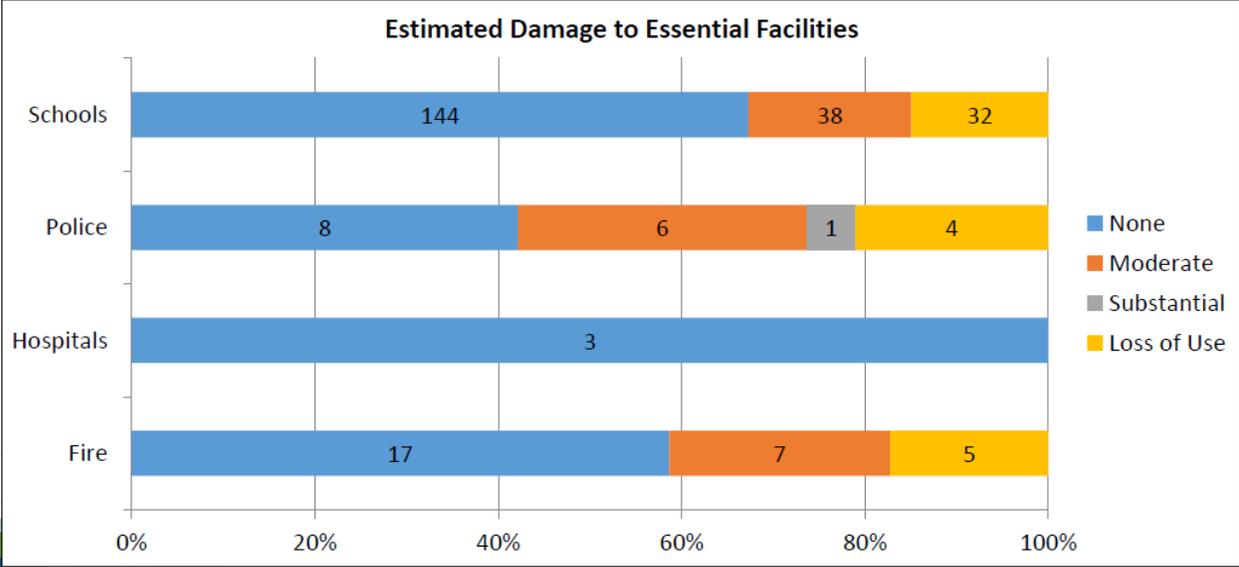
The vast majority of buildings and structures in Passaic County are made of wood. Wooden structures account for 75% of the buildings in the county and masonry is the second prevalent building material at 17% of structures. Steel, concrete, and manufactured materials complete the list of building materials in the county.



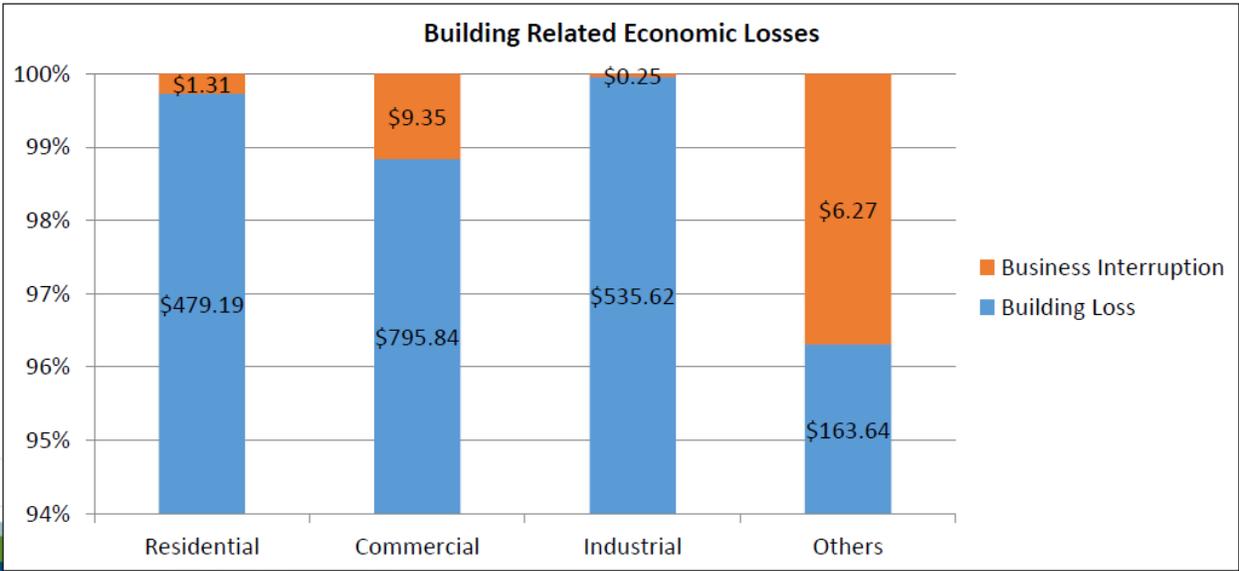
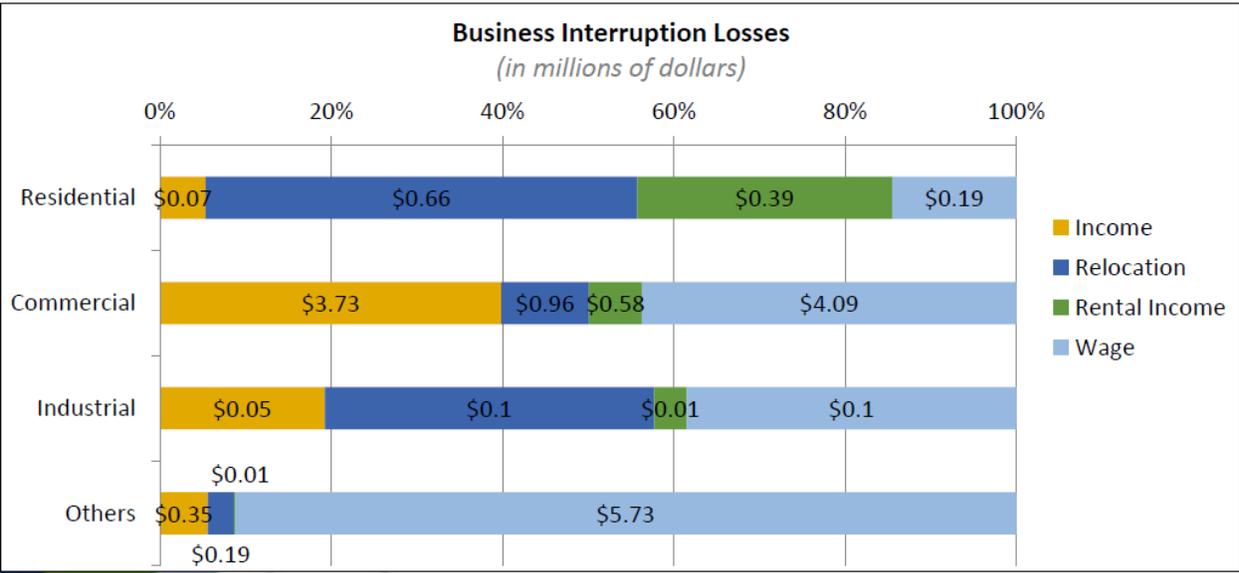
Eighty-nine percent of the county's building stock is residential which comprises 116,289 buildings; commercial buildings comprise 8% of the building stock. Storm model simulations project that 15% of schools, 21% of police facilities, and 17% of fire facilities may incur damages



which will result in the loss of usage in a major storm event. This damage is projected to cause 86,546 people and 28,849 households to be displaced; moreover, 78,001 people are projected to need short-term shelter.



In the event of a major storm, direct business losses are projected to be \$479 million for residential buildings with losses to the structure and the content, \$781 million for commercial buildings and their content, and \$477 million in losses to industrial buildings. Additionally, business interruption losses are projected to be \$1.3 million for residential buildings, \$9.36 million for commercial buildings, and \$0.26 million for industrial buildings. Business interruption losses include loss to income, relocation costs, loss to rental income, and loss to wages.



Looking separately at building related economic losses residential losses are projected to be \$480 million, commercial losses are projected to be \$805 million, and industrial losses are projected to be \$535 million. The total loss projections for Passaic County are almost two billion dollars.

Direct Building Losses	Buildings	\$0.642 billion
	Contents	\$1.258 billion
	Inventory	\$0.073 billion
Business Interruption Losses	Relocation	\$0.002 billion
	Capital Loss	\$0.004 billion
	Wages	\$0.010 billion
	Rental Income	\$0.001 billion
Total Loss		\$1.991 billion

The overview of the county presented above underscores the need for preparation. The purpose of a BCDP is to build resilience and to prepare for natural and man-made disasters.

F. CONCLUSIONS

The purpose of a BCDP is to build resilience and ensure that normal operations can continue smoothly and resume quickly after a disaster. While the term disaster connotes large-scale calamities, it is important to keep in mind that a good BCDP prepares organizations for any eventuality—large and small-scale crises as well as natural and man-made hazards. *Business continuity planning means putting measures in place to safeguard people and assets during a crisis event and having a plan of action before an event occurs.*

The planning team should seek out information on forming relationships with external sources of resources. The team should contact the local emergency management organizations (OEM), hospitals, insurers, suppliers, utilities, and contractors. Finally, the planning team should meet with the organizations insurance carriers to review all policies: Regularly!

II. INTRODUCTION

The objective of this report is to outline the rationale for developing a business continuity and disaster plan (BCDP) and to clearly articulate the resources available for and the process of creating a plan. A BCDP provides the resources and tools needed to plan for and respond to crises. This report is meant to be a guide for municipalities and businesses in Passaic County as they plan for future disasters, whether natural or man-made.

Resilience planning is the underlying principle that guides this analysis. There is a close connection between continuity plans, disaster planning, and resiliency. All three have the overarching objective of the reduction of the risks and disruptions caused by crises and the quick and seamless return to normal operations. A continuity plan give businesses the tools necessary to recover and to grow resilience; whereas a disaster plan is a specific form of continuity planning that focuses on disaster relief. In this context, resilience is a vital aspect of sustainable development and resilience planning is critical to the ability of municipalities' and businesses' to build the capacity to absorb and recover from disasters. Planning helps municipalities and businesses to return to operations quickly and it limits the interruption to services. Resilience planning is especially important for businesses and municipalities as they must ensure delivery continuity for essential services during and following a crisis. Furthermore, while municipalities regularly plan for disruptions in services, these plans typically do not cover business recovery. Therefore, businesses need to develop a comprehensive continuity plan for themselves.

Continuity and disaster plans must consider every possible eventuality and its costs to business service. Continuity plans incorporate four components: risk aversion, loss reduction, a quick return to operations, and protection of investment(s). While it is impossible to plan for every occurrence, a goal of a BCDP is to prevent loss and to reduce risk where possible. These twin goals allow businesses and municipalities to return to operations quickly and to, therefore, protect their investments. Continuity planning involves preparing for the ability to respond to and recover effectively from disruptions in services by outlining where operations will be housed after an event, who will lead the recovery efforts, and anticipating how long the recovery process will take. A good continuity plan, to the extent possible, makes provisions for every crisis with the goal of building organizational resilience.

Resilience is not new. Human settlements have always needed to respond to and recover from natural disasters in order to survive--storms, drought, plagues, etc. Andrew Zolli adds the qualification that resilience includes the need to continue and to recover in the face of rapid changes. As the pace of modern life accelerates and communities and nations become increasingly urbanized, the need to respond to changes is important and planning for changes cannot be ignored. According to the United Nations Office of Risk Reduction (UNISDR), "[a]ll urban governments must ensure delivery continuity for essential services during and following crises, including access to clean, piped water, sanitation and waste management, transport and energy, and safe and affordable accommodation."

While the need to be resilient is not new, as the world's climate has changed communities are facing increasing threats from natural disasters and changing weather patterns; the introduction of the term "super-storm," for instance, highlights this changing and evolving process. Additionally, man-made disasters, like cyber-attacks and electronic-based threats, highlight the need for protection from multiple threats. Furthermore, as a society, we, are increasingly aware of the limits of our resources and the need to sustain them for the future. Rebecca Tuhus-Dubrow defines sustainability as the belief in the wise use of resources and says that it is concerned with the governorship of the earth. Thus, many resiliency preparations are linked to good governorship of our resources; especially, as we seek new and better ways to do old tasks.

It is the Office of Emergency Management's (OEM) role to do all-hazard planning, such as disaster planning, i.e. Irene, but they cannot anticipate every need of every business and municipality. OEM's primary role is large-scale disaster planning. The role of continuity planning at the municipal and business level is to quickly return to operations. And, therefore, is a function of economic development.

Thus, municipalities and businesses need to plan, review and update their plans, and exercise the plans. Through these simple steps confidence and knowledge is built that will be invaluable in the event of a disaster. What happens if you do plan? Planning allows municipalities and businesses to build supply chain resilience. This resilience facilitates continued communications and supply chain continuity as well as a quick return to operations.

Businesses of today are more inter-dependent than ever before. No longer can one have a dream without working with ten's, hundred's even thousands of different resources to fulfill the mission. Whether it is a "mom and pop" local family business or a mid-size manufacturer or a large corporate entity – all rely on a chain of suppliers and workers to perform in harmony.

As the business grows from the seed planted, nurtured to become a full expanded entity the course of events outside of your own sphere of influence so to expands. Today not only are natural disasters a danger, but so too are man-made difficulties and calamities that may confront your business' survival! How you react to such calamities will determine your business' ability to survive.

This paper is to help you better understand the need to plan. Just as you planned to see your dream become a reality so to must you plan to see your dream continue. A Business Continuity Disaster Plan (BCDP) is the blue print for the future of the work you created. It is your guide to growth, uplifting human spirit, doing public good and revitalizing your community.

III. MARKET CURRENT CONDITIONS

The following chapter provides an overview of the current economic conditions of Passaic County. It focuses on the current market conditions and the major industry clusters in the county. The discussion is meant to provide a quick sketch of the economic conditions businesses confront and to fill in the context in which business continuity planning occurs.

A. OVERVIEW

The chapter begins by giving a basic demographic profile of the county, an analysis of commercial and industrial properties and values along with Small Business Administration loans and losses, and then examines three major industry clusters: retail, health care, and manufacturing. These clusters were chosen because they represent three of the largest employment sectors in Passaic County and, therefore, are critical to the restoration of normal operations after a crisis (the fourth being government).

Passaic County is one of the northern most counties in New Jersey. It is composed of sixteen municipalities (See Map Inset):



- | | |
|--------------------------|---------------------------|
| 1. Bloomingdale Borough | 9. Pompton Lake Borough |
| 2. Clifton City | 10. Prospect Park Borough |
| 3. Haledon Borough | 11. Ringwood Borough |
| 4. Hawthorne Borough | 12. Totowa Borough |
| 5. Little Falls Township | 13. Wanaque Borough |
| 6. North Haledon Borough | 14. Wayne Township |
| 7. Passaic City | 15. West Milford Township |
| 8. Paterson City | 16. Woodland Park Borough |

Although the percentage increase in population lags that of the state, from 2010 to 2013, the population of Passaic County increased by more than seven thousand people. Of the sixteen municipalities in Passaic County, all but one experienced an increase in population (See Table 1). Woodland Park experienced the largest increase in population and Pompton Lake experienced the smallest increase.

Paterson City is the only municipality in the county to lose population between 2010 and 2013. It is also one of only six municipalities in the state with a population greater than 100,000 (NJ Department of Labor and Workforce Development, 2014). Paterson City's population loss is notable because it is a counter trend for the state. Of the municipalities in the state with populations over 50,000, urban areas experienced more population growth than suburban areas, with the other exceptions being Trenton and Camden. This is a trend that has been quantified by Rutgers, The State University of New Jersey this past year and it is expected to continue (Hughes and Seneca 2014).

Table 1

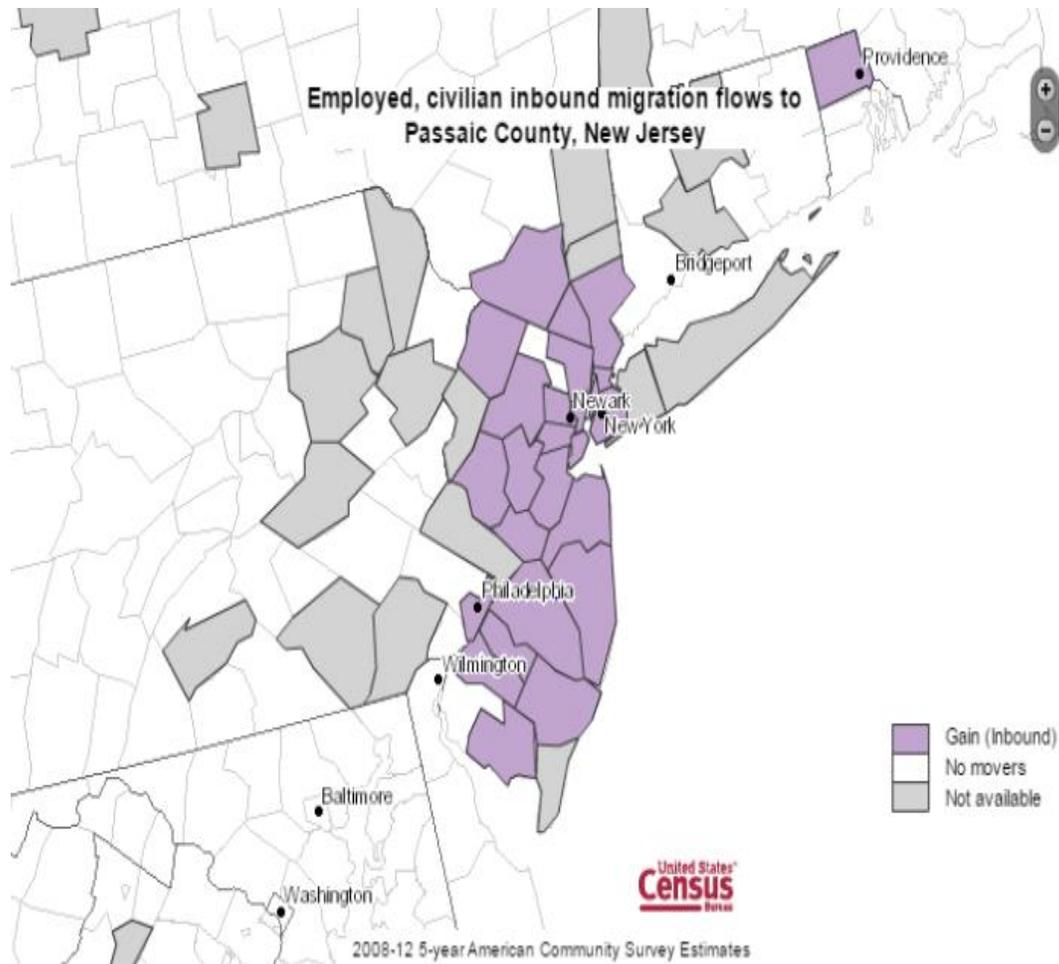
Population of Passaic County by Municipality			
Municipality	2010 Population	2013 Population	Population Change
Bloomington Borough	7,656	7,742	1.1%
Clifton City	84,136	85,390	1.5%
Haledon Borough	8,318	8,385	0.8%
Hawthorne Borough	18,791	18,987	1.0%
Little Falls Township	14,432	----	----
North Haledon Borough	8,417	8,485	0.8%
Passaic City	69,781	70,868	1.6%
Paterson City	146,199	145,948	-0.2%
Pompton Lake Borough	11,097	11,148	0.5%
Prospect Park Borough	5,865	5,913	0.8%
Ringwood Borough	12,228	12,335	0.9%
Totowa Borough	10,804	10,907	1.0%
Wanaque Borough	11,116	11,208	0.8%
Wayne Township	54,710	----	----
West Milford Township	25,850	----	----
Woodland Park Borough	11,819	12,274	3.8%
Passaic County	501,624	506,998	1.10%
New Jersey	8,791,936	8,911,502	1.40%
Sources: American Fact Finder and 2010 Demographic Profile, US Census Bureau.			

Passaic County is racially and ethnically diverse. In 48% of its households a language other than English is spoken at home as compared to the state average which is 30%. This is an important factor to recognize for business continuity planning as the planning documents should have bi-lingual options. Moreover, 39% of the county is of Latino/Hispanic origin. This figure is substantially higher than the Latino/Hispanic population average for the state (19%) and the New York Metropolitan Statistical Area (24%).¹

The educational attainment in the county lags behind the state. Eighty-two percent of adults in the county are high school graduates (88% for the state) and 26% of adults hold a bachelor's degree or higher (36% for the state). The median income of the county is \$57,654 which is lower than the state average of \$71,629. Passaic County also has more multi-unit housing structures than the state at 53% versus 36%. The overall demographic outlook for the county is mixed. The county has a higher unemployment rate than the state and its population has a longer average commute time. Additionally, only 30% of its workforce works in the county.

The map below highlights the flow of employed people into Passaic County between 2008 and 2012. Workers are crossing the county boundary from all parts of the state. Therefore, in business continuity planning it is crucial to consider the impact that infrastructure like roadways and transportation has on the businesses.

¹“The New York-Newark-Jersey City, NY-NJ-PA Metropolitan Statistical Area (New York MSA) includes the five counties that comprise New York City — Bronx, Kings (Brooklyn), New York (Manhattan), Queens, and Richmond (Staten Island) — and 20 other surrounding counties located in southeastern New York state, northern New Jersey and eastern Pennsylvania.” US Department of Housing and Urban Development, 2013



The business profile of Passaic County is complex. When the industry codes (NAICS) are filtered for industry sectors that have 100 or more business establishments, there are 7,500 business establishments in Passaic County (Bureau of Labor Statistics; hereafter BLS). These establishments employed more than 53,000 people as of the third quarter of 2014. This represents roughly 10% of the county's total population. Industries with fewer than 100 business establishments employed almost 70,000 people in Passaic County. Moreover, the total wages for all private business establishments in the county were almost \$1.4 billion for the third quarter of 2014 (BLS); therefore impactful. Losses in these sectors will impact the economic and social fabric of the county. Can the county absorb the loss?

NOTE: Data on changes in the number of business establishments in the county is pending.

When the business parcel inventory is examined, in 2014 Passaic County had 8,053 commercial parcels and 1,486 industrial parcels (See Table 2). There was a small decrease in these numbers between 2011 and 2014, around 1%. When these numbers are disaggregated, there is variation between municipalities. Of the municipalities in Passaic County, the top three with gains in parcels are Wanaque, Haledon, and Bloomingdale (highlighted in yellow). Four municipalities saw losses; they are Little Falls, Paterson, West Milford, and Woodland Park.

Table 2

Commercial and Industrial Parcels, 2011 to 2014									
Municipality	Commercial Parcels			Industrial Parcels			Non-residential Parcels		
	2011	2014	Change	2011	2014	Change	2011	2014	Change
Bloomingdale	102	107	5%	2	4	100%	104	111	7%
Clifton	1,100	1,102	0%	443	429	-3%	1,543	1,531	-1%
Haledon	128	145	13%	26	25	-4%	154	170	10%
Hawthorne	273	273	0%	109	116	6%	382	389	2%
Little Falls	201	196	-2%	40	40	0%	241	236	-2%
North Haledon	83	87	5%	6	6	0%	89	93	4%
Passaic	1,142	1,139	0%	117	116	-1%	1,259	1,255	0%
Paterson	3,356	3,276	-2%	499	488	-2%	3,855	3,764	-2%
Pompton Lakes	166	164	-1%	11	11	0%	177	175	-1%
Prospect Park	59	60	2%	2	2	0%	61	62	2%
Ringwood	57	58	2%	25	25	0%	82	83	1%
Totowa	240	239	0%	63	64	2%	303	303	0%
Wanaque	92	105	14%	18	18	0%	110	123	12%
Wayne	591	600	2%	84	84	0%	675	684	1%
West Milford	285	279	-2%	28	29	4%	313	308	-2%
Woodland Park	227	223	-2%	29	29	0%	256	252	-2%
County Total	8,102	8,053	-1%	1,502	1,486	-1%	9,604	9,539	-1%

Source: Maser Consulting, 2015

When the assessed equalized values are examined (See Table 3), county-wide there was a 22% loss in value at the parcel level post-Irene affecting 13,136 parcels. The largest losses in values were in Clifton (31%), Totowa (63%), and Wayne (30%). Moreover, there is a large difference in the losses in these three municipalities and the remaining towns. For instance, after Wayne the next level loss is in Haledon at 9%.

Table 3

EQUALIZED ASSESSED IMPROVEMENT VALUES, 2011 TO 2014					
Municipality	Parcels	Equalized Assessed Improvement Value			
		2011	2014	Loss	Percent
Bloomingtondale	112	\$38.5	\$37.4	-\$1.1	-3%
Clifton	1,940	\$2,076.0	\$1,434.1	-\$641.9	-31%
Haledon	288	\$123.5	\$112.5	-\$11.0	-9%
Hawthorne	486	\$109.7	\$101.9	-\$7.8	-7%
Little Falls	64	\$5.8	\$5.6	-\$0.3	-4%
North Haledon	174	\$17.8	\$17.0	-\$0.8	-4%
Passaic	1,904	\$201.9	\$193.0	-\$9.0	-4%
Paterson	5,202	\$1,192.6	\$1,100.3	-\$92.3	-8%
Pompton Lakes	286	\$91.8	\$85.5	-\$6.3	-7%
Prospect Park	114	\$21.2	\$19.8	-\$1.5	-7%
Ringwood	20	\$6.9	\$6.5	-\$0.5	-7%
Totowa	398	\$223.2	\$83.7	-\$139.5	-63%
Wanaque	210	\$66.1	\$61.6	-\$4.5	-7%
Wayne	990	\$396.4	\$277.8	-\$118.6	-30%
West Milford	550	\$140.0	\$135.2	-\$4.8	-3%
Woodland Park	398	\$86.4	\$83.5	-\$3.0	-3%
County Total	13,136	\$4,798.0	\$3,755.1	-\$1,042.8	-22%

When the impact of Hurricane Irene is mapped onto the businesses in the county, there was \$15 million in business losses in 2011 (See Table 4)². Of these losses, there was roughly \$9 million in losses to business contents (i.e. personal property, auto losses, etc.) and over \$6 million in losses to real estate. Of the losses verified by the Small Business Administration in Passaic County, the largest losses were to businesses in Clifton, Passaic, Patterson, and Wayne (highlighted in yellow); while the largest percentage losses were in Prospect Park, Hewitt, and Wayne. NOTE: multiple listings are due to SBA data reporting methods.

Table 4

Small Business Administration Disaster Loans, 2011					
Damaged Property City Name	Total Verified Loss	Verified Loss Real Estate	Percentage Real Estate Loss	Verified Loss Content	Total Approved Loan Amount
BLOOMINGDALE	89,530.00	77,180.00	86	12,350.00	0.00
CLIFTON	17,768.00	1,129.00	6	16,639.00	14,000.00
CLIFTON	44,866.00	41,316.00	92	3,550.00	0.00
CLIFTON	1,594,110.00	536,695.00	34	1,057,415.00	972,900.00
HALEDON	4,806.00	1,806.00	38	3,000.00	0.00
HAWTHORNE	507,260.00	293,058.00	58	214,202.00	188,100.00
HEWITT	12,673.00	12,673.00	100	0.00	0.00
LITTLE FALLS	313,080.00	283,780.00	91	29,300.00	15,800.00
LITTLEFALLS	54,175.00	52,275.00	96	1,900.00	45,000.00
PASSAIC	2,455,183.00	715,233.00	29	1,739,950.00	687,200.00
PATERSON	500.00	0.00	0	500.00	0.00
PATERSON	7,086.00	161.00	2	6,925.00	0.00
PATERSON	32,549.00	0.00	0	32,549.00	0.00
PATERSON	121,534.00	104,364.00	86	17,170.00	0.00
PATERSON	148,519.00	128,744.00	87	19,775.00	0.00
PATERSON	177,385.00	122,888.00	69	54,497.00	42,100.00
PATERSON	679,346.00	409,695.00	60	269,651.00	376,600.00

² The “Damaged Property” data reflects individual loans; therefore there may be multiple listings for each municipality.

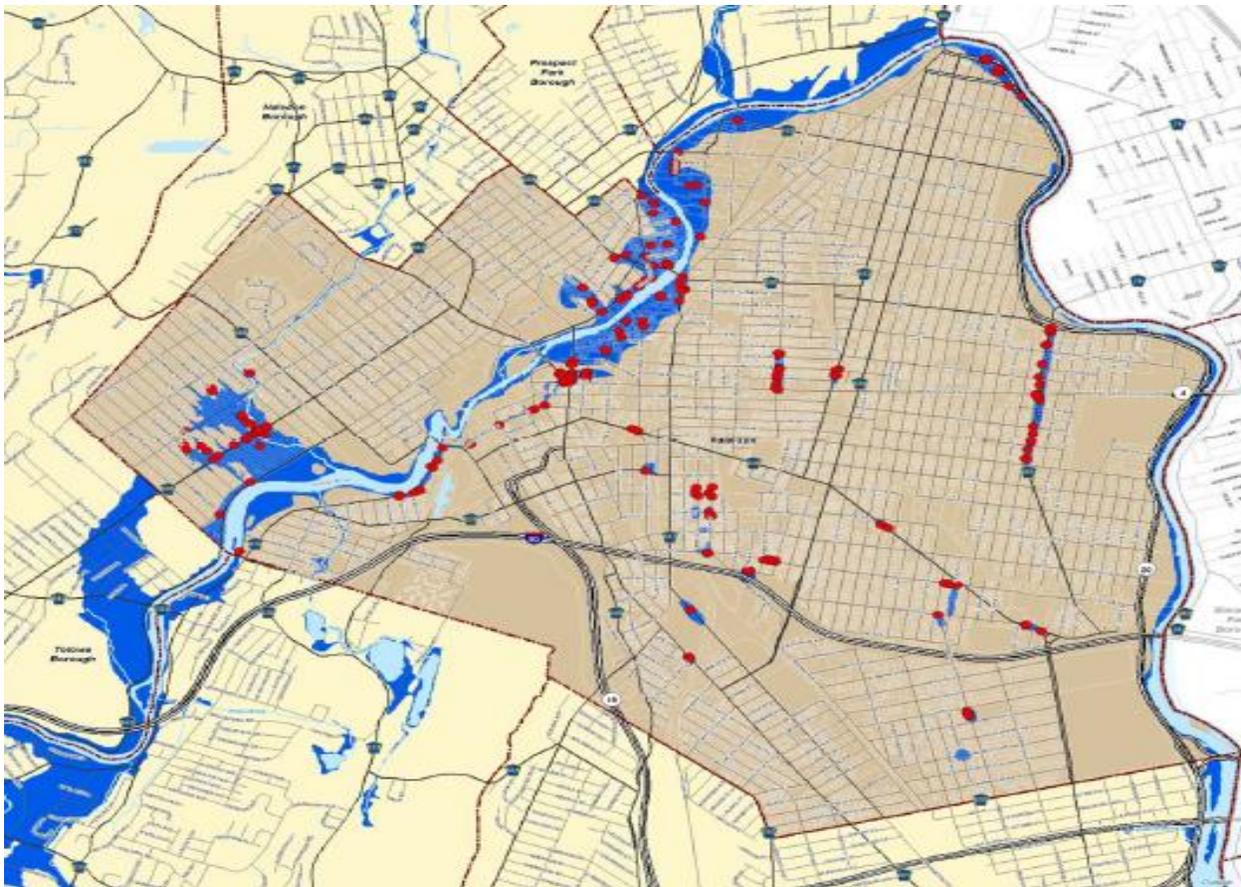
PATERSON	1,776,025.00	814,839.00	46	961,186.00	638,500.00
PATERSON	3,141,412.00	585,356.00	19	2,556,056.00	278,300.00
POMPTON LAKES	2,950.00	0.00	0	2,950.00	0.00
PROSPECT PARK	6,304.00	6,304.00	100	0.00	4,500.00
TOTOWA	52,376.00	46,047.00	88	6,329.00	49,500.00
WAYNE	497,882.00	497,882.00	100	0.00	0.00
WAYNE	2,766,705.00	1,354,124.00	49	1,412,581.00	2,105,800.00
WEST MILFORD	74,073.00	62,677.00	85	11,396.00	81,600.00
WEST PATERSON	216,423.00	9,662.00	4	206,761.00	49,200.00
WOODLAND PARK	19,200.00	1,161.00	6	18,039.00	0.00
WOODLAND PARK	216,651.00	105,924.00	49	110,727.00	92,000.00
Totals	15,030,371.00	6,264,973.00		8,765,398.00	
Source: Small Business Administration, Disaster Loan Data, Fiscal Year 2011					

Roughly 8% of the businesses or 1,528 businesses in the county are in the flood zone.³ The top three municipalities with businesses in the flood zone are Wayne Township (580 businesses), Paterson City (349 businesses), and Woodland Park (183 businesses). Of these businesses 357 are retail establishments and 143 are in health care. Wayne Township has 2,641 business establishments; 22% of these business are in the flood zone and of these 33% are retail businesses.

³ Maser Consulting, "Passaic County Economic Development Plan, Impact Analysis and Continuity Plan" (presentation, Steering Committee, Passaic County CEDS, Totowa, NJ, February 26, 2015).



In Paterson, 349 of its 4,587 businesses are in the flood zone (8%) and 23% of these businesses are retail establishments (See map insert). On the map each dot represents a retail establishment in the flood zone. In Woodland Park, 183 of 532 businesses are in the flood zone (34%); and 22% of these businesses are in health and social service establishments.



Source: Paterson, NJ (Maser Consulting)

The main focus of a business continuity and disaster planning exercise is to prepare, so as “to recover and return” to business as quickly as possible. Therefore, it is imperative that small businesses prepare because of their importance to the economy of the county. As these job figures indicate employment from small business establishments is critical. The impact of their ability to recover and return will have immediate and long term effects on the overall economic viability of the communities and the Count.

Therefore, it is imperative that small businesses plan, prepare and practice the plan.

B. THE RETAIL CLUSTER

The following discussion examines the current market conditions in the county. It focuses on three of the four largest industries in the county: health care, manufacturing, and retail. The fourth cluster is government employment and it will not be covered in this treatment.

In Passaic County the retail and health care clusters each have 14% of the 2014 jobs while 10% of the jobs are in manufacturing. There are more jobs in these clusters in Passaic County than in the state as a whole. Combined roughly 38% of the 2014 jobs, or 71,603 jobs, in Passaic County are in these three clusters combined. They represent a sizable portion of the employment available in the county. According to the New Jersey Department of Labor and Workforce Development projections, the occupational outlook for the county projects overall growth through 2022.

The retail cluster represents 14% of all of the jobs in the county; that is, 26,553 jobs. Retail establishments also represent 15% of all establishments in the county and it is projected to grow by 8% through 2024. The average wage for the retail cluster in Passaic County is \$28,553; which is \$29,101 lower than the county's average for wages.

The five largest retail subsectors in the county are: supermarkets and other grocery, new car dealers, pharmacies and drug stores, electronics and appliance stores, family clothing stores. Over the last ten years the retail cluster has experienced a 4% increase with the largest increase in food and beverage stores and the largest decrease in furniture and home furnishing stores. The retail vacancy rate is roughly 4% which is significantly lower than the vacancy rate for the state.

The retail cluster is important for the county. When retail occupations are disaggregated, they are projected to remain stable or to grow through 2022 (See Table 5). The largest occupational growth in this cluster will occur for retail sales workers and salespersons. This sector is projected to employ more than 27,000 workers in Passaic County by 2022. This is a vital part of the county's employment and economic outlook. But, what happens if these jobs disappear because of a disaster? Small business establishments are 15% of the county's businesses/locations—that is a lot of places for potential losses. Therefore, business continuity planning is important because it allows businesses to restore normal operations as quickly as

possible after a crisis. Through business continuity and disaster planning cannot guarantee that a disaster won't occur, it does reduce the impact of the crisis on business operations and on the lives of workers.

Table 5

Long-Term Occupational Employment Projections for the Retail Cluster									
SOC Code	Occupation Title	2012 Estimate	2022 Projected	Numeric Change	Total Percent Change	Total Annual Openings	Annual Openings: Growth	Annual Openings: Replacements	Outlook
131022	Wholesale and Retail Buyers, Except Farm Products	550	600	50	6.8	20	0	10	Growing
412000	Retail Sales Workers	14,450	15,250	800	5.6	620	80	540	Growing
412031	Retail Salespersons	8,100	8,750	700	8.4	340	70	280	Growing
131023	Purchasing Agents, Except Wholesale, Retail, and Farm Production	450	450	0	4.8	10	0	10	Stable
411011	First-Line Supervisors of Retail Sales Workers	2,150	2,200	50	3.1	50	10	50	Stable

Source: NJ Department of Labor and Workforce Development

C. THE HEALTH CARE CLUSTER

Hospital care is the largest single category of health care expenditure in the U.S with sales growing nearly 4% between 2010-2015. In Passaic County, the health care cluster represents 14% of the jobs in the county (26,379 jobs) and health care establishments represent 14% of all establishments in the county. The health care cluster is projected to grow by 11% through 2024 and the average wage is \$45,447.

The five largest subsectors in the health care sector are: general medical and surgical hospitals, offices of physicians, nursing care facilities, child day care services, offices of dentists. Over the last ten years this sector has grown by 15%. Although there has been a recent decrease in employment in the sector, there has been a concomitant increase in out-patient offices suggesting a shift in the sector.

When the sector's occupations are disaggregated, most of the occupations in the field are projected to remain stable or to grow through 2022 (See Table 6). Of the occupations that are projected to grow, there is a high representation of support occupations in the field, such as: nurses' assistants, occupational/physical therapy assistants and aides, therapists, and other support occupations. When the occupations that are projected to remain stable are examined, they too represent support fields in the cluster.

This trend changes when the occupations in the field that are projected to decline are examined. These occupations represent traditional jobs in the field, such as: family/general practitioners, psychiatrists, and recreational therapists. This trend mirrors national changes. Nationally, there is a trend towards consolidation with for-profit providers acquiring non-profit providers as the regulations and requirements for tax exempt status changes. Moreover, primary care physicians are also consolidating with group practices and hospitals.

Table 6

Long-Term Occupational Employment Projections									
SOC Code	Occupation Title	2012 Estimate	2022 Projected	Numeric Change	Total Percent Change	Total Annual Openings	Annual Openings: Growth	Annual Openings: Replacements	Outlook
311014	Nursing Assistants	3,000	3,400	400	13.6	100	40	60	Growing
312000	Occupational/Physical Therapy Assistants	200	250	50	37.6	10	10	0	Growing
312011	Occupational Therapy Assistants	0	0	0	25	0	0	0	Growing
312021	Physical Therapist Assistants	50	100	0	43.6	0	0	0	Growing
312022	Physical Therapist Aides	150	150	50	37.6	10	10	0	Growing
319000	Other Healthcare Support Occupations	2,100	2,550	400	20	80	40	40	Growing
291011	Chiropractors	100	100	0	11.5	0	0	0	Growing
291021	Dentists, General	150	200	0	13.2	10	0	0	Growing
291031	Dietitians and Nutritionists	100	100	0	10.2	0	0	0	Growing
291051	Pharmacists	450	500	50	11.2	20	10	10	Growing
291061	Anesthesiologists	150	200	50	23.1	10	0	0	Growing
291063	Internists, General	50	50	0	15.7	0	0	0	Growing
291065	Pediatricians, General	150	150	0	13.3	10	0	0	Growing
291067	Surgeons	50	50	0	23.8	0	0	0	Growing
291069	Physicians and Surgeons, All	850	1,000	150	14.3	30	10	20	Growing

	Other								
291071	Physician Assistants	0	50	0	42.1	0	0	0	Growing
291081	Podiatrists	50	50	0	23.7	0	0	0	Growing
291122	Occupational Therapists	150	200	50	19.3	10	0	0	Growing
291123	Physical Therapists	350	500	150	34.4	20	10	10	Growing
291124	Radiation Therapists	0	0	0	9.1	0	0	0	Growing
291126	Respiratory Therapists	250	300	50	17.5	10	0	0	Growing
211091	Health Educators	0	0	0	0.0	0	0	0	Stable
211094	Community Health Workers	50	50	0	4.8	0	0	0	Stable
299000	Other Healthcare Practitioners	150	150	0	0.6	0	0	0	Stable
299099	Healthcare Practitioners and Technical Workers	50	50	0	1.6	0	0	0	Stable
311013	Psychiatric Aides	250	250	0	3.8	10	0	0	Stable
311015	Orderlies	100	100	0	1	0	0	0	Stable
312012	Occupational Therapy Aides	0	0	0	0.0	0	0	0	Stable
291062	Family/ General Practitioners	0	0	0	-5.6	0	0	0	Declining
291066	Psychiatrists	0	0	0	-9.1	0	0	0	Declining
291125	Recreational Therapists	0	0	0	-4.8	0	0	0	Declining

Source: NJ Department of Labor and Workforce Development

The health care cluster should remain strong. Aging population, health care reform, and increase insurance coverage all lead to increased demand and revenue for health care providers.

D. THE MANUFACTURING CLUSTER

The final cluster examined here is the manufacturing cluster. It is the most complex. Nationally, the manufacturing sector is experiencing mixed growth. For example, although there are some signs of growth, in the past ten years manufacturing has declined 23% and the sector is projected to decline by 17% by 2024. In Passaic County, the manufacturing sector is a strong cluster. The cluster represents 10% of all jobs in the county and 6% of all of the establishments in the county. Furthermore, the average wages for the sector are high. In Passaic County the average wages in this cluster are \$60,237 which is above the overall average for the county.

The five largest subsectors in the manufacturing cluster are: navigational, Measuring, electromedical and control instruments manufacturing, printing, medical equipment and supplies manufacturing, bread and bakery product manufacturing, and animal slaughtering and processing. There are three major areas of focus for this cluster:

- Chemicals and Plastic Manufacturing:
 - Toiletries are projected to continue to grow over the next five to ten years;
 - Diverse product lines and commitment to R&D will keep revenue growth steady;
- Food Product Manufacturing:
 - Reduction in bread consumption has slowed growth in key industry in Passaic;
 - Focus on nutritious and specialty goods throughout the industry;
- Metal Product Manufacturing:
 - Navigational Instrument Manufacturing driven by research and development funding.

E. CONCLUSIONS

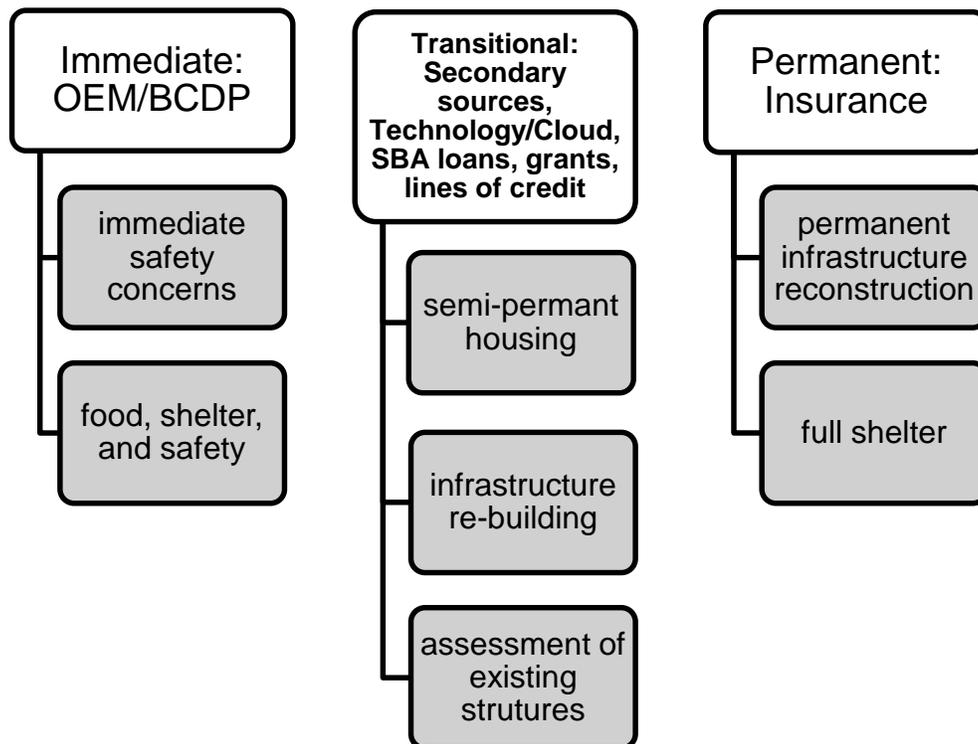
The overall economic outlook for Passaic County is strong. There are strong and growing industry and employment sectors in the county; especially in the three clusters discussed above: retail, healthcare, and manufacturing. These sectors are extremely important to the county. But, what happens if they disappear? Therefore, the businesses and municipalities of Passaic County must plan. How to get businesses to plan is the subject of chapters IV and V. There are a couple of areas of concern as well. The educational attainment in the county lags behind the state and two of the three top industry clusters pay average wages that are lower than the county and state averages. Moreover, the county's diversity is both an asset and a potential threat. Thirty-nine percent of residents of the county are of Latino/Hispanic heritage and 48% of county's residents speak a language other than English at home. This means that the county is very culturally diverse and that the planning process must bridge multiple cultural customs.

- In 48% of Passaic County's households a language other than English is spoken at home;
- 39% of people in the county are of Latino/Hispanic origin;
- 82% of adults in the county are high school graduates (88% for the state);
- 26% of adults in the county hold a bachelor's degree or higher (36% for the state);
- The median income of the county is \$57,654;
- There are 7,500 business establishments in the county and these establishments employed more than 53,000 people as of the third quarter of 2014;
- County-wide there was a 22% loss in value at the parcel level post-Irene affecting 13,136 parcels. The largest losses in values were in Clifton (31%), Totowa (63%), and Wayne (30%);
- After Hurricane Irene, there was \$15 million in business losses and of these losses, there was roughly \$9 million in losses to business contents (i.e. personal property, auto losses, etc.) and over \$6 million in losses to real estate;
- The retail cluster represents 14% of all of the jobs in the county; that is, 26,553 jobs;
- The health care cluster represents 14% of the jobs in the county (26,379 jobs) and health care establishments represent 14% of all establishments in the county;
- The manufacturing sector represents 10% of all jobs in the county and 6% of all of the establishments in the county.

IV. RESOURCES AVAILABLE FOR CONTINUITY

This chapter provides a general overview of the resources, communication, partnerships, and educational options available to municipalities and businesses after a crisis or an emergency. The chapter divides the responses to a crisis along an action timeline. This timeline details which agencies are involved immediately after a crisis, during a transitional period, and for permanent recovery assistance.

The purpose of any business continuity plan or disaster plan is “to recover and to return” to business as soon as possible. The increasingly global business climate and unpredictable weather patterns mean that businesses and municipalities must plan for any possible crises. Business continuity planning (BCDP) is becoming a necessary aspect of business development; thus, it is important to understand what resources are available to provide assistance during and after an emergency.⁴ Additionally, it is important to think about business



⁴ In the Emergency Management Guide for Business and Industry (2013, 5), the Federal Emergency Management Agency defines an emergency as, “...any unplanned event that can cause deaths or significant injuries to employees, customers, or the public...”

continuity planning as a continual process that involves preparing for the eventuality of crises, responding to crises, and recovering from crises.

The relationship between immediate, transitional, and permanent responses is illustrated by the diagram above. Once an emergency occurs, aid comes from every level of government and from non-governmental and community-based organizations (CBOs) which are nonprofit organizations like the American Red Cross. Each level of aid structure has different resources and capacities that are utilized as needed. The immediate crisis dictates which aid responders are utilized but the function is to provide immediate care and resources. Once the immediacy of the event subsides, the needs of individuals, businesses, and communities shifts to longer term, semi-permanent needs. Finally, the response shifts to permanent structure and infrastructure reconstruction to return those affected to full capacity.

We begin by focusing on the resources available at every moment of a crisis. The following discussion examines BCDP from a macro- or large-scale perspective; later materials will cover localized needs and planning as well.

The following is a list of assets and initiatives for consideration:

Assets:

- Federal/State aid
- Recovery Financing: Private insurance, SBA loans, Secured and Unsecured loans
- Incentives: incentivize the creation of Business Continuity and Disaster plan by county businesses

Initiatives:

- Inclusion of key stakeholders in practices: employers, employees, clients, suppliers, distributors, and political leaders in emergency management drills and exercises
- Business Continuity and Disaster Plan communication: encourage businesses and individuals to prepare continuity plans
- Regional coordination: facilitate the continued coordination between the county's municipalities

A. IMMEDIATE RESPONSES

Immediately after a crisis there are several agencies available to provide assistance. Their focus is on providing an immediate and effective response to an emergency. These agencies are national, state, or county-level organizations that either maintain a sub-national/state/county-level presence or that move into affected areas as needed. It is important to remember that

governments and organizations are not monoliths; they operate through several interconnected agencies or departments with differing levels of autonomy and expertise.

Immediate crises responders include but are not limited to:

- 1) New Jersey and Passaic County Offices of Emergency Management (OEM): coordinates the emergency management response in the county/state which includes the actions of the first responders and all emergency personnel.
- 2) The American Red Cross: provides immediate crises responses through the use of a network of volunteers and support organizations.
- 3) Federal Emergency Management Agency (FEMA): provides national emergency responses to disasters and emergencies; it also mitigates against future events.
- 4) Centers for Disease Control and Prevention (CDC): develops and applies disease prevention and control, environmental health, and health promotion and health education activities.
- 5) New Jersey Department of Health: provides state-level disease prevention and control, environmental health, and health promotion.
- 6) New Jersey State Police: ensures public safety and maintains civil authority.
- 7) Utilities: provides emergency responses to outages and infrastructure damage(s).

Immediate crisis responses are by definition rapid—their responses provide immediate medical care, immediate shelter, and immediate food relief in the aftermath of an emergency.

While there is some overlap between immediate and transitional responses, with utilities for example, immediate responses are generally designed not to remain in place once the immediacy of the event has passed.

B. TRANSITIONAL RESPONSES

After the emergency has passed, transitional aid is used to bridge the period between the immediate crisis and full recovery. Once the immediate danger subsides, affected communities,

businesses, and individuals need transitional aid. The Global Facility for Disaster Reduction and Recovery (hereafter GFDRR 2010, 133) defines this period as a critical moment between the immediate needs created by the crisis and the period before full recovery has occurred. GFDRR defines the response during this period as, "...short-term interventions...to address the availability of basic services and safety of households in communities where reconstruction is taking place." The focus of this phase is on the business impacts of the crisis.

For instance, in this period businesses may experience a number of issues related to the crisis; such as, the depletion of cash reserves, lowered profitability, an inability to sustain operations, and other unexpected expenses. Additionally, traditional sources of credit may be limited because credit applications take time. Thus, after a crisis or an emergency it may not be possible to get additional funding; it seems counterintuitive but it is important to think about money and cash reserves when you do not need them. Agencies that provide transitional services include:

- Small Business Administration (SBA);
- Banks—Lines of Credit;
- Department of Housing and Urban Development (HUD);
- Federal Emergency Management Agency (FEMA);
- County housing assistance programs;
- Utilities: restore public facilities;
- Primary and Secondary schools: construct community meeting spaces or incorporate community space in other early public building reconstruction projects.

The goal of transitional assistance is to provide safe and effective aid while permanent structures and infrastructures are re-built and repaired.

C. PERMANENT RESPONSES

Permanent resources include the need to restore and rebuild communities and businesses in order to return to full operational capacity. The resource options for permanent restoration are available before and after an emergency events. These resources are:

- Business/residential insurance companies;

- Small Business Administration (SBA);
- Banks and financial institutions:⁵
 - Unsecured Loans:
 - Credit cards (designate an emergency card);
 - Business charge cards;
 - Lines of credit;
 - A line of credit for short term access to capital (unsecured revolving credit);
 - Secured Loans:
 - Business lines of credit;
 - Commercial cards;
 - Secured credit cards;
- Telecommunications/Cloud:⁶
 - Develop an IT strategy;
 - Document equipment and connectivity requirements;
 - Identify critical applications;
 - Determine backup/restoration procedures;
 - Prioritize function;
 - Generators or POS system;
 - Set the timeframe;
 - Backup storage:
 - Identify what to backup;
 - Select where to store data;

⁵ Santos, Cesar and Jordany Rodriguez. "Financial Preparedness." Presentation for the William Paterson University Business Continuity Conference, Totowa, NJ, May 8, 2015.

⁶ Reina Valenzuela, "Tech Tools for Recovery," Presentation for the William Paterson University Business Continuity Conference, Totowa, NJ, May 8, 2015.

- Implement hardware and software backup procedures;
- Create a schedule for the backups;
- Conduct reviews to ensure accurate backup;
- Backup hard copies;
- Virtual private server (VPS);
- Scanned copies;
- Restore/recovery:
 - Establish alternative forms of communication (Skype, Facebook groups, signage, website, social media);
 - Scan and store documents (insurance, purchases, warranties, deeds, titles);
 - Inventory video and photos;
 - Document instructions to staff;
 - Detail the location of backup files (with access codes);
 - Keep a copy of system configurations;
 - Scan and backup financial records;
- Set up a list of resource contact numbers:
 - Business Action Center;
 - OEM;
 - Utilities—they don't know when your power is off.

D. CONCLUSIONS

The best time to plan for an emergency or a disaster is before the event. In a crisis there may not be enough time to plan adequately. It is also important to think about the emergency response to a crisis in terms of a continual process with different resources and responders available at different times. Immediately after a crisis the emphasis is on the rapid response to the event. After this period passes the response evolves to consider what is needed for a full recovery and the smooth return to operations.

V. COUNTY-MUNICIPAL PLANS (DISASTER AND CONTINUITY)

This chapter examines county-level responses to disasters and emergencies. It uses interviews with key stakeholders and focus group sessions to detail what Passaic County is doing to ensure disaster and business continuity. Data for this chapter was gathered through eighteen stakeholder interviews, a focus group session with the county's emergency responders, and several visioning sessions with county and municipal officials.

Additionally, this chapter utilizes the county's disaster planning documentation and preparedness plans. The discussion begins by distinguishing between continuity and disaster planning, it will then look at the data and resources available for emergency and disaster preparation, followed by an examination of the connectivity of the county's municipalities, barriers to service, and bottlenecks and impediments. Finally, the chapter will make county-level recommendations for continuity and disaster preparedness.

A. CONTINUITY VERSUS DISASTER PLANNING

The purpose of continuity and disaster planning is to mitigate against disaster risks. Continuity planning and disaster planning are connected; the goals of both are risk aversion, loss reduction, a quick return to business, and the protection of investments and life. The difference is that continuity planning is a more comprehensive process that prepares for all emergencies, large and small. Disaster planning is a targeted process that usually focuses on large-scale calamities.

Continuity planning involves preparing for the ability to respond to and recover effectively from disruptions in services by outlining where operations will be housed after an event; anticipating how long the recovery process will take; and, determining who will lead the recovery efforts. A good continuity plan, to the extent possible, makes provisions for every crisis with the goal of building organizational resilience.

Risks can come from a number of different sectors. Whether the risks are from natural disasters (floods, earthquakes, or hurricanes), from man-made occurrences (cyber or terrorist attacks), or from economic sources (recessions and business loss) every community is vulnerable. Unfortunately, vulnerability is not an easily measurable characteristic. Every community's susceptibility to risks involves a complex interaction between several systems.

Every community must assess its own exposure and sensitivity to risk and the potential impact the risks pose. Moreover, each community has a different adaptive capacity for risk; that is, every community's knowledge base, technological capability, and institutions are unique to it. Keeping in mind the complexity of vulnerability, continuity and disaster planning must take into account every possible disaster.

As David Paulison, former administrator of the Federal Emergency Management Agency (FEMA), contends the purpose of continuity planning is to build resilience or "[t]he ability to respond and recover effectively to disruptive events." This process requires that businesses and municipalities:

- Be grounded in self-awareness;
- Have an accurate perception of reality; and, a
- Realistic optimism for the future.

County-level officials are responsible for disaster planning. Their function is to prepare for disasters and facilitate the county's disaster response and its recovery process. Specifically, the county must ensure that its essential functions and operations are performed and, if disrupted, rapidly resumed in the case of a disaster. According to the county's Continuity of Operations/Continuity of Government County of Passaic Plan (hereafter COOP/COG; 2006, 8), the county prepares in order, "...to save lives; protect the public health, safety, and well being; to protect property; maintain essential communications; provide for business/industry continuity; and restore basic public services."

The county's function in a disaster is to bring the resources of the government on-line as efficiently as possible. By doing this and doing it well, the government allows businesses to get the resources needed to facilitate recovery. The government provides for the immediate safety of the community through emergency, fire, and police responses and it provides emergency food and shelter. By all measures, Passaic County does this extremely well. Nevertheless, the government does not provide the specific resources individuals and businesses need to recover from a crisis. Businesses and individuals must plan for disasters just as the government does; they must plan for recovery and a return to operations. The government is an important resource but it cannot make business continuity investments for businesses. This is a critical

distinction and cannot be underestimated. As noted from the introduction, this is the hardest thing to accomplish: business buy in.

B. RESOURCES AVAILABLE

The following section examines the resources available to emergency responders in Passaic County. The resources available include state and federal funding sources, non-governmental organizations that provide support services in crises, like the American Red Cross, and private support. The information presented here comes from the data gathering processes described above and presents the municipal services in place using all the county-level continuity plans.

According to the interviews and focus groups conducted, most of the emergency responders and county-level agencies have continuity and disaster plans in place (See Appendix for response counts). With only four exceptions the respondents stated that their agency has a plan and that the plan is reviewed regularly. Of the agencies that do not have a plan in place, the respondents stated that they were either preparing a plan at the time of the interview/focus group or that a planning team had been designated to start the process. The respondents were well aware of the need to have a continuity and disaster plan in place. Moreover, most of the respondents' agencies also have shelter-in-place plans in case their personnel cannot leave the facilities and regularly drill their plans. As one respondent states, “[we have] multiple plans—drilled periodically: Everything from tabletops to full scale building evacuations.”

The objectives of the continuity and disaster plans at the county-level are to 1) achieve operational capacity within twelve hours of an emergency; 2) sustain operations for up to thirty days; and, 3) utilize existing departmental and field infrastructures. The process for putting together continuity and disaster plans at the county-level involves delineating what exactly the continuity of operations entails and defining essential functions.

Continuity of operations includes all activities that ensure the performance of essential functions. Essential functions are functions that allow the department or agency to provide services vital to exercising civil authority, maintaining safety, and sustaining the economy of the county during an emergency.

The process of determining which functions are essential begins with the agency or department identifying all functions it performs and then delineating which functions are essential. Some common essential functions are law enforcement, fire protection, medical services, and public health. Once this process is complete the essential functions are prioritized.

The prioritization process involves determining the amount of time that a function can be suspended without detriment and deciding in which order functions must be restored.

The final step in this process is determining what support services complement the essential functions identified. Determining what the support services are ensures that the essential functions are restored to their fullest capacity and that operations are performed well.

The basic element of the county-level plans are:

- Lines of succession for decision-making;
- Delegation of authorities;
- Devolution;
- Essential functions;
- Human Capital management ;
- Vital records;
- Alternative facilities;
- Interoperable communications;
- Resumption and recovery;
- Testing and training.

The planning process is a critical part of developing a continuity and disaster plan. This process identifies which functions and infrastructure elements are likely to be available during an emergency and allows departments and agencies to anticipate the needed resource allocation. Once the essential functions of an agency or department are detailed, the functions

are prioritized and sequenced. Each member of the department or agency then knows which function should be restored first and who is responsible for each function. A respondent summarized this aspect best, “...every employee has a storm function: site safety, deal with fire and phones, public relations, electric restoration group, damage assessors, thirty different functions and coordinators.” Additionally, once the planning process is complete the Office of Emergency Management (OEM) drills the plans and systematically reviews each department’s and agency’s plan. This process ensures that the Office of Emergency Management (OEM) is well prepared for every crises and that continuity plans are implemented in a timely and efficient manner. This process is a continual learning and review process.

As an administrator at a Passaic County utility states:

We pre-classify a storm. [We] list our storms on a scale of 1 to 6. Look to see what is predicted, whether there will be wind, snow, ice, wet snow, leaves on the tree, the time of year. Strictly follow[ing] the ICS structure. [We] decide prior to an event how many teams we will need [and] reach out ahead and pre-stage people through mutual aid. We do try to do this with businesses—notification prior to an event. We have a critical customer list, including hospitals and nursing homes. If a hospital is in an affected area we know there is a priority one customer. We send a notice, email or text to notify [them] of the pending storm, what we are doing and what our steps are. Each of our large commercial customers has a representative and a number they can call 24/7. This past year we added cyber security to our plan: We are able to quickly relocate our facilities if they are unable to continue to operate at the current location.

C. CONNECTIVITY TO LOCAL MUNICIPALITIES

Connectivity is crucial for any continuity and disaster plan. Coordination among all departments, agencies, and outside organizations that may be called upon to provide services and resources in a crisis may mean the difference between a quick recovery and prolonged disorder.

At the county-level, every department, agency, and governmental entity has developed and maintains a Continuity of Operations/Continuity of Government plan (COOP/COG). The COOP/COG is designed to ensure that the county government is able to perform all essential functions in the event of an emergency or a disaster. The COOP/COG is an important document in the continuity and disaster planning process (COOP/COG 2006, 8):

COOP/COG planning is designed to develop and maintain a plan that enables each department, agency, and other governmental agencies to preserve, maintain, and/or resume its capability to function effectively in the event of the threat or occurrence of any disaster or emergency that could potentially disrupt governmental operations and services.

The COOP/COG was developed to be inclusive of all departments and agencies in the county and includes all of those listed below. The departments and agencies in the county that were included in planning the COOP/COG are marked with an asterisk*:

- Administrator/Finance/Human Resources/Procurement Center
- Board of Elections/Superintendent of Elections*
- Camp Hope*
- County Administrator's Office*
- County Clerk/Register of Deeds/Surrogate's Office
- County Counsel/Consumer Protection/Weights and Measures
- Economic Development
- Emergency Management
- Freeholder's Office*
- Finance Department*
- Health Department/Mosquito Control/Recycling*
- Human Services/Mental Health*
- Office of Emergency Management*
- Parks Department
- Passaic County Community College
- Passaic County Technical Institute
- Planning
- Police Academy*
- Preakness Healthcare*
- Procurement/Purchasing*
- Prosecutor's Office*
- Public Housing
- Public Works/Engineering/Operations/Buildings and Grounds*
- Rutgers Cooperative
- Senior, Disability Services and Veterans Affairs*
- Sheriff's Department*
- Social Services
- Youth Reception and Rehabilitation Center

Each department and agency listed above is required to plan and execute its own COOP/COG plan. This coverage ensures that all critical staff has the knowledge and tools to perform

effectively during a crisis. For instance, each COOP/COG plan includes a list of all emergency personnel with the training and ability to perform essential functions. Additionally, the continuity and disaster plans are regularly drilled and exercised. Again, it should be noted that getting businesses to “buy in” is crucial. Thus, if during practice exercises by the county they could invite businesses to participate and to watch -- the need may become more apparent.

D. BARRIERS TO SERVICE

Despite the thoroughness of the planning process and the requirement that county-level departments and agencies have a continuity and disaster plan, there are barriers to service in the county. Three trouble areas have been identified from the data gathering process: communications, partnerships, and education.

I. COMMUNICATION

Two types of communication barriers emerged from the data gathering. The first is the movement of information through the channels of authority, especially the movement of information to front-line responders and local businesses. The second barrier involves the communication of status updates through established channels of communication.

The dissemination of information in a crisis is very important. According to the International Economic Development Council (2015, 9), “[a] breakdown in communication has been cited by local officials and community stakeholders as one of the most difficult barriers to overcome immediately following a major disaster.”

In Passaic County, respondents described the issues as: a need to have a disaster center to contact; access to who to call about resources, water clean-up, etc.; and, a place for the public to get updated information about where to stay away from during an emergency. Additionally, the need for first line responders to have the authority to make command-level decisions in the field was also cited. While it is not clear whether these issues are merely perceptions or major issues, they emerged from the data gathering process and therefore are important issues to consider.

Problems communicating through existing communications channels was also mentioned as an issue. For instance, one respondent says that it is “unclear about who to contact in an emergency.” This is an issue for the non-governmental groups affected. The

communication channels between local individuals and businesses and emergency responders is not well delineated. Emergency responders seem to have no difficulty communicating with each other through radio-communication but how effectively communication flows from emergency personnel to the general public and local businesses requires updating.

II. PARTNERSHIPS

There are several very successful partnerships and collaborations in the county. For instance, county-level utilities, colleges and universities, and municipalities have developed successful partnerships. However, in emergencies and crises new realities emerge that test time-honored partnerships. Thus, new partnerships are needed to meet new and emerging challenges. The new partnerships should prioritize economic revitalization as well as public safety.

For example, Hurricane Sandy was mentioned several times as a defining event in the county. The event showed that several existing partnerships were intact but the flooding and power outages also showed that more can be done to facilitate partnerships in the county. For instance it was noted in our interviews that the utilities should prioritize the needs of places of higher education because they are both a major county employer and they are an emergency shelter. This is an area which requires more attention in order to sustain economic revitalization; and as a matter of public safety.

III. EDUCATION

Education is an issue closely related to communication. Several respondents mentioned that there is a general lack of education about the status of emergency events and where those impacted should go. This issue involves the dissemination of information in an emergency and on-the-ground direction by first responders. In an emergency a lack of education can be extremely dangerous and therefore a continual push to educate residents of the county should be made. Most importantly, this push should occur in times of non-crisis and be reinforced at every level of government. Business buy in should be encouraged.

E. BOTTLENECKS/IMPEDIMENTS

The following are the major bottlenecks and impediments identified by the key stakeholder interviews and OEM first responders. The bottlenecks and impediments are:

- Need to redirect the drainage systems;
- Power failures—affecting cells, radios, etc.;
- Education of the public about emergencies;
- Power continuity—Loss of power is the bigger issue;
- Removal of barriers down the center of Hamburg Turnpike which are bad for businesses and first responders;
- Improved radio communication;
- Communication at the state level is poor;
- The police use an old radio system (SPIN);
- Self-deployment for the police in an emergency or disaster;
- Use e-mail for OEM coordinators;
- Radio/telephone use a mutual link-up system;
- Coordination of technical information for county-wide emergencies.

F. RECOMMENDATIONS

The key stakeholders interviewed for this report offered several recommendations for the county-level continuity and disaster planning process. Some of these have been identified prior to this report as potential areas which have now been confirmed (noted with * below). Their recommendations are summarized below:

- One agency to do donation management for the county:
 - A way to get local contracts in place;
 - Work with NGOS to set up a place with basic needs;
- Increase education and communication about issues around flooding prevention and recovery issues;
- Work regionally to reduce flooding;

- Remediate the Passaic River flooding:*
- Routes 20 and 46 frequently flood due to heavy rains, snow pack melting, and rising tides;
- Floods have become a real problem;
- General upgrades:*
- Storm water management;
- Pump station work;
- Sewer work;
- Find a use for the silt and debris that is caught in the nets; there is a need someone to take it away (currently paying for it);
- Put all utilities below ground;
- Improve roads to make it possible for big trucks to get through safely;
- Improve the ability to communicate during and immediately after a natural disaster:
 - Provide clear information about who to contact in an emergency—when and where;
 - Upgrade phones in all municipalities;
 - Use electronic signs;
 - Deal with issues around PSE&G communications;
- Support businesses in their ability to increase resiliency and survive emergency events:
 - Alternatives to turning residents away from disaster areas are needed;
 - Provide housing after a disaster;
- Maintain power continually, particularly for major employers and educational institutions:
 - Deal with issues around PSE&G’s communications;
 - County-wide consistency—Communication is better within some municipalities;
- Deal with the lack of mass transportation—there is a train station but it is not easy to get to and for some places there is no bus for within town:
 - There is not a lot of parking for bus transportation;
- Overcome litigation fears;
- Management of expectations.

Lastly, the use of simulations or exercises by the businesses within the County and the State OEM is crucial. This was stressed several times by officials in our interviews. However, the

ability to get everyone together to practice must be addressed. Therefore the County should request the State for more exercises bringing the businesses in as both participants and spectators. In the way the business community may see the importance of and relevancy of having a BCDP. (See Appendix for full Matrix)

VI. BUSINESS CONTINUITY AND DISASTER PREPAREDNESS PLAN

This chapter outlines the rationale and process of creating a Business Continuity Plan (BCDP) for businesses and localities. The purpose of a BCDP is to build resilience and ensure that normal operations can continue smoothly and resume quickly after a disaster.

While the term disaster connotes large-scale calamities, it is important to keep in mind that a good BCDP prepares organizations for any eventuality—large and small-scale crises as well as natural and man-made hazards. Business continuity planning means putting measures in place to safeguard people and assets during a crisis event and having a plan of action before an event occurs. Planning is, therefore, the most crucial element because the timing and impact of events are unpredictable and because there may not be enough time during an event to plan. You would not open a business without developing a plan, so why run a business without a plan to continue to operate in the event of a disaster?



Source: Ramapo River at Pompton Lakes, NJ (Photograph by Daniel S. Skulski, US Geological Survey).

When a crisis or an emergency happens our first response is to make sure that the people involved are okay.⁷ After this initial response, the process of returning to business begins. The planning process is detailed below and involves creating a plan, testing the plan,

⁷ Errol Bowen. "Business Continuity Overview." Presentation for the William Paterson University Business Continuity Conference, Totowa, NJ, May 8, 2015.

communicating the plan to all parties involved, and then regularly reviewing the plan. The process of returning to business need not be daunting; with planning and preparation businesses can recover from a crisis and return smoothly to operations.

A BCDP allows for resiliency: which is defined as “the ability to bounce back.” Unfortunately the reality is that 75% of businesses that do not having a BCDP in case of an event close within three years of the emergency or disaster; and, 40% of these businesses never even reopen at all (Ready.Gov).



Source: Paterson, NJ (Reuters)

The following outlines the steps used in the creation of a BCDP. (Pull out forms that will guide the creation of the BCDP are in the appendix).

The processes for creating a BCDP are:

- 1) An assessment all possible threats;
- 2) Planning for the threats and building the plan;
- 3) Disseminating the plan; and,
- 4) Implementing the plan.

As in all manner of preparations, a plan is only as good as the process used to create it and it must be used and reviewed regularly. Therefore, it is important to think about this process as a cycle that must be periodically repeated so that the plan is current and viable when it is needed.

A crucial aspect of creating a BCDP is leadership. According to David Paulison, former administrator of the Federal Emergency Management Agency (FEMA), resilience begins with the leadership of the organization. (As defined as the ability to bounce back after a crisis). A resilient leader has these characteristics:

- Self-Awareness:
 - Accurate perception of reality;
 - Knowledge of capabilities;
 - Knowledge of limitations;
- Confidence:
 - *Knowledge* of plan is the key;
 - Confidence is built through exercising your plan;
- Prioritization:
 - Understand your Critical Business Functions, Systems & Processes;
- Focus:
 - Concentrate on that which you can control;
 - Refer back to the Plan;
 - Reinforce the positives;
 - Temper your own emotions;
 - Manage your own expectations;
- Discipline:
 - Adhere to the standards set forth in your plan, no matter what, contingencies are there for a reason;
 - Rely on the structure and processes in place;

- Trust:
 - Trust in your Plan;
 - Trust in your staff;
 - Trust in your resources & assets;
- Flexibility:
 - Embrace adaptation, innovation and creative problem solving;
 - Exhibit a willingness and the confidence to grow, change & adapt given the most appropriate and accurate information available;
- Compassion:
 - Be aware of and have compassion for the experiences & emotions of those affected by the crisis;
 - Publicly express compassion for those involved.



The importance of a resilient leader cannot be understated. A good BCDP works best if it has the authority and legitimization of the organization's leadership. This authority may be bestowed upon a designated planning team; but, resilience planning must be part of the organization's culture. Building resilience can reduce injuries, insurance premiums, and property damages. Furthermore, planning ahead means a quick return to normal operations.

The process of creating a BCDP necessitates the assessment of the organization; but, as Paulison suggests, this process should also include an assessment of the organization's leadership. The result of this evaluation, however, is the confidence to lead the organization to become as resilient as possible. Additionally, as Don Wirth, retired vice president of global operations for the E. I. DuPont Corporation, states, the process of building resilience is good for business. He contends that:

With Global Operations becoming Regional and Global focused, our businesses must shift thinking on how to deliver technology and products to Global Customers. The notion of World scale Plants gives way to world scaled Supply Chain design and

execution. [The] location of key production components is determined by many Geopolitical considerations. Leading to a process of Supply Chain Resilience as the mantra for safe, low cost and capital effective delivery to Customers.

This process is crucial for businesses and organizations: as the owner, the entrepreneur, the manager, the sales person, the clerk, or the employee. Therefore, what will happen if you cannot work or you are not there? What will your customers do? Think about it! Now!



Source: Wayne, NJ (REUTERS/Lucas Jackson)

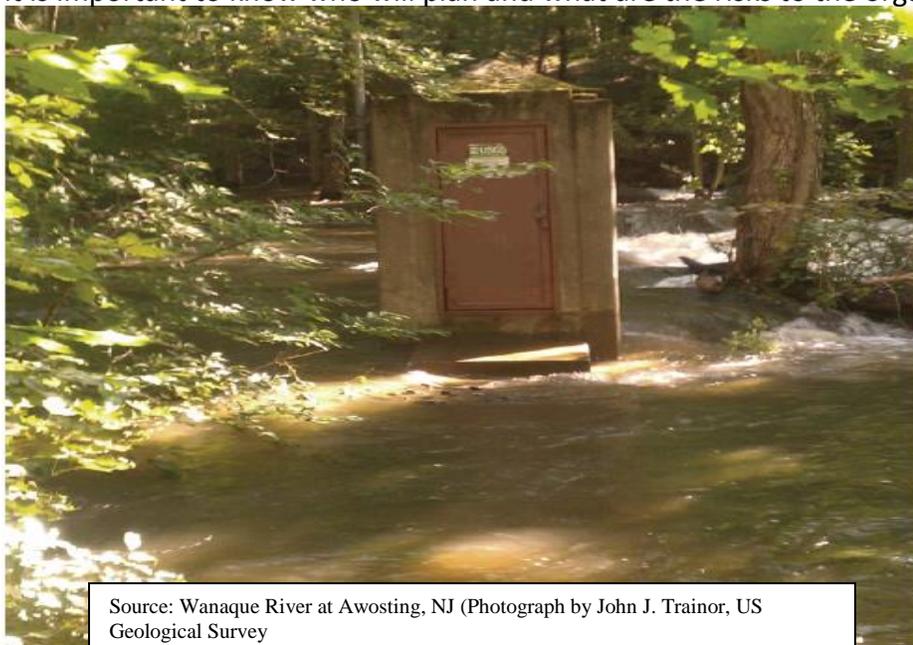
A. ASSESSMENT

The first steps in creating a business continuity plan are forming a planning team and assessing the risks and threats to the organization. The guiding question for this process is: What are the risks of different kinds of disasters and emergencies to your business? (FEMA 2013)

The first and most important step in creating a BCDP is forming a planning team. The following considerations should be carefully assessed:

- The size of the team, this is dependent of the organization's operational requirements and resources but participation should be encouraged;
- Composition of the team, determine who can be an active member but try to include input from all functional areas of the organization: upper management, line management; labor; human resources; etc.
- Planning authority, the team must be imbued with the authority to plan and implement the plan;
- Budget and a schedule.

The planning team's composition should be carefully and thoughtfully considered. This step is one of the most important and its structure can shape the direction of the process. In a small business it is important to know who will plan and what are the risks to the organization are.



Source: Wanaque River at Awosting, NJ (Photograph by John J. Trainor, US Geological Survey)

While risks and threats will be somewhat location- and organization-specific, it is important to consider all possibilities and to consider the full spectrum of threats and risks. In a 2007 survey, businesses identified fires, cyber-attacks, hurricanes, winter storms, tornadoes, and terrorist attacks as the important threats to them (FEMA 2013). Although, risks can come from many different sectors, for simplicity, this guide will divide them into natural hazards and man-made hazards.



Source: Pompton Lakes, NJ (Photograph by Robert W. Atkinson, US Geological Survey).

Natural hazards include:

- Geological threats:
 - Earthquakes
 - Tsunami
 - Volcano
 - Landslides, mudslides, subsidence
- Meteorological hazards:
 - Flood, flash flood, tidal surge
 - Water control structure/dam/levee failure
 - Drought
 - Snow, ice, hail, sleet, arctic freeze
 - Windstorm, tropical cyclone, hurricane, tornado, dust storms
 - Extreme temperature (heat or cold)
 - Lightning strikes

- Biological hazards:
 - Foodborne illnesses
 - Pandemic/infectious/communicable diseases
- Technology caused events:
 - Utility interruptions or failures

Man-made hazards include:

- Accidental:
 - Hazardous material spill or release
 - Nuclear power plant incident
 - Explosion/fire
 - Transportation accident
 - Building/structure collapse
 - Entrapment
 - Traffic incidents
- Intentional:
 - Robbery
 - Lost person, child abduction, kidnap, extortion, hostage incident, workplace violence
 - Demonstrations, civil disturbances
 - Bomb threats, suspicious package
 - terrorism



Once the list of hazards has been identified, the planning process can begin.

B. PLANNING

The planning process requires several systematic steps that can be repeated as the organizational needs and threats change. The planning process should include an examination of:

- 1) Where the organization's operations stand in the beginning of the process;
- 2) What are the organization's essential functions; and,
- 3) An assessment of its vulnerabilities.



Pompton Plains, NJ (Photograph by John J. Trainor, US Geological Survey).

I. WHERE THE ORGANIZATION STANDS

Determining where the organization stands in the beginning of the process allows the planning team to accurately assess the organization's capacities. These capacities include: staff/personnel trainings and expertise, the facility's capacities and vulnerabilities, and the impact of the local infrastructure. When determining where the organization stands, the planning team should do the following steps:

- a. Review all policies and previous plans;

- Evacuation plans;
- Fire protection plan;
- Safety and health policies;
- Security procedures;
- Insurance policies;
- Finance and purchasing procedures
- Employee manuals;
- Hazardous materials manuals;

Mutual aid agreements

- Meet with outside groups whose functions are critical for the organization's operations;
- b. Once these documents have been reviewed, the team should meet with critical outside groups to talk about the impact of outside factors on the organization's operations and to determine if outside resources are available to the group.
- Determine the critical and essential functions of the organization;
 - Identify the organization's capacities;
 - Identify external resources; and,
 - Review all insurance policies.

The critical local groups include: the emergency management office, the fire department, the police department, emergency medical services organizations, the public works department, telephone and utility companies, and neighboring businesses. This can be accomplished by the local city or county economic development official(s). The planning team should also become familiar with applicable federal, state, and local regulations, such as fire codes, occupational safety and health regulations, and zoning regulations.

II. ESSENTIAL FUNCTIONS

The planning team needs to understand the essential functions and operations of the organization in order to determine the impacts of potential threats.

- a. The essential functions of the organization are functions that allow the organization to provide services vital to its operations; that is, functions without which it cannot continue to operate. In a business context essential functions are functions that are sensitive to downtime, fulfill legal or financial obligations, play a key role in maintaining market share and reputation, or that safeguard an irreplaceable asset(s). Examples include: re-supplying/re-stocking merchandise or meeting payroll or loan obligations.

- b. In addition to considering the organization's essential functions, the planning team needs to identify the organization's resources and capacities. These capacities include those that can be depended upon in an emergency:
 - Personnel trainings and experiences;
 - Specialized equipment;
 - Facilities—including emergency shelters;
 - Organizational capabilities—including evacuation plans; and,
 - Backup systems:
 - Payroll
 - Communications
 - Production
 - Customer services
 - Shipping and receiving
 - Information systems
 - Emergency power
 - Recovery support

- c. The planning process may seem daunting but there are external resources available that can be used in the event of an emergency. In some cases a formal agreement or contract is necessary, for example with insurance policies, and in some cases a pre-crisis relationship is encouraged, for instance with suppliers of emergency equipment. The planning team should seek out information on forming relationships with external sources of resources. The team should contact the local emergency management resources, hospitals, insurers, suppliers, utilities, and contractors. Finally, the planning team should meet with the organizations insurance carriers to review all policies.
 - Review all insurance policies: it is important that the planning team review all insurance documents and take an inventory of all assets with pictures and/or videos. This documentation is invaluable in the event of an emergency or disaster.

III. ASSESSMENT OF VULNERABILITIES

Planning for business continuity also includes assessing the organization's vulnerabilities. The planning team should list all potential emergencies that could affect the operations of the organization and then estimate their probability of occurring and assess their threats to humans, property, and business operations. When determining the potential emergencies, the planning team must consider the risks from all possible emergencies:

- Historical threats that have occurred in the community;
- Geographic threats that result for the organization's location;
- Technological threats that could result from systems failures;
- Human error threat that occur because employees are poorly trained or careless;
- Physical threats that result for issues with safety; and,
- Regulatory threats.

When considering the impacts of the potential threats, the planning team should consider the costs to repair/replace and the costs to the interruption of business, including if personnel cannot perform their work responsibilities.

Special considerations should be made for the organization's information technology. The planning team should develop and information technology strategy, a backup storage plan, and a plan to restore and recover key information:

- IT strategy:
 - Document equipment and connectivity requirements
 - Identify critical applications
 - Determine backup/restoration procedures
 - Prioritize function
 - Generators or POS system
 - Set the timeframe
- Backup storage plan:
 - Identify what to backup
 - Select where to store data
 - Implement hardware and software backup procedures
 - Create a schedule for the backups
 - Conduct reviews to ensure accurate backup
 - Backup hard copies:
 - Virtual private server (VPS)
 - Scanned copies
- Restore/recovery plan:
 - Establish alternative forms of communication (Skype, Facebook groups, signage, website, social media)
 - Scan and store documents (insurance, purchases, warranties, deeds, titles)
 - Inventory video and photos
 - Document instructions to staff
 - Detail the location of backup files (with access codes)
 - Keep a copy of system configurations
 - Scan and backup financial records



Once the above considerations have been assessed, the planning team is ready to create the plan. The BCDP should include the following components:

- 1) Executive summary:
 - a. Organizational Chart (staff/personnel; roles/responsibilities; contact information)
- 2) Emergency management elements:
 - a. Communications plan
 - b. Life safety plan
 - c. Property protection plan
 - d. Logistics
- 3) Emergency response procedures:
 - a. Warning employees and customers
 - b. Communication with employees and customers
 - c. Evacuation plan
 - d. Shelter-in-place plan
 - e. Protecting vital records
 - f. Restoring operations
- 4) Support documents:
 - a. Call lists
 - b. Building and site maps
 - c. Resource lists
- 5) Training schedule:
 - a. Tabletop exercises
 - b. Walk through drills
- 6) Review and revise schedule; and, Distribution to all stakeholders.



C. DISSEMINATION

Once the plan is written, dissemination is the next step. The plan should be widely distributed within the organization and consideration should be made as to its distribution outside of the organization. In addition to the organizational staff and personnel, the distribution of the final plan should include:

- Senior management;
- Members of the organization’s emergency response team; and,
- Where appropriate, community emergency agencies.

Personnel should be given a copy of the plan and the planning team should consider if there are barriers to service or distribution. For instance, communication barriers, such as language issues, should be considered and the plan should be adjusted accordingly. As noted in the demographics section, a language other than English is spoken in 48% of the county’s

households. Moreover, partnership boundaries with outside organizations should be clearly stated and the plan shared with all partners. Finally, the staff and personnel should be educated about the plan and the issues involved with continuity planning.

How to do this via small businesses is crucial. As we saw in the cluster section, one of the largest sectors of employment is the Retail Cluster. Thus, ensuring these businesses have a plan should be a priority of the County.

D. IMPLEMENTATION

Implementation involves exercising the plan and taking action on the recommendations brought up in the vulnerability assessment. The vulnerability assessment details the potential risks to normal business operations. Implementation means that the plan becomes part of the organization's culture. Every opportunity to train and educate the organization's personnel should be taken. In order to assess how integrated the plan is, consider following:

- How well does management support the responsibilities outlined in the plan;
- Has the plan been incorporated into the organization;
- Does the organization's evaluation process address emergency management responsibilities;
- How well is the plan distributed;
- Are there visible reminders of the plan;
- Does the staff know what their responsibilities are;
- Is the plan updated?

The staff and personnel need to be trained on the plan. This training can take several forms:

- Orientation and education sessions;
- Tabletop exercises;
- Walk-through drills;
- Functional drills;
- Evacuation drills; and,
- Full-scale exercises.

As stated in the opening of this chapter the purpose is to outline the rationale and process of creating a business continuity plan (BCDP) for businesses and localities. The purpose of a BCDP is to build resilience and ensure that normal operations can continue smoothly and resume quickly after a disaster. The objective is to encourage businesses to plan to remain operational in the event of a crisis. In order to do this businesses have to plan in advance how they will manage any emergency. This planning process should be a multi-hazard plan that estimates the level of risk for each potential crisis. The BCDP plan will help to protect assets, investments, and employees.

VII. CONCLUSIONS

In an increasing complex world, resilience planning (the ability to bounce back) is imperative for businesses and municipalities. Resilience planning helps businesses and municipalities recover from:

- Disruptions
- Financial losses
- Loss of market share
- Damages to capital assets, equipment, or inventory

An important resilience planning tool is a Business Continuity Plan (BCDP). A Business Continuity Plan prepares you to: 1) assess potential risks; 2) plan for every potential event; 3) disseminate the plan; 4) implement the plan; and, 5) practice the plan.

This planning develops security and credibility with employees, customers, suppliers, and the community. Moreover, small to medium sized businesses are often the most affected by the effects of a disaster (FEMA 2013). Therefore, a business (or municipality) with a resilience plan is in a better position to recover quickly and return to operations smoothly after a disaster.

A. RECOMMENDATIONS

The following section provides recommendations for municipalities to become better prepared for emergencies and disasters. The municipal governments in Passaic County are doing a good job, especially the County OEM. These recommendations are meant as guides to ensure that after a disaster businesses and municipalities "recover and return" stronger and become more resourceful. Several key recommendations stood out from this report.

- 1) Establish one agency/organization for donation management: Charge an organization with handling and distributing all the donations that are received. This will reduce time delays and duplication of efforts.
- 2) Increase education and communication about issues around flooding prevention and recovery issues:
 - o Educate local officials about how to establish standing emergency contracts to reduce delays during emergency around procurement issues.
 - o Increase non-emergency communication around why the precautions are made when there is an emergency and why it is imperative that the public comply with the authorities when the time comes to leave their homes and businesses.

- o Market and promote disaster center and available programs. Make sure businesses, residents, and all stakeholders are aware of who to contact in case of an emergency and what programs are available to help with prevention and recovery.
- 3) Work regionally to reduce flooding:
- o Continue to buy out properties that are in flood prone areas to reduce cost of providing services and increase pervious surfaces.
 - o Work with municipalities to understand issues around development in flood prone areas to reduce flooding.
 - o Upgrade storm water infrastructure capacity in all municipalities.
 - o Conduct debris removal on all watercourses as needed.
 - o Create a tool for the county and individual communities to share best practices, planning standards, and other tools to manage development in flood prone areas. County offices can manage and provide review of master plan and codes for municipalities as necessary.
 - o Update the County's master planning document to include a section on severe and repetitive flooding.
- 4) Improve ability to communicate during and immediately after a natural disaster:
- o Establish a countywide Wi-Fi and radio access system that is deployable and independent of local systems during major events to disseminate information.
 - o Update and review regularly all State of Emergency Shared Service Agreements so that they are current and all parties are familiar with the process.
 - o Create a publicly available countywide live GIS System that can be updated in real-time to provide information about where there are road closures and other hazards.
 - o Develop a static map that provides information on the roads that are likely to close in case of various levels of flooding or other natural disasters.
 - o County to prepare mass emails to go out to business and residential community with tips on how to prepare for the upcoming emergency and then how to safely return to their homes or place of business.
- 5) Support businesses in their ability to increase resiliency and survive emergency events:
- o Establish a countywide list of available real estate that can be accessed following an event to house inventory and move operations of businesses impacted by the event.
 - o Establish a funding stream that is available to businesses impacted by an emergency event and that they can access quickly and easily, to assist with working capital, inventory replacement, and other issues that may arise.
 - o Increase communication of available programs to assist businesses impacted by disaster.
 - o Increase the number of businesses that have an Emergency Disaster Plan in place, encourage rehearsals, updating, and provide technical assistance as necessary.

Just as planning is crucial for the county and municipalities, businesses and individuals also need to plan. When businesses are planning for potential disasters the following questions will help assess their level of preparedness. Business leaders should ask:

- What are the risks to business and lives?
- Are my employees prepared for an emergency?
- Do we have an evacuation plan?
- Do we have a shelter-in-place plan?
- Are the business's records safe?
- When was the last review of insurance policies?

The answers to these questions should prompt business leaders to an accurate assessment of their level of preparedness. Further, just as one would plan for a wedding, to have children, to buy a home, to have a celebration – at a bare minimum one should plan for business continuity.

B. NEXT STEPS

The county governments and Office of Emergency Management (OEM) are performing admirably under often extreme conditions. This section outlines tactical actions to be undertaken by the county during and immediately after a disaster.

- 1) Data-gathering: understand the social, economic, and environmental strengths and weaknesses of the community.
- 2) Education: ensure on-going information to the public about preparedness, risks, and resources before, during, and after a disaster.
- 3) Engagement: promote participatory decision-making in planning, response, and recovery activities.
- 4) Communication: provide information for all members of the population.
- 5) Self-sufficiency: enable and support individuals and communities to assume responsibility for their preparedness.
- 6) Partnerships: develop partnerships between governments, nongovernment organizations, and community members.

The following is a list of assets and initiatives for consideration:

Assets

- a. Federal/State aid
- b. Recovery Financing: Private insurance, SBA loans, Secured and Unsecured loans
- c. Incentives: incentivize the creation of Business Continuity and Disaster plan by county businesses

Initiatives

- d. Inclusion of key stakeholders in practices: employers, employees, clients, suppliers, distributors, and political leaders in emergency management drills and exercises
 - Business Continuity and Disaster Plan communication: encourage businesses and individuals to prepare continuity plans
 - Regional coordination: facilitate the continued coordination between the county's municipalities

The County has undertaken a Comprehensive Economic Development Strategy (CEDS) and an Impact Analysis of Hurricane Irene to help define and prepare the governments and businesses create a sustainable environment. There is no doubt that after a major disaster the ability to respond effectively and efficiently will greatly enhance the success of returning to normalcy.

In the end having proper insurance, the ability to access financing and reliability in obtaining contractors is crucial. Combined all of these elements are something which government can assist with; but ultimately the final determining factors will be you. It is clear from this research that the County government and their affiliate agencies have been on the forefront. Timing is everything... and the time to plan is now.

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C. LIST OF INTERVIEWS

- 1 Kevin Boyle, Borough Administrator, Pompton Lakes
- 2 Tom Carroll, Wanaque
- 3 Philip Cheski, Captain, Clifton Fire Department
- 4 Michael J. Clayton, Emergency Disaster Services Director, Salvation Army
- 5 Mayor Coiro, Totowa
- 6 Mayor Darlene Conti, Little Falls
- 7 Charles Cuccia, Little Falls
- 8 Al Del Velitco, Totowa OEM
- 9 Maria Dombayci, Passaic County Emergency Management Office
- 10 John Dunleavy, Bloomingdale
- 11 George Galbaith, Woodland Park OEM
- 12 Mayor Richard Goldberg, Hawthorne
- 13 Haledon Borough
- 14 Michael Lysicatos, Passaic County Transportation Planner
- 15 Mayor Mahler, Wanaque
- 16 Eric Mauer, Hawthorne
- 17 Richard M. McAuliffe, Hawthorne OEM
- 18 Mark McGrath, Wayne Township
- 19 Michael Mogcatallo, West Millford OEM
- 20 Kathleen Muldoon, Director of the SBDC, Passaic County Passaic County Community College
- 21 Hirsch Neustein, Mountain Development Corp
- 22 Michael Onder, City of Clifton
- 23 Passaic County Department of Health
- 24 Robert Pavlick, American Red Cross of Northern NJ
- 25 Steve Pellington, Passaic County Sherriff's Office
- 26 Mike Powell, Passaic County Community College
- 27 Gene Reynolds, Orange and Rockland Utilities, Inc.

- 28 Steve Rose, President, Passaic County Community College
- 29 Siamack Shojai, Dean of the College, William Paterson University
- 30 Mayor Domenic Stampon, Haledon
- 31 Allen Susen, Haledon
- 32 Steven Tiboni, NJ State Police
- 33 Bernadette Tiernan, Executive Director for Continuing Education, William Paterson University
- 34 Maryann Trommelen, Passaic County Emergency Management Office
- 35 Mayor Vergano, Wayne
- 36 George Waits, Crown Roll Leaf
- 37 Joe Wassel, Totowa

D. INTERVIEW PROTOCOLS AND INTERVIEW RESPONSES

I. BUSINESS CONTINUITY PLAN SURVEY

- 1) Do you have a continuity plan in case of a major event or an emergency? [YES or NO]
 - a. If YES:
 - i. How often do you practice drill? [YES or NO] _____
 - ii. Do you review the results and update plan? [YES or NO] _____
 - b. If NO:
 - i. Do you plan to set up a continuity plan planning team? [YES or NO]
 1. If YES: When? _____
 2. If NO: Why Not? _____
- 2) If you have a continuity plan, how often is the plan reviewed and/or revised?
 - a. Monthly
 - b. Quarterly
 - c. Every six month
 - d. Annually
 - e. Every two years
 - f. Never
 - g. Other (please specify) _____

- 3) If you have a continuity plan, how often is the plan rehearsed through simulation?
 - a. Monthly
 - b. Quarterly
 - c. Every six month
 - d. Annually
 - e. Every two years
 - f. Never
 - g. Other (please specify) _____

- 4) If you have a continuity plan, please indicate to whom it is communicated and the means by which it is made available. _____

- 5) Thinking about the continuity plan and communication flows described above, where would you say you encounter the most impediments or bottlenecks? Please be as specific as possible. _____

6) Based upon past experiences with disasters what do you believe is needed to assist you in continuing your business? Please be as specific as possible. _____

II. EMERGENCY MANAGEMENT FOCUS GROUP SURVEY

Thank you for being a part of the Passaic County Comprehensive Economic Development Strategy (CEDS) and the Business Continuity Disaster Plan (BCDP) process.

If you would please take a moment to answer the questions below, it would be very helpful. We are interested in your organization’s continuity plan in case of a major event or an emergency. Your responses are important to us and will help us to determine the level of preparedness in the community/County. Thank you.

1. Do you have a continuity plan in case of a major event or an emergency? [Yes or No]

A. **If Yes,**

1. How often do you practice drill? _____

2. Do you review the results and update plan? [Yes or No]

B. **If No,**

3. Do you plan to set up a continuity plan planning team? [Yes or No]

1. If yes, When? _____

2. If No,

1. Why not? _____

2. Does your organization/agency have a plan in case you need to shelter-in-place? [Yes or No]

3. Does your organization/agency have an evacuation plan? [Yes or No]

Name of your organization/agency: _____

Contact Info: _____

Thank you for your time. If you have any questions or you would like to discuss in more detail your business continuity plans, please contact Stuart Koperweis by telephone at (973) 226-3329 or by e-mail at skoperweis@m-strat.com.

III. OEM SURVEY RESULTS: OCTOBER 23, 2014

Question:	Responses:	
	Yes	No
Do you have a continuity plan in case of a major event or an emergency?	10	4
Does your organization/agency have a plan in case you need to shelter-in-place?	10	5
Does your organization/agency have an evacuation plan?	13	1
Totals	14	14

IV. PASSAIC COUNTY CEDS INTERVIEWS:

	Business Continuity Plan			Impediments or bottlenecks	Needed Assistance	Business Climate
	Reviewed/ revised	Rehearsed through simulation	BCP strategy			
1		--Drills or actual events for first responders		--Power failures-Cells, radios, etc.; Education to the public;	--One agency to do donation management; --Turning residents away from disaster areas; --A way for local contracts to get in place; --Work with NGOS to set up place with basic needs.	
2						--County doesn't have a good brand
3				--Out due to power outages; --Issues with PSEG about making them a priority to get up and running; --Do not have generators.	--Maintain power continuity particularly for major employers and educational institutions	
4	Yes	--Tabletop simulations of all types of simulation	-- Communication- they were emergency evacuation centers. --Public safety academy they	-- Issue that all of Paterson gets flooded needs to be dealt with		--Focus on health and health occupations; --Shift discussion to make sure they are

			<p>housed the emergency management office.</p> <p>--Well-equipped and redundant.</p> <p>--Put in emergency generators</p>			<p>engaging employers earlier in the process for workforce development and training.</p>
5	Yes	--Reviewed every 2 years;	-- Don't do drills but provide information company wide and managers know process	<p>-- Have a disaster center to contact;</p> <p>-- Access to who to call about resources, water clean-up, etc.;</p> <p>-- Place for public to get updated information about where to stay away during emergency</p>	--Unclear about who to contact in an emergency	<p>--Trouble getting qualified employees</p> <p>--Provide training and partner with community colleges and universities.</p> <p>--Difficult to hire because of high cost of living in NJ</p>
6	No		<p>--Emergency Management handles emergencies;</p> <p>--Small town and police knock on all elderly residents doors.</p>	--Need to redirect the drain system	--Putting money in budget for 3 electronic signs;	
7	Yes		<p>--OEM has a plan;</p> <p>--Not connected to the business community;</p> <p>--No major issues around communications except with PSE&G</p>	<p>--No real issues with flooding</p> <p>--Backed up storm sewer</p>		
8					<p>--Lack of mass transportation – there is a train station but not easy to get to;</p> <p>--No bus for within town;</p>	

					--Not a lot of parking for bus transportation	
9	Yes	Twice per year	--First rate CERT team --Use a reverse 911 for calls and texts --Channel 77 that runs scroll during emergency		--Want to upgrade phones to radio frequency (doing this now)	
10	Yes	Not rehearsed or reviewed	--In process of getting generators for muni buildings through FEMA --Townhall, fire stations, community centers, DPW, pump station --Recently upgraded phones and websites --Reverse 911 calls are getting out	--Passaic River issue with the outflow pipes that they recently had fixed so that the water won't back up into it --Silt is building up in the river basin so the riverbed is rising to make the river closer to the outflow pipes --Need dredging in the river and debris removal.	--Issue around PSE&G communication	
11	Yes	Real life scenarios	--Sandy was well organized and the Town was up and running in 48 hours --New muni complex that they are building has been designed with emergency in mind. --They will be the backup emergency command center for the			

			county.			
12	Yes		<p>--Town is good with OEM plan</p> <p>--State of the art radio system</p> <p>--New radio station available for emergencies</p> <p>--Businesses can go online for updates</p> <p>--Communicate with Willowbrook direction (although some trouble getting major national stores to close down)</p>	<p>-- When Route 23 closes in Paquonock it impacts Wayne, need to raise the roadway to allow for growth along Route 23.</p> <p>-- Remove barriers down the center of Hamburg Turnpike which are bad for businesses and first responders</p>		
13					<p>General upgrades:</p> <p>--Storm water management</p> <p>--Pump station work</p> <p>--Sewer work</p> <p>--Would like to find a use for the silt and debris that is caught in the nets, need someone to take it away. Currently paying for it.</p>	
14	Yes	<p>--Rehearsed as Required;</p> <p>--Recently revised and resubmitted</p>		<p>--Loss of power is the bigger issue. Power continuity</p>	<p>--Put all utilities below ground.</p> <p>--Improve roads to make it possible for big trucks to get up there safely. They will send us a list with more information.</p>	
15	Yes	<p>Reviewed once per year;</p> <p>--Revised as needed;</p> <p>--Dills the plan twice</p>	<p>-- Twelve member committee that handles the BCP staffed by Red Cross staff and leadership</p>	<p>We have no warehouses in Passaic</p>	<p>--Housing: after a disaster</p> <p>--Flooding: remediate the Passaic River flooding. Route 20 and 46 frequently</p>	

		per year	<p>volunteers and one full-time employee who handles planning and logistics;</p> <p>--Economical to open shelters.</p> <p>--In a fuel shortage utilize the Ridgewood Department of Public Works.</p> <p>--All marked EMS vehicles have fueling priorities in an emergency.</p> <p>--Network of hand radio operators and there are shelters that are equipped with generators in Ridgewood, Fairfield, and Princeton.</p>		flood due to heavy rains, snow pack melting, and rising tides	
16	Yes		<p>--Every employee has a storm function: site safety, deal with fire/phones, PR, electric restoration group, damage assessors, 30 different functions and coordinators;</p>		<p>--Floods have become a real problem;</p> <p>--Communications is better with some municipalities</p>	
17	Yes	<p>-- Revised every two years;</p> <p>--Drilled monthly by teams of emergency</p>		<p>--Radio communication is difficult;</p> <p>--When to declare a disaster</p>		

		responders				
18	Yes		<p>--State police uses an Incident Command System (ICS) and standard operating procedures (as in a para-military capacity);</p> <p>--There is a reverse 9-1-1 system but if all communications are down he has to physically go to the locations</p>	<p>-- Communication at the state level is poor</p>	<p>-- There needs to be business buy in from businesses; Questions that local businesses and municipalities should be asking themselves?</p> <p>--Where are their insurance papers? Are they stored off site?</p> <p>--How do they communicate with their employees?</p> <p>--Who handles quarantine notices?</p> <p>--How do you overcome litigation fears?</p>	

E. CONTINUITY PLAN AND CHECK-LIST PULL-OUT FORMS

I. BUSINESS CONTINUITY RESOURCE REQUIREMENTS

CONTINUITY PLAN AND CHECK-LIST PULL-OUT FORMS

BUSINESS CONTINUITY PLAN, STEP 1

Business Continuity and Disaster Plan (BCDP) Procedures:

Business Name/Address: _____

Date: _____ **Contact (s):** _____

The objective of a business continuity and disaster plan is to build resiliency; or in other words to build into your organization “the ability to bounce back.” **The planning team under the supervision of the program administrator should follow the following steps:**

1. Identify the planning team and Define the roles and responsibilities of the planning team which includes the following:
 - a. The size of the team, this is dependent of the organization’s operational requirements and resources but participation should be encouraged;
 - b. Composition of the team, determine who can be an active member but try to include input from all functional areas of the organization: upper management, line management; labor; human resources; etc.

- c. Planning authority, the team must be imbued with the authority to plan and implement the plan;
2. Identify the lines of authority, succession of management, and the delegation of authority in the event of a disaster or an emergency.
 - a. Create an Organizational Chart with staff/personnel, their roles/responsibilities, and their contact information;
3. Address interactions with external organizations, like suppliers, vendors, and/or contractors.
 - a. Identify all essential suppliers, vendors, and/or contractors;
 - b. Determine alternative organizations to call in the event that the primary organization is unavailable;
4. Assessments: assess the organization's vulnerabilities. When determining the potential emergencies, the planning team must consider the risks from all possible emergencies:
 - a. Historical threats that have occurred in the community;
 - b. Geographic threats that result for the organization's location;
 - c. Technological threats that could result from systems failures;
 - d. Human error threat that occur because employees are poorly trained or careless;
 - e. Physical threats that result for issues with safety; and,
 - f. Regulatory threats.
5. Distribution and access.
 - a. Schedule trainings;
 - b. Review and revise schedules;
 - c. Distribution to all stakeholders.

1) Identify the planning team and Define the roles and responsibilities of the planning team:

Planning Team Membership List by Department					
Team Member's Department (IT, administration, production, sales, manufacturing etc.)	Member Name	Email	Work Telephone	Home/Cell Telephone	Responsibilities
1					
2					
3					
4					
5					
6					

	Team Member's Department (IT, administration, production, sales, manufacturing etc.)	Member Name	Email	Work Telephone	Home/Cell Telephone	Responsibilities
7						
8						
9						
10						
11						
12						
13						

2) Identify the lines of authority, succession of management, and the delegation of authority in the event of a disaster or an emergency:

Position:

Name:

Contact information:

Position:

Name:

Contact Information

Position:

Name:

Contact Information:

3) Address interactions with external organizations, like suppliers, vendors, and/or contractors:

Suppliers, vendors, or contractors			
Company	Contact Name	Emergency Telephone	Business Telephone

Suppliers, venders, or contractors

Company	Contact Name	Emergency Telephone	Business Telephone

4) Assess the organization’s vulnerabilities:

The planning team under the supervision of the program administrator will fill in the following:

Vulnerability Assessment				
Threat(s)	Importance [high/medium/low]	Area of Impact		
		Affected Staff	Utilities/Communication/Technology	Assets
a. Historical threats that have occurred in the community:				
b. Geographic threats that result for the organization’s location:				

Threat(s)	Importance [high/medium/low]	Area of Impact		
		Affected Staff	Utilities/Communication/Technology	Assets
c. Human error threat that occur because employees are poorly trained or careless:				
d. Physical threats that result for issues with safety:				
e. Regulatory threats:				

f. Physical threats that result for issues with safety:				
Threat(s)	Importance [high/medium/low]	Area of Impact		
		Affected Staff	Utilities/Communication/Technology	Assets
g. Regulatory threats:				

Special considerations should be made for the organization’s information technology. The planning team should develop and information technology strategy, a backup storage plan, and a plan to restore and recover key information:

<p>IT strategy:</p> <ul style="list-style-type: none"> ▪ Document equipment and connectivity requirements ▪ Identify critical applications ▪ Determine backup/restoration procedures ▪ Prioritize function ▪ Generators or POS system ▪ Set the timeframe 			
<p>Backup storage plan:</p> <ul style="list-style-type: none"> ▪ Identify what to backup ▪ Select where to store data ▪ Implement hardware and software backup procedures ▪ Create a schedule for the backups ▪ Conduct reviews to ensure accurate backup ▪ Backup hard copies: Virtual private server (VPS) ▪ Use Scanned copies 			
<p>Restore/recovery plan:</p> <ul style="list-style-type: none"> ▪ Establish alternative forms of communication (Skype, Facebook groups, signage, website, social media) ▪ Scan and store documents (insurance, purchases, warranties, deeds, titles) 			

<ul style="list-style-type: none">▪ Inventory video and photos▪ Document instructions to staff▪ Detail the location of backup files (with access codes)▪ Keep a copy of system configurations▪ Scan and backup financial records			
--	--	--	--

The Planning Team should include the following documents with the Business Continuity and Disaster Plan for easily access in an emergency

A. **Manual Workarounds** (tasks or activities for achieving a task or goal when the usual or planned method isn't available):

- a. Document all forms and resource requirement for all manual workarounds.

B. **Incident Management:**

- a. Incident detection and reporting
- b. Alerting and notifications
- c. Business Continuity Plan activation
- d. Emergency operation center activation
- e. Damage assessment and situation analysis
- f. Development and approval of an incident action plan

5) Distribution and Access:

The plan will be distributed to members of the planning team and management. A master copy of the document should be maintained by the business continuity team leader. Multiple copies should be stored to ensure that team members can quickly review roles, responsibilities, tasks, and reference information.

An electronic copy of this plan should be stored on a secure and accessible website and on a secure USB flash drive for printing on demand.

Regularly scheduled reviews and trainings should be used to ensure that all personnel are familiar with the plan.

Scheduled Trainings:	Scheduled Reviews:

BUSINESS EMERGENCY PLAN

Business Continuity Plan, Step 2

Business Name/Address: _____

Date: _____

Contact: _____

BUSINESS EMERGENCY PLAN (Fill in all contact information for the following)	
Vital Information:	
Primary Address:	Emergency Address:
Primary Telephone:	Emergency Telephone:
Primary Emergency Contact (Name/Address):	Secondary Emergency Contact (Name/Address):

Emergency Contact Information:	
Non-emergency Police:	Non-emergency Fire:
Insurance Provider:	Emergency Planning/Crisis management Team:
Primary Data Backup Location:	Emergency Backup Location:
Utility Contact:	Utility Contact:
Utility Contact:	Utility Contact:

Critical Operations:		
Operation:	Staff in Charge:	Emergency Action Plan:

Suppliers and Contractors:	
Primary Suppliers and Contractors:	Emergency Suppliers and Contractors:

Emergency Services:			
Service:	Name:	Emergency Telephone:	Business Telephone:
Fire Department			
Emergency Medical Services			
Police Department			
Emergency Management Agency			
Hospital			
Public Health Department			
New Jersey Environmental Authority			
National EPA			
Electrician			
Plumber			
Elevator Services			
Hazardous Materials Cleanup			
Disaster Cleanup Services			

Warning, Notification, and Communications Systems:		
	System:	Details/Process:
Warning:	Fire Alarm:	
	Public Address:	
	Other (specify):	
Notification:	Electronic:	
	Telephone:	
Communications:	Telephone:	
	Two-way Radio:	

Attachment I – FEMA Hazus Model Report





Risk Assessment

Passaic County Comprehensive Economic Development Strategy, Economic Impact Analysis, and Business Continuity Disaster Plan

June 16, 2015

Prepared For
County of Passaic
Division of Economic Development
930 Riverview Drive #250
Totowa, NJ 07512

Prepared By
Maser Consulting P.A.
Perryville III Corporate Park
53 Frontage Road, Suite 120
PO Box 4017
Clinton, NJ 08809
908-238.0900

MC Project No. 14000836G





INTRODUCTION

The purpose of this report is to assess the economic impacts that occurred in Passaic County as a result of Hurricane Irene. To analyze the losses from the flooding that occurred in Passaic County during Irene, the analysis utilizes Hazus-MH 2.1, a powerful risk assessment tool created by FEMA. This report presents the findings of the Hazus model that was prepared for Passaic County.

LOCATION

Passaic County is located in Northern New Jersey, flanked by Bergen, Morris, Essex and Sussex Counties, and the New York State border. Passaic County is comprised of 16 municipalities covering 197 square miles of urban, suburban and rural land, from the cities of Paterson and Passaic in the southern part of the County to the Highlands Region in the northern part.

Home to over 500,000 residents and nearly 250,000 employees, Passaic County is a desirable location for both employers and employees due to its proximity to the New York-New Jersey metropolitan area. Its centralized location and intricate network of transportation routes provide Passaic County with easy accessibility via automobile, bus, freight and passenger train, and air from the tri-state region. Passaic County is located approximately 11.5 miles from the George Washington Bridge, 13 miles from the Lincoln Tunnel, and 17 miles from the Holland Tunnel. The County is at the crossroads of a number of New Jersey's major interstate highways, (Routes I-80, I-287, US-46, NJ-3, NJ-20, NJ-21, NJ-23, and the Garden State Parkway and New Jersey Turnpike). The County's location is also in close proximity to three international airports (Newark Liberty, LaGuardia and John F. Kennedy) along with major international shipping ports (Port Newark and Port Elizabeth).

HURRICANE IRENE

Hurricane Irene made landfall in New Jersey as a strong tropical storm on August 28, 2011. Intense rainfall from the storm lasted for three days, from August 27th through August 30th. Governor Christie declared a State of Emergency for New Jersey on August 31st. All 21 counties in New Jersey were declared Federal major disaster areas on August 31st.

According to the United States Geological Survey (USGS), New Jersey had already received above normal levels of rainfall prior to Irene. In the three weeks preceding Irene, 8 to 16 inches of rain fell across New Jersey, making August 2011 the wettest month in New Jersey since rainfall recording began in 1895. As shown in Figure 1, rainfall was 200 to 600 percent of normal levels in Passaic County for the 14 days preceding Irene.

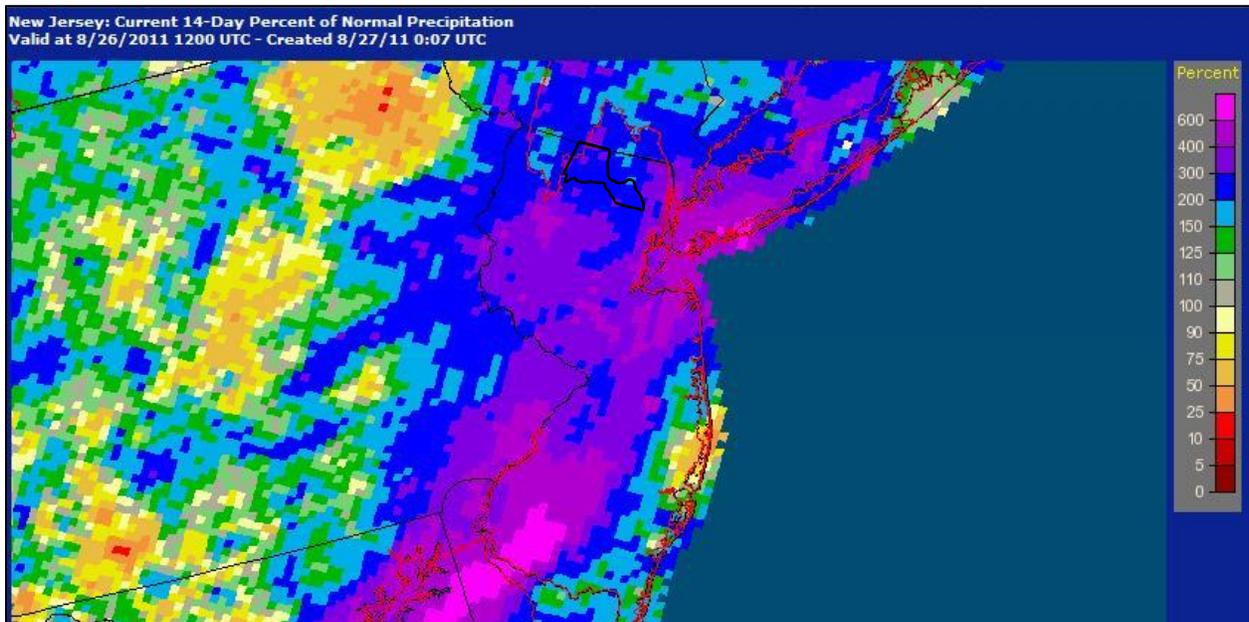


Figure 1: 14-day Percent of Normal Precipitation (August 12-26, 2011)

Rainfall from Hurricane Irene averaged between 6.5 to 8.6 inches in the Passaic River Basin, as measured by USGS gages. According to the Office of the New Jersey State Climatologist (ONJSC), 10.2 inches of rainfall was recorded in Wayne Township during August 27th to 28th. The Little Falls USGS rain gage recorded 8.6 inches of rainfall from August 27 to 30th, and 15.6 inches for the entire month of August.

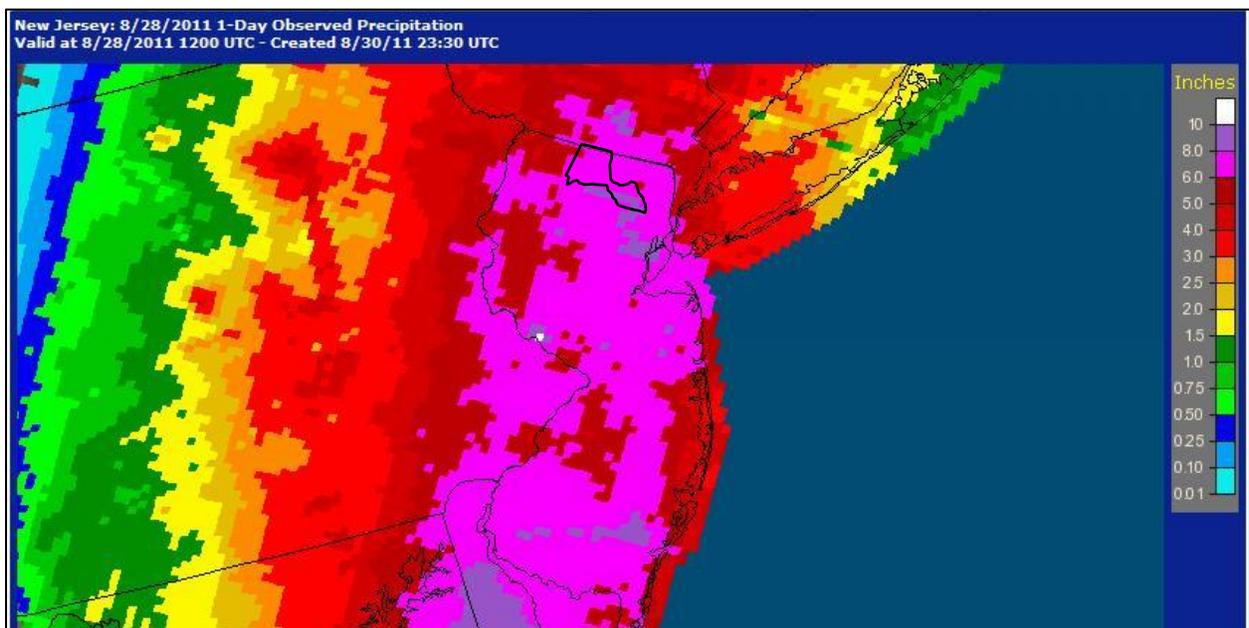


Figure 2: 1-Day Observed Precipitation (August 28, 2011)

New Jersey experienced record flooding at USGS gages during the month of August, with record peaks being recorded statewide from August 28th to 31st as a result of Hurricane Irene and the preceding weeks of rainfall. Of the 94 long-term gages (greater than or equal to 20 years of record) statewide, 39 had record high peaks, 23 recorded the second highest peaks, and 7 recorded the third highest peaks. Statewide, 33 gages recorded peaks equal to or greater than the 100-year flood level. In the Passaic River Basin, flood peaks were the highest ever recorded at 13 of 24 continuous discharge gaging stations and second highest in another 5 stations.

The Ramapo River gage at Pompton Lakes, NJ (01388000) located between Wayne and Pompton Lakes, recorded a gage height of 22.61 feet, the highest flood peak ever recorded in almost 130 years. The peak stage was more than 4 feet higher than the previous peak of 18.05 feet recorded in 2010. Water was flowing at a rate of nearly 17,800 cubic feet per second on August 28, 2011.

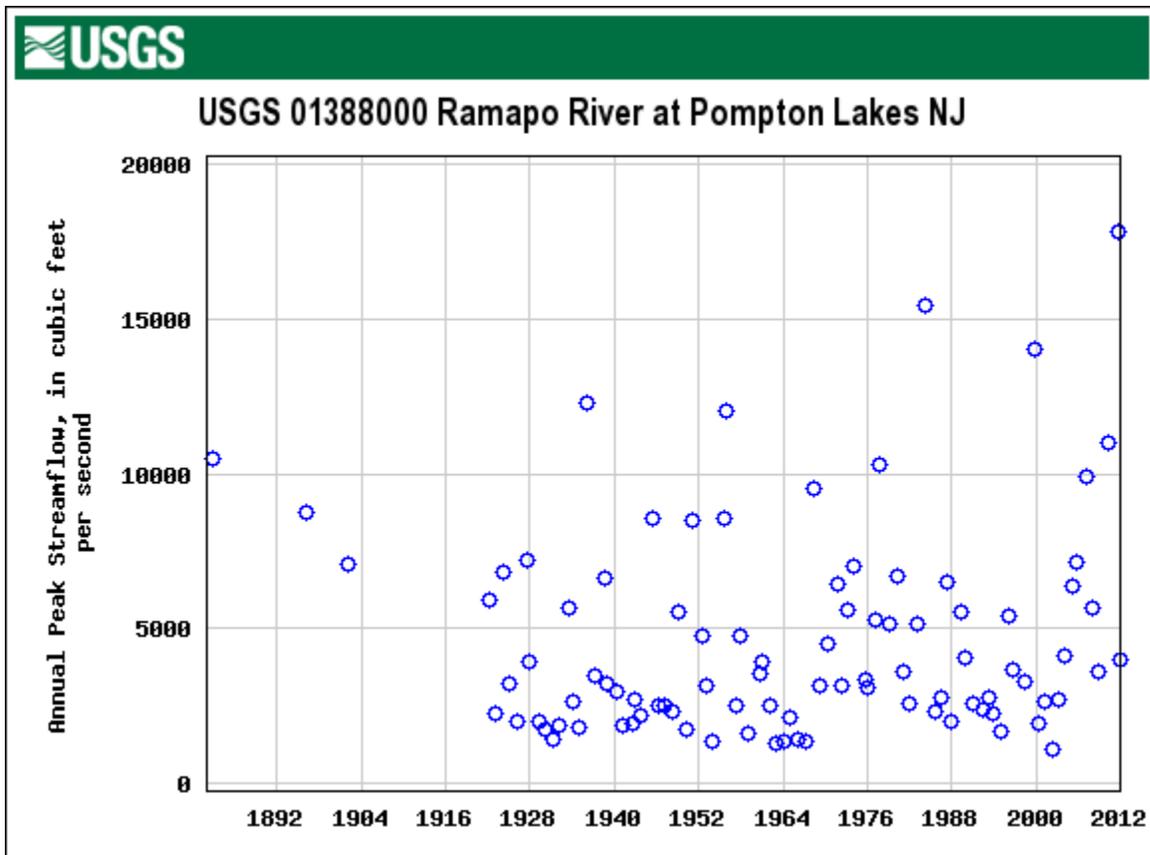


Figure 3: Peak Streamflow Events for Ramapo River at Pompton Lakes NJ



Figure 4: Flooding on Jackson Avenue at the streamflow-gaging station on the Pompton River between Wayne and Pompton Plains, NJ (01388500) on August 29, 2011



Figure 5: Four of Paterson's five bridges crossing the Passaic River were underwater on August 29, 2011



NATIONAL FLOOD INSURANCE PROGRAM

The National Flood Insurance Program (NFIP), created by an Act of Congress in 1968, makes flood insurance available in communities that enact and administer satisfactory floodplain management regulations. All 16 municipalities in Passaic County participate in the NFIP.

A requirement of participation in the NFIP is the Flood Insurance Rate Map (FIRM), which shows each community's flood hazard areas. The FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and the flood risk zones applicable to the community. In other words, the FIRM is used to determine where floodplain development regulations apply and who must purchase flood insurance. The FEMA FIRM for Passaic County was last updated September 28, 2007. FEMA has been working since 2012 to update the FIRM for each county in New Jersey, focusing on counties that were impacted the most by Hurricane Sandy. The Preliminary FIRM update for Passaic County has not yet been released.

According to the NFIP, Hurricane Irene was the 5th most devastating flood event in the U.S. since 1978. The NFIP processed over 44,000 claims related to Irene for a total of \$1.33 million nationwide. There are currently 5,038 flood insurance policies in Passaic County, 3,897 of which are located within flood hazard areas. In 2011, prior to Hurricane Irene, there were 4,494 policies in Passaic County. There were 10,749 flood insurance claims pre-Irene, which increased to 13,445 claims post-Irene.

Residential or non-residential properties that have received one or more NFIP insurance payments are eligible for funding under the Repetitive Flood Claims (RFC) program. An NFIP-insured structure that has had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978 is considered a repetitive loss structure. Before Irene, Passaic County had 1,359 repetitive loss properties, which increased to 1,755 repetitive loss properties post-Irene.

Residential properties are eligible for funding under the Severe Repetitive Loss (SRL) program if it had at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or for which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. Passaic County had 449 SRL properties pre-Irene and 660 SRL properties post-Irene.

FEMA HAZUS-MH 2.2

Hazus MH 2.2 is a nationally applicable standardized methodology that contains models for estimating potential losses from floods, hurricanes, and earthquakes. Hazus uses Geographic Information Systems (GIS) technology coupled with current scientific and engineering knowledge to estimate physical, economic and social impacts of disasters. Potential loss estimates analyzed in Hazus include:

- **Physical damage** to residential and commercial buildings, schools, critical facilities and infrastructure;
- **Economic loss**, including lost jobs, business interruptions, repair and reconstruction costs; and
- **Social impacts**, including estimates of shelter requirements, displaced households and population exposed to scenario floods, earthquakes and hurricanes

Hazus allows three levels of results based on the inputs provided by the user. Level 1 analyses use extensive national databases embedded within Hazus, including demographics, building stock data, and utility / infrastructure data from US Census and other national sources. Level 2 analyses improve Level 1 results by considering additional data that are readily available or can easily be converted, such as more accurate local inventories of buildings, essential facilities, or infrastructure. Level 3 analyses use advanced Hazus capabilities such as the Advanced Engineering Building Module (AEBM) or the Potable Water System Analysis Model (POWSAM).

NJDEP provided the 1% annual chance depth grid for a portion of Passaic County based on the preliminary flood hazard data released by FEMA on January 9, 2015. An estimated countywide 1% annual chance depth grid was then developed for the remainder of the county using the available base flood elevations, cross-sections, and HAZUS-MH's enhanced quick look and incorporated into HAZUS-MH. The HAZUS-MH flood model was then run to estimate potential losses at the structure level using the County's custom structural building inventory

The Hazus MH 2.2 model was released by FEMA in 2015 to update some of the nationally published data sources, including the 2010 US Census. HAZUS-MH 2.2 calculated the estimated damages to the general building stock and critical facilities based on the custom inventories, depth grid and the default HAZUS damage functions in the flood model.

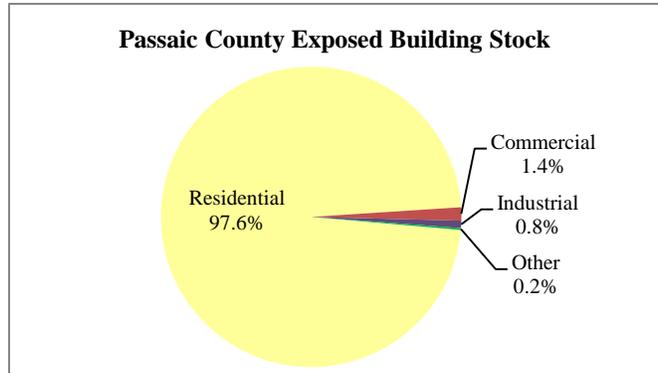
General Building Stock

The Hazus model indicates that Passaic County has a population of 501,226 persons, which is consistent with the 2010 Census. The custom building inventory indicates that there are 113,357 structures in Passaic County, of which 89 percent are residential and 8 percent are nonresidential. Just over 2 percent of the building stock is occupied for agricultural, religious, government or education.

Of the 113,357 structures analyzed by Hazus, 14,140 are located within the flood hazard area. Nearly 98 percent of the structures exposed to risk of flooding are residential and just over 2 percent are non-residential. Agricultural, religious, government or education structures are limited to 0.2 percent of the exposed building stock.

Figure 6: Passaic County Exposed Building Stock

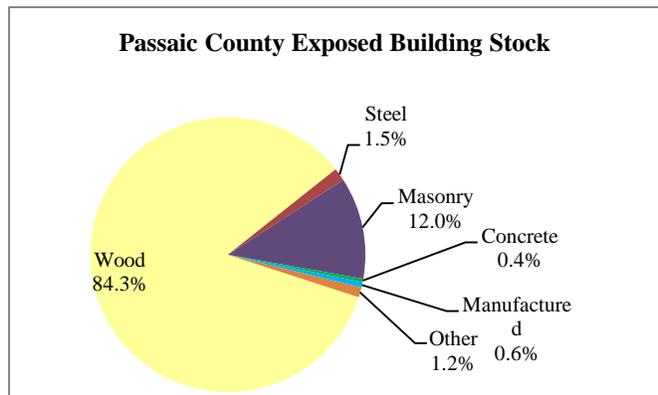
Building Occupancy	Exposure	Percent
Residential	13,798	97.6%
Commercial	202	1.4%
Industrial	112	0.8%
Agricultural	2	0.0%
Religious	4	0.0%
Government	17	0.1%
Education	5	0.0%
Total	14,140	100.0%



Hazus estimates that of the 14,140 exposed buildings in Passaic County, 84 percent are of wood construction, 1.5 percent are steel framed, and 12.4 percent are masonry or concrete structures.

Figure 7: Passaic County Exposed Building Stock

Building Occupancy	Exposure	Percent
Wood	11924	84.3%
Steel	213	1.5%
Masonry	1693	12.0%
Concrete	57	0.4%
Manufactured	90	0.6%
Other	163	1.2%
Total	14,140	100%

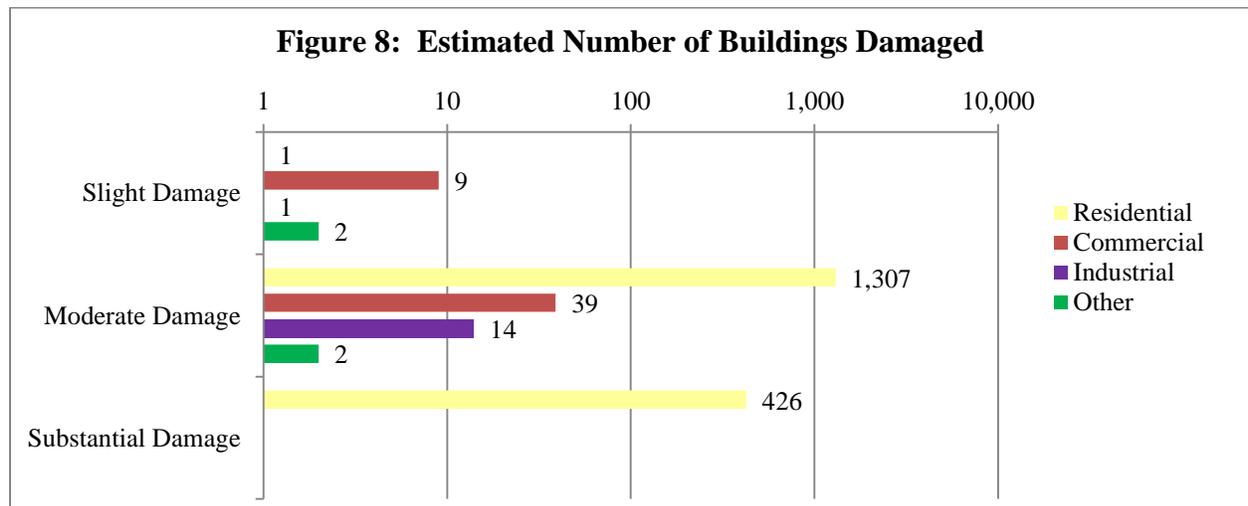


General Building Stock Damage Assessment

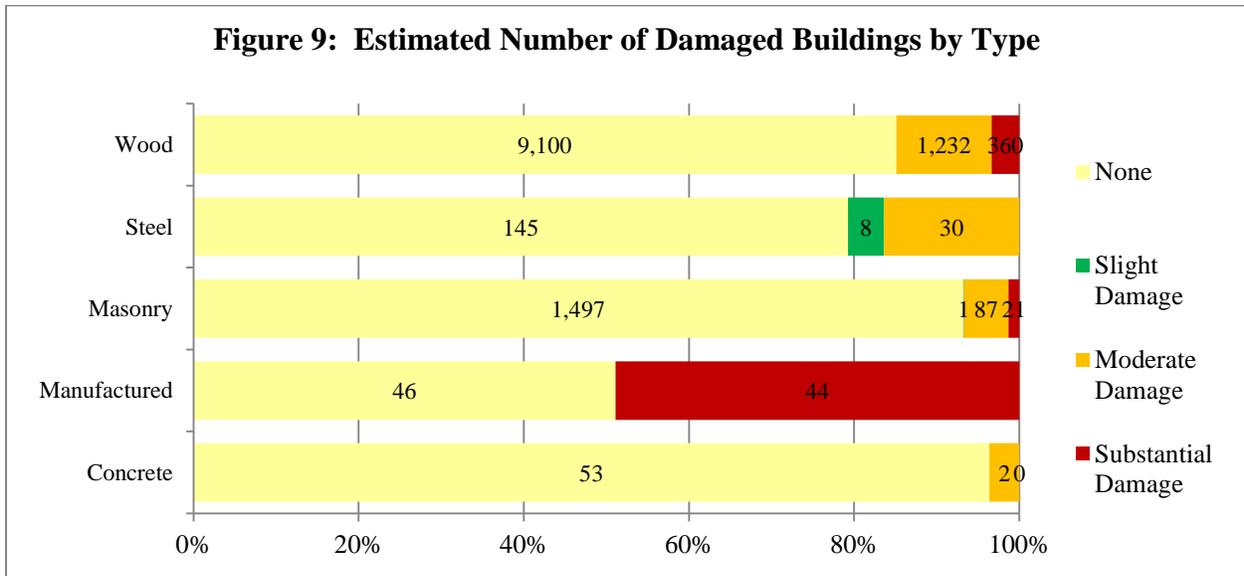
The Hazus flood model methodology for estimating direct physical damage (e.g., repair costs) to the general building stock is based on occupancy class (and foundation type) has an appropriate damage function assigned to it (i.e. 1-story, no basement), and computed water depths are used to determine the associated percent damage. This percent damage is multiplied by the full (and depreciated) replacement value of the occupancy class in question to produce an estimate of total full (and depreciated) dollar loss. The damage is then categorized into three classes based on the replacement cost percentage:

- 1-10% is considered slight damage
- 11-50% is considered moderate damage
- 51-100% is considered substantial damage

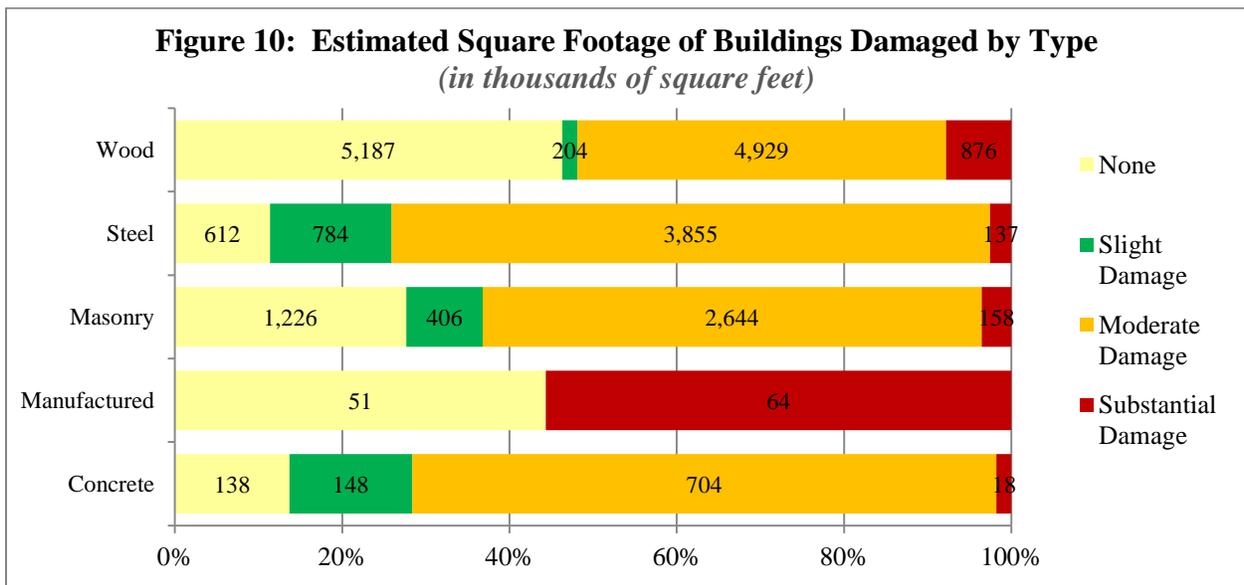
Hazus estimates that about 3,150 buildings will be at least moderately damaged during a 100-year flood event. This is nearly 3 percent of the total number of buildings in the County. There are an estimated 426 buildings that will be completely destroyed, all of which are residential.



The vast majority of the estimated damage would occur at moderate levels to wood structures, which are primarily residential. Slight damage occurs in 9 buildings, primarily steel. Substantial damage occurs in 425 residential buildings, including wood and manufactured structures. Approximately half percent of manufactured housing would have substantial damage.

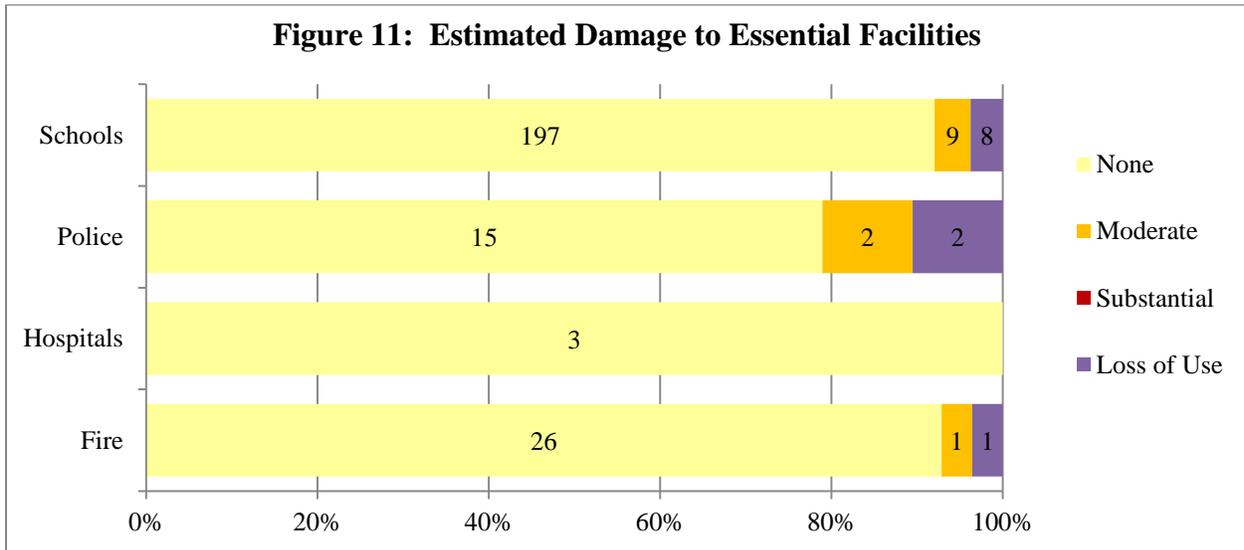


Approximately 70 percent of the overall square footage of floor area in concrete structures in Passaic County is assumed to sustain moderate flood damage from a 100-year flood event. Approximately 60 percent of the total floor area of masonry structures would sustain moderate or substantial damage.



Essential Facilities

In addition to the general building stock, Hazus also analyzes probable flood damage to critical facilities in the region. The purpose of the essential facility module is to determine the expected loss of functionality for these critical facilities. The Hazus analysis indicates that the County has 1,106 beds within the three hospitals, all of which would be available during a flood event as the hospitals are not in the flood plain. Based on their locations, Hazus anticipates that 1 fire station, 2 police stations, and 8 schools would be unusable due to flooding.



Shelter Requirements

The Hazus Flood Model determines the number of individuals likely to use government-provided short-term shelters through determining the number of displaced households as a result of the flooding. Flood sheltering needs are based on the displaced population, not the damage state of the structure. To determine how many of those households and the corresponding number of individuals will seek shelter in government-provided shelters, the number is modified by factors accounting for income and age.

For Passaic County, Hazus estimates that 8,691 households would be displaced from their homes during a 100-year flood event. This translates to 26,072 people displaced from their homes due to flooding and associated evacuation. Hazus then estimates that 20,713 people (or 90 percent) of those displaced will require accommodations in temporary shelters.

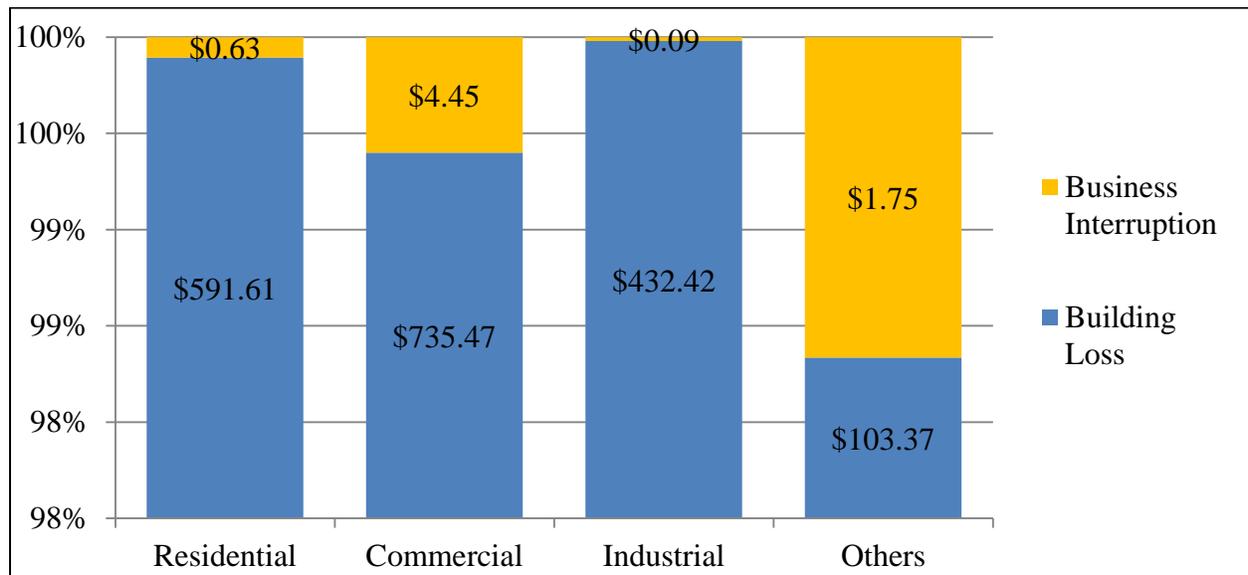
Building-Related Economic Loss Estimates

Building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

For Passaic County, Hazus estimates a total of \$1.863 billion in building-related losses during a 100-year flood event. Hazus estimates that 0.4 percent of the losses would be related to business interruption overall. Although residential structures account for 68 percent of the exposed building stock, residential uses account for only 31 percent of the estimated building losses, signifying the vast difference in building values between residential and nonresidential structures.

Figure 12: Building Related Economic Losses
(in millions of dollars)

	Residential	Commercial	Industrial	Others	Total
Business Interruption	\$0.63	\$4.45	\$0.09	\$1.75	\$6.91
Building Loss	\$591.61	\$735.47	\$432.42	\$103.37	\$1,862.88
Total	\$592.24	\$739.92	\$432.51	\$105.12	\$1,869.79



The direct building losses estimated by Hazus totaled \$1.862 billion. Residential losses are estimated at \$591 million, while nonresidential losses are estimated at \$1.167 billion. Other uses, including governmental, educational, and institutional uses, are estimated at \$103 million in losses.

Building contents are defined as furniture, equipment that is not integral with the structure, computers and other supplies. Contents do not include inventory or nonstructural components such as lighting, ceilings, mechanical and electrical equipment and other fixtures. Hazus estimates \$1.12 billion in content losses for a 100-year flood scenario. Contents account for 36 percent of residential losses, 70 percent of nonresidential losses, and 81 percent of institutional losses.

Inventory includes goods or products stored in a building. Residential uses have no inventory. Inventory losses account for 2 percent of commercial and institutional losses. The most substantial loss of inventory occurs in industrial structures (which includes warehouses), accounting for 7 percent of the losses.

Figure 13: Direct Building Losses
(in millions of dollars)

	Residential	Commercial	Industrial	Others	Total
Building	\$375.91	\$198.97	\$108.80	\$18.43	\$702.11
Content	\$215.70	\$524.94	\$291.73	\$84.08	\$1,116.45
Inventory	\$0.00	\$11.57	\$31.89	\$0.86	\$44.32
Total	\$591.61	\$735.47	\$432.42	\$103.37	\$1,862.88

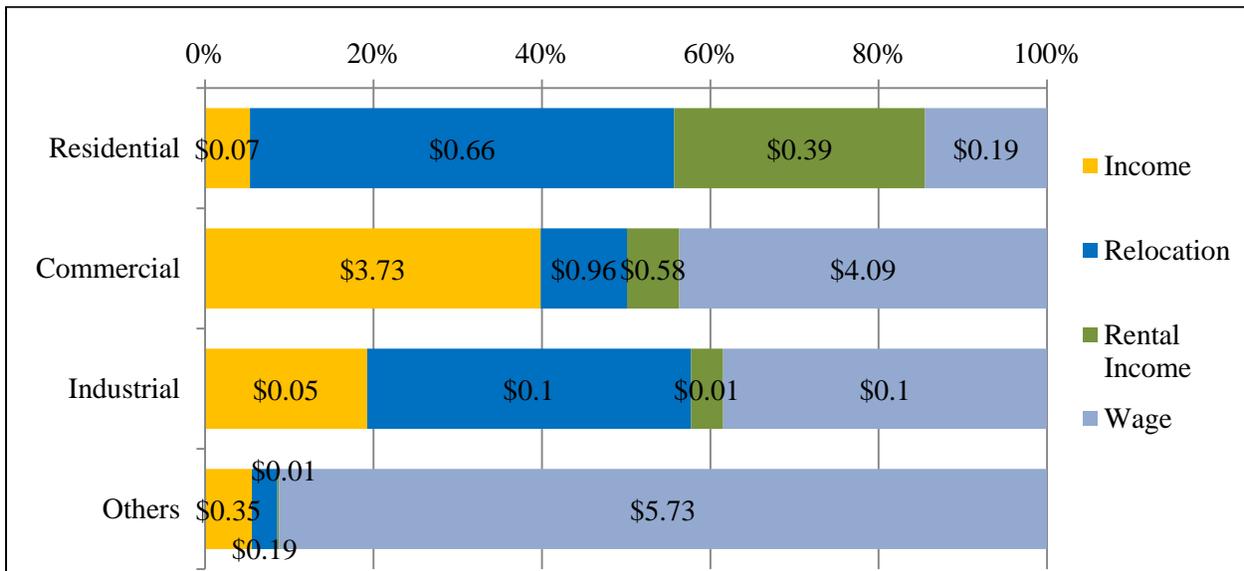


Income-related losses are time-dependent, meaning the losses will depend on the amount of time required to restore business operations. Restoration times include time for physical restoration of the damage to the building, as well as time for clean-up, time required for inspections, permits and the approval process, as well as delays due to contractor availability.

For residential uses, Hazus estimates income related losses at \$1.94 million. This is primarily due to relocation and loss of rental income. Commercial income-related losses are estimated at \$1.76 million, primarily due to loss of income and wages. Loss of wages accounts for nearly half of the commercial losses. At \$0.09 million, industrial uses have a very low rate of business interruption losses compared to direct building losses, which is primarily due to relocation costs and loss of wages. For institutional uses, about 90 percent of the \$1.75 million in losses is due to loss of wages.

Figure 14: Business Interruption Losses
(in millions of dollars)

	Residential	Commercial	Industrial	Others	Total
Income	\$0.04	\$1.76	\$0.02	\$0.12	\$1.94
Relocation	\$0.33	\$0.54	\$0.03	\$0.05	\$0.95
Rental Income	\$0.14	\$0.36	\$0.00	\$0.00	\$0.51
Wage	\$0.11	\$1.80	\$0.04	\$1.58	\$3.52
Subtotal	\$0.63	\$4.45	\$0.09	\$1.75	\$6.91





CONCLUSION

This report provides the findings of the Hazus MH-2.2 flood model for Passaic County, based on the 100-year flood levels from the 2015 Preliminary FEMA flood mapping. The analysis utilizes the 2010 US Census data imbedded in Hazus for the building and critical facilities inventory. In order to provide a more accurate Level 2 analysis, the building stock has been updated based on the County's custom building inventory data. Passaic County is currently in the process of updating its Hazard Mitigation Plan (HMP), which also uses the Hazus flood model. This study has been coordinated with the County's consultants preparing the County HMP, to ensure that the same base data is utilized for both plans.

Attachment J – EDA Requirement References



EDA Requirement References

Technical requirements for a CEDS as defined in 13 CRF 303.7:

1. Background of the economic development situation: See County Summary and Economic Base Analysis (Attachment A)
2. In-depth analysis of economic and community development problems:
 - a. Incorporation of other government-sponsored plans: See County Summary
 - b. Identification of past, present, and projected economic development investments: See County Summary
3. Section setting forth goals and objectives: See Action Plan Matrix
4. Discussion of community and private sector participation in CEDS effort: See Community Outreach section
5. Section listing all suggested Projects: See Action Plan Matrix
6. Section identifying priority projects: See Action Plan Matrix and Attachment G
7. Section identifying economic clusters: See Relevant Cluster Analysis (Attachment B)
8. A plan of action to implement the goals and objectives: See Action Plan Matrix
 - a. Promoting economic development and opportunity
 - b. Fostering effective transportation access
 - c. Enhancing and protecting the environment
 - d. Maximizing effective development and use of the workforce
 - e. Promoting the use of technology in economic development
 - f. Balancing resources through sound management of physical development
 - g. Obtaining and utilizing adequate funds and other resources
9. A list of performance measures:
 - a. Number of jobs created: See Action Plan Matrix
 - b. Number and types of investments: See Action Plan Matrix
 - c. Number of jobs retained: See Action Plan Matrix
 - d. Amount of private sector investment in the region after implementation of the CEDS: See Action Plan Matrix
 - e. Changes in the economic environment: See Action Plan Matrix
10. A section outlining methodology for cooperating and integrating the CEDS with state priorities:





Attachment K – Glossary of Terms



Glossary of Terms

BID – Business Improvement District

CBD – Central Business District

CEDS – Comprehensive Economic Development Strategy

FEMA - Federal Emergency Management Agency

Hazus – Geographic information system-based natural hazard developed and freely distributed by the Federal Emergency Management Agency (FEMA)

PCCC – Passaic County Community College

PILOT – Payment In Lieu of Taxes

SID – Special Improvement District

WPU – William Paterson University



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