

THE IMPACT OF SUPERSTORM SANDY ON NEW JERSEY TOWNS AND HOUSEHOLDS



Stephanie Hoopes Halpin, PhD
School of Public Affairs and Administration, Rutgers-Newark
<http://spaa.newark.rutgers.edu>



THE IMPACT OF SUPERSTORM SANDY ON NEW JERSEY TOWNS AND HOUSEHOLDS

SUPPORT

We are grateful to the following organizations for funding this report:

- Fund for New Jersey
- United Way of Northern New Jersey

ACKNOWLEDGEMENTS

The New Jersey League of Municipalities for help with the Survey; Margaret Riccardelli and Shugo Shinohara for research assistance; and Quintus Jett, Diane Wentworth, and Gregg G. Van Ryzin for their insights.

CONTACT

Stephanie Hoopes Halpin

School of Public Affairs and Administration, Rutgers-Newark

hoopes.halpin@rutgers.edu; 973-353-1940

<http://spaa.newark.rutgers.edu>

CONTENTS

EXECUTIVE SUMMARY	4
INTRODUCTION	7
I. COMMUNITY HARDSHIP FOLLOWING SUPERSTORM SANDY	12
II. HOUSEHOLD HARDSHIP FOLLOWING SUPERSTORM SANDY	23
III. ALICE CHALLENGES AND CONSEQUENCES	30
IV. MUNICIPAL RESPONSE	37
V. HOW WELL DID RESOURCES MEET NEEDS?	47
VI. CONCLUSION: RECOMMENDATIONS TO BETTER PREPARE FOR THE NEXT DISASTER	62
APPENDIX A: SANDY COMMUNITY HARDSHIP INDEX	67
APPENDIX B: SANDY HOUSEHOLD HARDSHIP INDEX	73
APPENDIX C: SANDY MUNICIPAL SURVEY – METHODOLOGY	75
APPENDIX D: MUNICIPAL INDEX SCORES	82
SOURCES	106

LIVE UNITED



United Way
of Northern New Jersey



EXECUTIVE SUMMARY

Horrible stories of storm damage and enormous repair and replacement estimates drew national attention to the impact of Superstorm Sandy on New Jersey. Despite large relief efforts and numerous reports, important questions still remain: Which areas of New Jersey and which groups in our communities were most impacted? Where is there still unmet need? Where do vulnerabilities remain? To address these questions before the next inevitable disaster, we need to understand the hardship incurred by the residential, business and municipal sectors in each town and county in the state, the losses due to physical damage as well as lost income, where they occurred, who was impacted, and what resources have been allocated.

For the first time, this report presents the detailed geographic analysis necessary to determine where New Jersey remains vulnerable. It also provides the first accurate measure of power outages by town across the state and the results of the Rutgers-Newark Sandy Survey of New Jersey municipalities. In addition, this report includes the Sandy Community Hardship Index which quantifies the wide range of types and degrees of damage incurred by New Jersey municipalities and counties, which range in size and population.

This report also provides an in-depth analysis of the impact of Superstorm Sandy on New Jersey's most vulnerable households, namely working families that do not earn enough to afford a basic household survival budget as documented in the 2012 report, *ALICE (Asset-Limited, Income-Constrained, Employed): A Study of Financial Hardship in New Jersey*. Families with income below the ALICE Threshold account for 34 percent of New Jersey households, live in all towns in New Jersey, work in service jobs essential to the state's economy and are critical to the functioning of every community.

With these measures, new insights into the impact of Superstorm Sandy can help New Jersey better prepare for future natural disasters.

Overall

Where was the greatest impact? The Community Hardship Index provides the measure to compare the wide range of types of damage across New Jersey counties and towns. Monmouth and Ocean counties suffered the most overall, especially in terms of power outages, residential damage, residents in shelters and gasoline shortages. It also reveals that Somerset, Middlesex, Union, Hunterdon and Morris counties suffered significant residential damage; and Hudson, Union, Essex, Middlesex, Bergen and Passaic counties suffered significant commercial damage. Cape May and Atlantic counties suffered municipal damage, but they did not lose power for long when compared to other counties and residential and commercial damage was not as widespread. The Index also reveals that Superstorm Sandy did not cause significant hardship in most of Gloucester, Camden, Cumberland or Salem counties, and was a minor event in Mercer, Burlington, Sussex and Warren counties.

Within counties there was also a wide range of impact. Moonachie in Bergen County and Mantoloking in Ocean County were the two hardest hit towns when measuring by an array of indicators and controlling for size. Of the 35 hardest hit towns, most were located in Monmouth and Ocean counties, but the rest were spread across 9 additional counties revealing pockets of hardship even in less affected counties.

This report provides the most detailed estimate of the cost of damages incurred by New Jersey communities: the total cost of damages exceeds \$37 billion (\$7.8 billion for residents, \$3.56 billion for businesses and \$2.2 billion for municipalities plus \$23.5 billion for hazard mitigation). Insurance has paid \$6.5 billion, public assistance has provided \$1.3 billion, and relief agencies have raised \$146 million. In addition, the Small Business Administration provided \$816 million in disaster loans. The remaining unmet need in New Jersey is \$28.4 billion.

As much as 50 percent of information from power companies about local power outages was inaccurate. The lack of power slowed recovery efforts and added significant expense to municipal and household budgets alike. The proxy indicator for power outages, the number of days public schools were closed, provides an accurate indicator for the location and duration of power outages across New Jersey towns.

The geographic breakdown of data reveals that the size of impact on communities outside of Monmouth and Ocean counties is greater than reported.

Households with income below the ALICE Threshold

Often living in substandard conditions or flood prone areas and working at hourly wage jobs, households earning below the ALICE Threshold were disproportionately impacted by Superstorm Sandy, incurring 53 percent of residential expenses and receiving only 27 percent of resources. These families were negatively impacted by Superstorm Sandy across the state, even in areas where damage was not severe.

In addition, households earning below the ALICE Threshold were much less likely to have the resources to recover, such as savings to cover lost wages and emergency expenses, or insurance to cover damage. In fact, of those registered for FEMA Individual Assistance (IA), 69 percent did not have homeowners insurance, more than double the overall rate, and 90 percent did not have flood insurance. Households earning below the ALICE Threshold are now even more vulnerable to a future disaster.

New Jersey Municipalities

New Jersey Municipalities had the personnel, the ingenuity, and the resources to meet the immediate needs of Superstorm Sandy. However, with new lessons were learned in terms of delivery of emergency services, debris removal, and communication, as well as public assistance to cover immediate expenses, which enable municipalities to better plan for the next disaster.

Nevertheless, in the long term, New Jersey municipalities remain as vulnerable, if not more, to the next disaster due to the lack of investment in hazard mitigation and repair of aging

infrastructure much of which was further impaired by Sandy; the total bill for these items is \$25 billion.

Resources to meet hardship caused by Sandy

The impact from Superstorm Sandy on the average low-income household's budget was severe both in terms of extraordinary expenses and lost income. While some households suffered significant property damage, thousands more had minor damage and other expenses that were not covered by FEMA. However, there is a notable exception with FEMA providing assistance to 78 percent of those who applied for second homes.

In terms of geographic distribution of aid, there are significant gaps in public assistance outside Monmouth and Ocean counties, especially in FEMA Individual Assistance for households with income below the ALICE Threshold, and SBA funding for businesses. The data show that there are gaps in knowledge about the programs in general and how to complete the applications in particular.

Better Resilience for New Jersey

Investment in infrastructure will make the biggest difference for New Jersey's future resilience. This includes investment in public utilities as well as municipal infrastructure including water, roads and bridges, and buildings. But it also must include investment in New Jersey's most vulnerable households, particularly providing more secure jobs with higher wages, and safer, more affordable housing.

INTRODUCTION

Superstorm Sandy was the most disruptive natural disaster to hit New Jersey in recent history. High winds and precipitation, as well as overflowing rivers and bays, caused direct damage to homes, businesses and town facilities, including fallen trees, blown off roofs, and flooded critical infrastructure. Tidal surges caused flooding and excessive damage to coastal protective barriers including dunes, bulk heads, and jetties. Widespread power outages reduced the ability of towns and households to respond to the crisis. Finally, gasoline shortages further slowed response and recovery, limiting the effectiveness of generators and adding time and cost to transportation. Only a few towns were spared the devastating blow of Superstorm Sandy.

While data has been plentiful, it has been disparate. For the first time, this report provides the means to capture the wide range of types and degrees of damage into one comprehensive document. Only then can the true impact of the storm be understood, and potential solutions be implemented before the next disaster strikes.

This report also provides the means to compare the impact across New Jersey's 21 counties and 553 municipalities that lost power or reported damage (of 565 New Jersey towns). The Community Hardship Index and the Household Hardship Index enable comparison, and the data provides the basis for creative solutions, best practices and new policies for the future.

A municipal survey conducted in partnership between the School of Public Affairs at Rutgers-Newark and the New Jersey League of Municipalities during the spring of 2013, fills a gap in knowledge of what happened within municipalities. The Survey provides insight into the combined impact of wind and flood damage, with power outages and gas shortages, providing the first comprehensive view of the impact of Superstorm Sandy at the municipal level in New Jersey.

The report also provides a special focus on New Jersey's most vulnerable households. Notwithstanding a natural disaster, one-third of New Jersey households do not earn enough to afford a basic household survival budget, as documented in the 2012 report, *ALICE (Asset-Limited, Income-Constrained, Employed): A Study of Financial Hardship in New Jersey*. The ALICE Threshold is above the Federal Poverty Level but below financial stability. These households live in all towns in New Jersey. Typically family members work in service jobs essential to the state's economy and are critical to the functioning of every community. ALICE's resilience is a critical component of New Jersey's resilience.

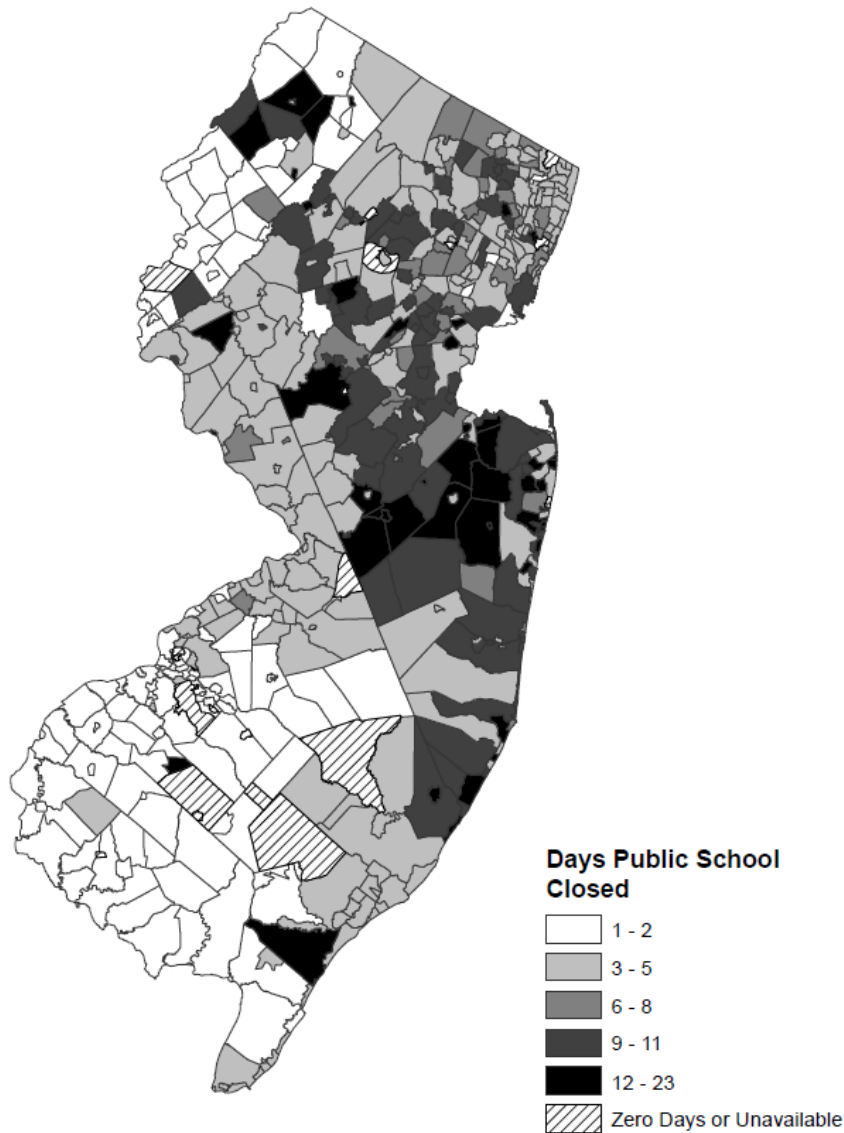
How did communities fare in recovering from Sandy?

There was significant variation in degree and types of impact on the residential, commercial, and municipal sectors across New Jersey; these are reviewed below. The most common challenge was lack of power. The Department of Energy estimates that 2.6 million New Jersey customers were without power, but specifics of where and for how long have been elusive. For the first time, an accurate indicator of the duration of local power outages is presented, using the number of days the public schools in each town were closed. According to this new metric, power was out the longest in towns in Monmouth County, an average of 10 days, followed by 9 days in Somerset and Union counties, and 8 days in Ocean County. Power was out for 2 or fewer days in Warren, Cumberland, Salem, Gloucester, and Camden counties. But this analysis

at the county level masks some big differences among the many affected municipalities, see Figure 1. Some towns were out for as long as 22 days; and for 97 towns, 17 percent of the total, power was out for more than 10 days.

Figure 1.

Power Outages After Superstorm Sandy



Source: NJDOE, 2013.

Impact on residents, as measured by insurance accessed damage and lost income, totals \$7.8 billion. There were over 325,000 housing units damaged totaling \$5.9 billion. In addition, there were \$1.4 billion in lost wages and \$532 million in expenses from personal auto damage. Were these needs met? Private insurance paid losses totaled \$2 billion and flood insurance paid \$3.3 billion, while public assistance totaled \$816 million. In addition, relief organizations

have raised \$146 million for families impacted by Superstorm Sandy. Thus, the remaining gap is \$1.5 billion which \$630 million in home disaster loans partially covers. The unmet need is \$887 million.

Impact on the commercial sector, as measured by insurance assessed damage to business structures and loss of sales or revenue, totals \$3.56 billion. Businesses incurred direct damage as well as lost income from temporary closures, unavailability of critical inputs, and/or displaced customer bases (NJDCA, 2013; Blake, et al, 2013). In total, 10 percent of commercial units applied for private insurance for property and commercial autos damage, business interruption, and flood insurance totaling \$1.1 billion (DOBI, 2013), leaving a gap of \$2.4 billion. The Small Business Administration has issued \$186 million in disaster business loans. The unmet need is \$2.2 billion.

Impact on municipalities, as measured by damage to public and community buildings and infrastructure as well as emergency expenses and loss of tax revenue, totals \$2.2 billion. In addition, 33 towns lost more than 5 percent of their tax base or non-tax revenue. FEMA has provided a Community Disaster Loan program to meet these needs but the totals have not been confirmed. As of July 2013, FEMA had allocated a total of \$262 million to 81 percent of New Jersey municipalities. Additional \$254 million in FEMA assistance has been paid to state transportation agencies to repair damage. Thus, a gap of \$1.7 billion in direct damage and \$23.5 billion for hazard mitigation still remains (NJ Comptroller, 2013).

How did ALICE households fare?

Households earning below the ALICE Threshold were disproportionately impacted by Superstorm Sandy. With low wage jobs and minimal or no savings, they are more likely to buy or rent in disaster prone areas, and are unable to invest in preventative measures, or save for a 'rainy day.' As a result, the cost of residential damage and lost income for households with income below the ALICE Threshold was \$4.1 billion of the \$7.84 billion total for the residential sector. In terms of meeting their need, private insurance, non-profits, and public assistance provided \$1.7 billion. Thus, there is a gap of \$2.4 billion, for which there are roughly \$195 million in SBA disaster home loans. The remaining gap is \$2.2 billion for households with income below the ALICE Threshold, compared to a gap of \$887 million for the total residential sector. For families with the least resources, this gap is one they are unlikely to be able to fill, thereby threatening the recovery of the entire state.

The data

This Report identifies and synthesizes data from a variety of sources, including the New Jersey Department of Community Affairs (NJDCA) comprehensive Disaster Recovery Action Plan, the unprecedented amount of data released by FEMA and the National Flood Insurance Program, the New Jersey Department of Banking and Insurance (DOBI) claims, US Small Business Administration statistics for home and business loans, NJ 2-1-1 call records in the two weeks after the storm, and power outage records from New Jersey's utility companies. The report adds new data from the Rutgers- New Jersey League of Municipalities "Municipal Sandy Survey" of mayors and business administrators, and interviews with government officials and community leaders. Plus, the number of days schools were closed was obtained from the county and district offices of the superintendent of the New Jersey Department of Education.

What Qualifies for FEMA Assistance?

More than a quarter of a million people, over 258,000, registered for FEMA Individual Assistance following Superstorm Sandy. This represents 7 percent of New Jersey housing units. The major program for Individual Assistance is the Individuals and Households Program (IHP) which, according to FEMA, provides financial help for temporary housing, repairs to ensure a safe and sanitary living condition (not return to original condition), as well as uninsured, disaster-related necessary expenses including medical and funeral expenses, repair or replacement of clothing, household items, vehicles, and moving expenses. IHP can also replace a disaster-damaged home, under rare conditions (FEMA, “Assistance to Individuals and Households Fact Sheet”).

Analysis of the individual records provides unique insight to households that applied for funding. While this is very valuable information to help us understand who was most affected by the storm, there are limitations to the FEMA data. The first limitation is that it is self-reported and people do not always accurately portray their age, income, or other financial information. There were also inconsistencies between zip codes, towns and even county of residence. Also, registrations and claims need to be verified, approved, and dispensed over time, so the totals fluctuate as applications move through the process. Some claims can be denied at different stages. The New Jersey Office of the Comptroller has noted that FEMA amounts have increased as well as decreased over time as households qualify and later do not meet requirements.

Report Overview:

Section I looks at the overall damage from Superstorm Sandy on counties across the state. This section introduces the Sandy Community Hardship Index which quantifies the wide range of types and degrees of damage across New Jersey municipalities and counties, which also vary in size and population.

Section II assesses the impact of Superstorm Sandy on those more vulnerable, low-income households below the ALICE Threshold. The Household Community Hardship Index quantifies the scope and severity as well as the resilience of households with income below the ALICE Threshold in municipalities and counties across New Jersey.

Section III focuses on the range of impact specifically on low-income households as revealed by FEMA Individual Assistance registration data in conjunction with lost wages and extraordinary household expenses. This section shows the significant financial impact Superstorm Sandy had on an already tight Household Survival Budget.

Section IV focuses on municipal damage and response to Sandy. This section presents the results of the Municipal Sandy Survey regarding power outages and restoration, debris collection and removal, emergency shelter operations, analysis of municipal communication, and the amount and type of outside assistance to meet the crisis following Sandy.

Section V combines all the data to evaluate the resiliency of New Jersey. Collective impact and need is juxtaposed with the amount and accessibility of disaster assistance available to New Jersey communities and households.

Conclusion: the Report closes with recommendations to improve the resilience of communities and households with income below the ALICE Threshold.

GLOSSARY:

Paid losses: That portion of incurred losses actually paid out by the insurer.

DOBI: State of New Jersey Department of Banking and Insurance

FEMA IA: Financial assistance to individuals and families whose property has been damaged or destroyed as a result of a federally-declared disaster, and whose losses are not covered by insurance. It is meant to help you with critical expenses that cannot be covered in other ways. This assistance is not intended to restore your damaged property to its condition before the disaster.

SBA: Small Business Administration.

D-SNAP: Disaster Supplemental Nutrition Assistance Program, formerly food stamps

FPL: Federal Poverty Level

ALICE: an acronym that stands for Asset Limited, Income Constrained, Employed

ALICE Threshold: The average income a household needs to afford a basic Household Survival Budget.

ALICE Households: Those with income above the Federal Poverty Level, but below the ALICE Threshold.

I. COMMUNITY HARDSHIP RESULTING FROM SUPERSTORM SANDY

The first impressions of the impact of Superstorm Sandy were from dramatic photos, news stories, and harrowing personal accounts. Since the storm, several reports have documented some of the types of damage caused by the storm, primarily flooding, and financial assistance, particularly from FEMA. But none have captured the wide range of types and degrees of damage across New Jersey. In part, this is because of the difficulty involved in comparing New Jersey's municipalities and counties, which vary dramatically in size and population.

This report presents the **Community Hardship Index**, a standardized way to measure economic and physical damage, controlling for population differences so that the impact can be compared across all of New Jersey's 21 counties and 553 municipalities that lost power or reported damage (of 565 New Jersey towns). The Community Hardship Index covers economic and physical impact in the residential, commercial, and municipal sectors. When the results are mapped, the severity and extent of damage is easier to visualize. Not only was Superstorm Sandy an extreme event that devastated many areas, it was also a serious event in a majority of geographies in the state. The latter has received little attention since the power was restored and the debris was removed.

Community Hardship for Counties

To understand the total impact of this storm on each county, the following individual elements were examined: power loss; residential, commercial, and municipal damage; emergency shelters established; and gasoline shortage.

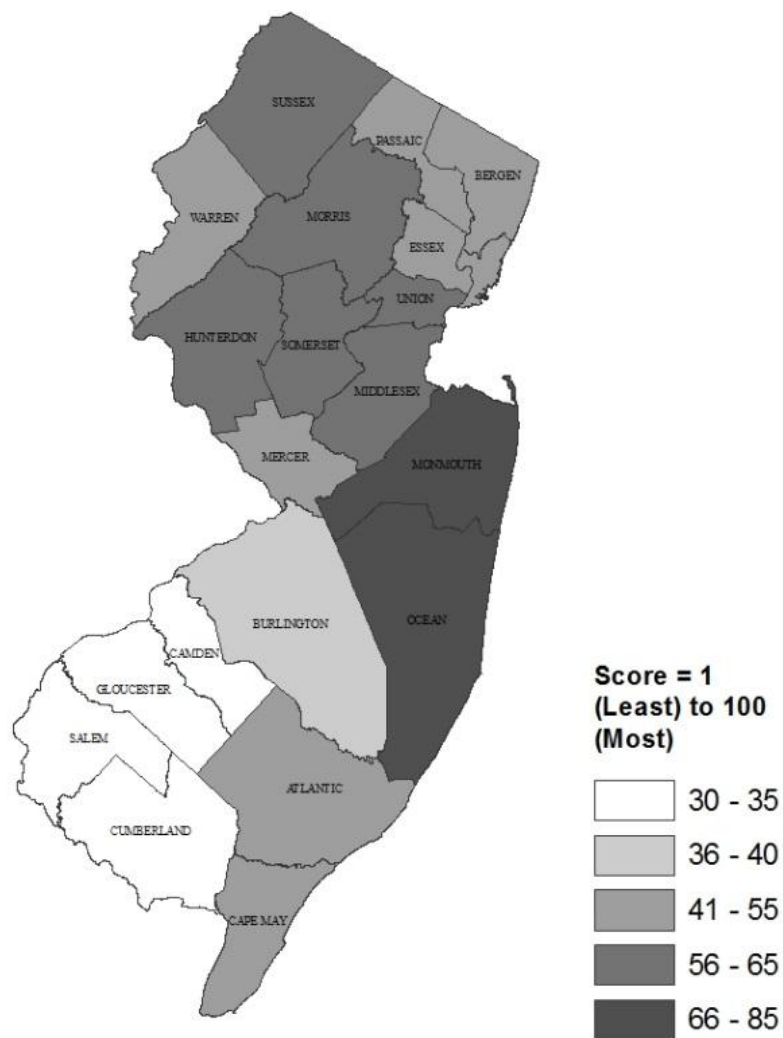
When combined, the picture confirms the obvious storm damage in shore counties, but also reveals that counties inland and north were negatively affected as well. In fact, this analysis demonstrates that most counties in New Jersey were affected by Superstorm Sandy, see Figure 2. This may not be the common perception now, nearly one year after the storm.

To create the most realistic picture, the areas are weighted. Power outages and the Municipal area account for 20 percent each of the Index; and Shelter and Gasoline Shortage each account for 10 percent of the Index. Because counties have different compositions, the residential and commercial areas are included in the Index in proportion to their contribution to the county's total value as calculated for tax purposes. Added together, these two areas account for 40 percent of the Index score. The individual indicators are described below.

What the Index does not take into account is the necessity of hazard mitigation, an expense that residents, businesses and municipalities across the state are now facing. This is discussed further in Section V.

Figure 2.

Sandy Community Hardship Index - NJ Counties



Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

Community Hardship Index, Detailed Findings:

According to this study, Monmouth County was the hardest hit, scoring 84 on a scale of 1 (no damage) to 100 (extensive damage). Ocean County was second with a score of 73, followed by Somerset County with a score of 62. Seven counties scored between 50 and 60 points. Salem County was the least impacted with a score of 31, see Figure 3 (see Appendix A for methodology).

Figure 3.
Community Hardship Index - County

	Score	Rank
Monmouth	84	1
Ocean	73	2
Somerset	62	3
Middlesex	59	4
Union	59	5
Hunterdon	58	6
Sussex	57	7
Morris	57	8
Bergen	52	9
Hudson	48	10
Atlantic	47	11
Essex	47	12
Cape May	47	13
Mercer	46	14
Passaic	46	15
Warren	44	16
Burlington	39	17
Gloucester	33	18
Cumberland	33	19
Camden	32	20
Salem	31	21

Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

The indicators for the six areas of the Index are now reviewed in turn; scores are presented in Figure 4. The first area is the number of days of **power loss** for the majority of the county. Power outages added to economic hardship by closing businesses and slowing disaster mitigation efforts by rendering equipment such as sump pumps inoperable. To compensate for inaccurate and conflicting data available from the power companies, the Index uses a proxy - the number of days public schools were closed - to understand the duration of power loss to each community. Based on this evaluation, power was out the longest in Monmouth County, an average of 10 days, followed by 9 days in Somerset and Union counties, and 8 days in Ocean County. Power was out for 2 or less days in Warren, Cumberland, Salem, Gloucester and Camden counties.

Figure 4.
Community Hardship Indicators

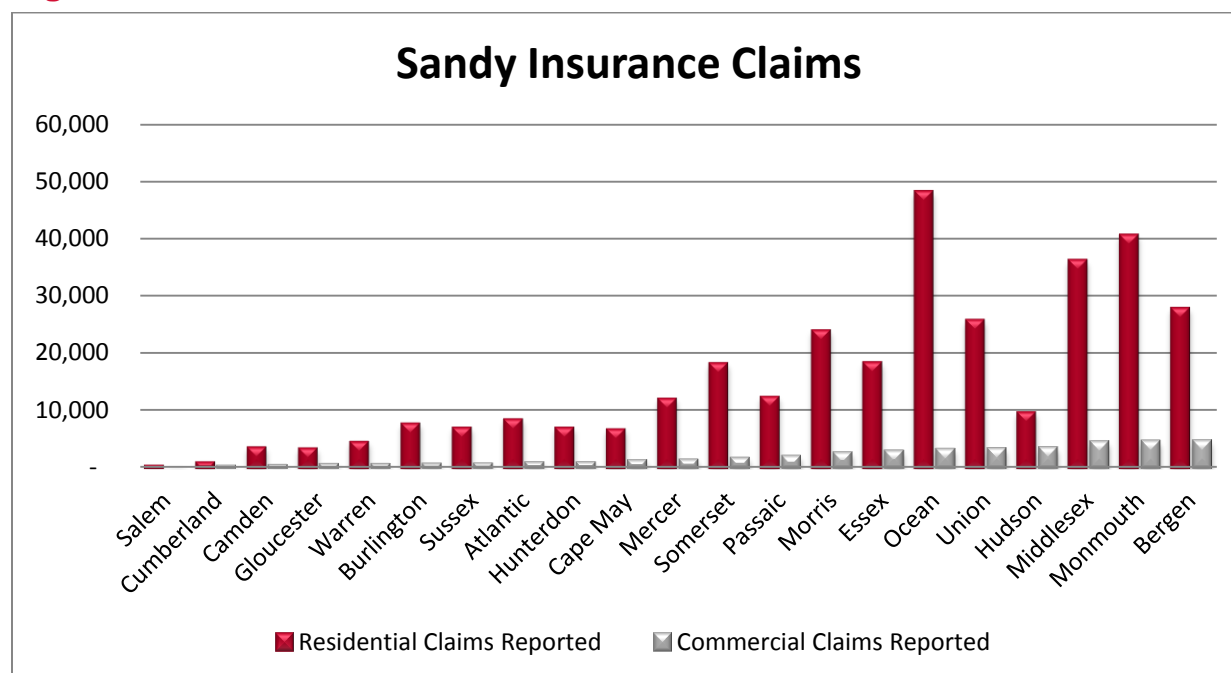
	Days without power	Residential Claims Reported as percent of total housing unit	Residential Paid Loss \$ per housing unit	Commercial Paid Loss per non-residential parcels \$	Commercial Claims Reported as % of non-residential Parcels	FEMA Municipal assistance per capita	People served at Shelters per 1,000	Gas calls per 10,000	Community Hardship Index
Atlantic	3	7%	\$ 318	\$ 59	0.62%	36	11	4	47
Bergen	6	8%	\$ 379	\$ 325	1.72%	10	1	36	52
Burlington	3	4%	\$ 145	\$ 39	0.35%	5	6	2	39
Camden	2	2%	\$ 53	\$ 29	0.20%	3	-	7	32
Cape May	4	7%	\$ 242	\$ 67	1.21%	42	3	2	47
Cumberland	2	2%	\$ 53	\$ 38	0.42%	14	-	6	33
Essex	6	6%	\$ 298	\$ 588	1.73%	11	1	6	47
Gloucester	2	3%	\$ 102	\$ 54	0.43%	7	0	0	33
Hudson	6	4%	\$ 110	\$ 553	3.06%	18	3	5	48
Hunterdon	6	14%	\$ 799	\$ 171	1.36%	19	2	27	58
Mercer	5	8%	\$ 334	\$ 137	1.12%	11	0	9	46
Middlesex	7	12%	\$ 446	\$ 270	1.89%	25	5	17	59
Monmouth	10	16%	\$ 803	\$ 200	1.96%	113	14	34	84
Morris	7	13%	\$ 679	\$ 162	1.60%	10	2	34	57
Ocean	8	17%	\$ 718	\$ 166	1.11%	68	9	21	73
Passaic	6	7%	\$ 304	\$ 200	1.64%	8	1	9	46
Salem	2	1%	\$ 47	\$ 5	0.10%	4	1	3	31
Somerset	9	15%	\$ 807	\$ 246	1.47%	12	3	19	62
Sussex	7	11%	\$ 609	\$ 77	0.81%	13	9	21	57
Union	9	13%	\$ 626	\$ 499	2.40%	17	1	8	59
Warren	2	10%	\$ 449	\$ 103	1.16%	8	1	11	44

Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

In the second area, **residential damage** measures scope and severity of damage. Because knowledge of FEMA Individual Assistance (IA) may not have been uniform across the state, the scope and severity are measured by the number and amount of private insurance residential claims as reported by the New Jersey Department of Banking and Insurance (DOBI), as of May 3, 2013. In terms of volume, Ocean County had the most number of claims followed by Monmouth and Middlesex counties, see Figure 5 (red bars). On a per housing unit basis, the indicator used in the Index, Ocean County also had the highest percent of housing units filing a private insurance claim with 17 percent, followed by Monmouth County with 16 percent, and Somerset County with 15 percent; only 1 percent filed in Salem County. Interestingly, the highest awards per housing unit were not in the counties with the greatest volume of claims;

instead they were in Somerset, Monmouth, and Hunterdon counties respectively. The lowest was in Salem County.

Figure 5.



Source: DOBI, 2013.

Similarly, the third area, **commercial damage** measures scope and severity of damage, as indicated by the number and amount of private insurance commercial claims. In terms of volume, Bergen County had the most number of claims followed by Monmouth and Middlesex counties, see Figure 5 (grey bars). Controlling for non-residential parcels in the county, the indicator used in the Index, Hudson County had the highest percent with more than 3 percent of commercial entities making a claim, followed by Union County with 2.4 percent. Less than one-half percent were made in Gloucester, Cumberland, Burlington, Camden and Salem counties. In term of severity, the highest amounts were paid in Essex County, followed by Hudson and Union counties.

The **municipal damage** area is measured by the dollar amount of FEMA Public Assistance per capita. Monmouth County had the most, \$113 per capita, nearly double the next county, which was Ocean County with \$68 per capita. Camden County had the least with \$3 per capita.

Shelter services measures the number of people served as of May 2013, as recorded by the Red Cross National Shelter System, controlled by county size. Monmouth County had the most with 14 people per 1,000, followed by Atlantic County with 11, and Sussex and Ocean counties with 9 each.

The last area is **gasoline shortage**. The lack of gasoline caused by power outages and damage to gas facilities caused further hardship for many areas. This impact is measured by

the number of calls to the state's emergency hotline from gas stations for assistance with power or delivery, as recorded by the New Jersey Economic Development Authority. Bergen County had the most calls with 36 per 10,000 people followed by Morris and Monmouth counties with 34 per 10,000.

In summary, the Community Hardship Index reveals that Monmouth and Ocean counties suffered the most overall, especially in terms of the combined impact of power outages, residential damage, residents in shelters, and gasoline shortages. It also reveals that central and northeast counties were significantly impacted, especially by extended power outages and gas shortages. Somerset, Middlesex, Union, Hunterdon, and Morris counties suffered significant residential damage, and Hudson, Union, Essex, Middlesex, Bergen, and Passaic counties suffered significant commercial damage. Cape May and Atlantic counties suffered municipal damage, but they did not lose power for long and extensive residential or commercial damage was not as wide spread. The Index also reveals that Superstorm Sandy did not cause significant hardship in Gloucester, Camden, Cumberland, or Salem counties, and was a minor event in most of Mercer, Burlington, Sussex, and Warren counties.

Community Hardship for Municipalities

The county view shows a broad picture, but there was an even wider range of impact at the municipal level, as many media stories have highlighted. This section delves further into the impact of Sandy with a municipal level analysis of the Community Hardship Index, a compilation of different types of indicators into one measure to reveal which towns within each county were most and least impacted.

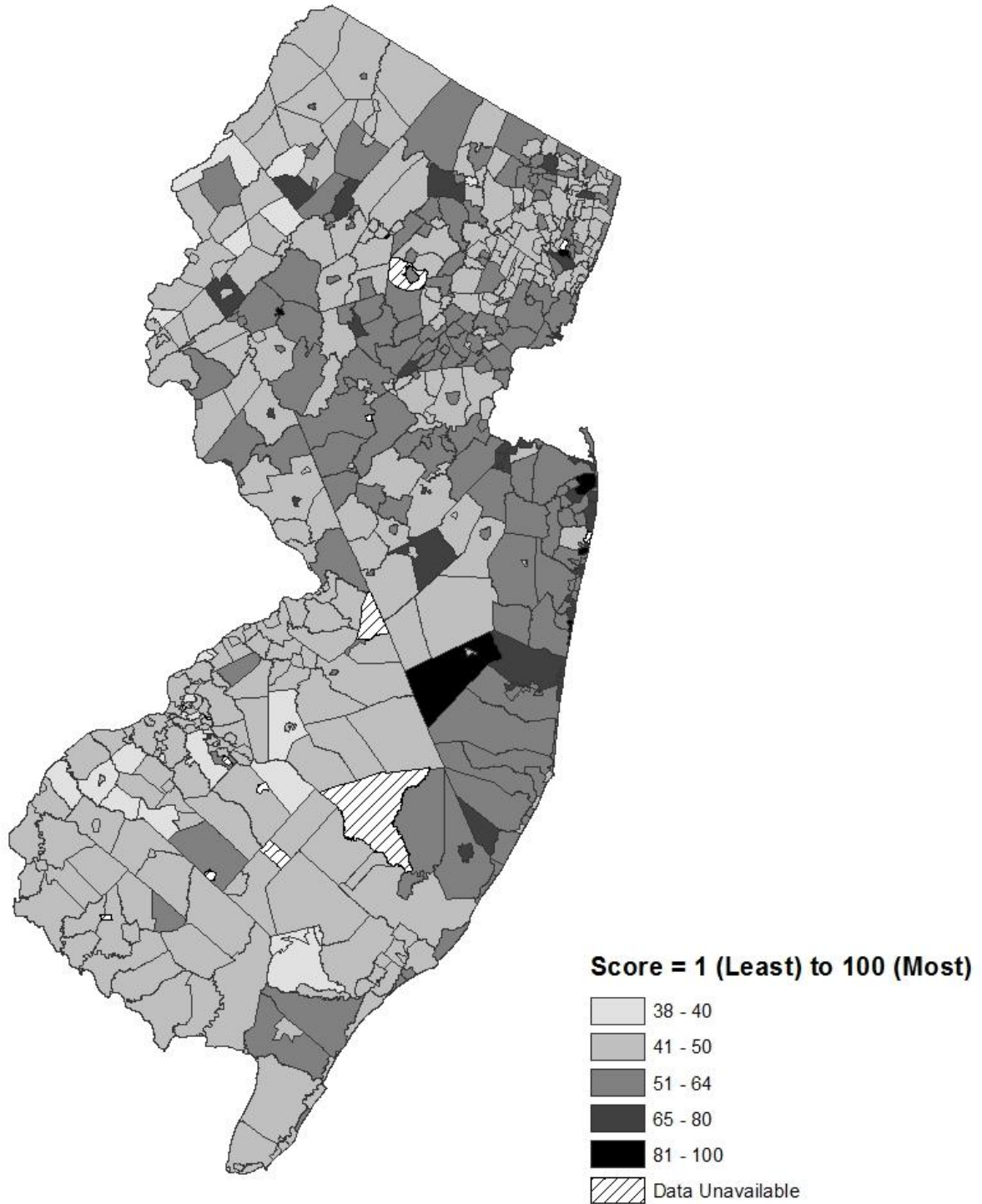
Total FEMA IA numbers suggest that Newark and Jersey City were the hardest hit cities in the state, but the Community Hardship Index reveals that Moonachie in Bergen County and Mantoloking in Ocean County were the two towns with the greatest community hardship. Community Hardship Index scores ranged from 38 to 100 on a scale of 1 (no damage) to 100 (extensive damage), see Figure 6. For all scores, see Appendix C. Of the 35 hardest hit towns (those with scores above 65), most were located in Monmouth and Ocean counties, but the rest were spread across 9 additional counties, see Figure 9.

The Community Hardship Index is able to identify the hardest hit towns using the same dimensions as the county level index – prevalence and extent of power outages and physical damage to residential, commercial, and municipal property. Because the shelter and gas indicators are not specific to each town, they are not included in the municipal Community Hardship Index. The full methodology and sources are detailed in Appendix A.

The indicators for the power, municipal and commercial areas are the same as in the county analysis (for details, see the section above). However, for residential damage, the indicators are slightly different, as explained below:

Figure 6.

Sandy Community Hardship Index - NJ Towns



Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

As with the county analysis, the number of days public schools were closed was used as a proxy to understand the duration of **power loss** in each town. The Stone Harbor public school was closed the longest at 86 days due to excessive damage, the days recorded for the Index though, are 23 days without power. The next longest was Hopatcong in Sussex County, 22 days without power, followed by Surf City with 18 days and Union Beach and Highlands in Monmouth with 17 days. In total, 97 towns, 17 percent of all towns, were without power for more than 10 days.

The extent and severity of **residential damage** is measured by the number and amount of private insurance residential claims as reported by DOBI. A third indicator – average FEMA IA grant - is added because the DOBI data is reported by zip code and leaves gaps between some municipalities. These measures assume that the greater the number of claims and the higher the award amounts, the greater the damage incurred.

This analysis revealed that there was significant variation in scope of damage between towns. In eight towns, 100 percent of housing units filed a private insurance claim: Mantoloking, South Toms River and Tuckerton in Ocean County; Califon and Stockton in Hunterdon County; Jamesburg in Middlesex County, and Washington in Warren County. But in most towns, 86 percent, less than 20 percent of housing units filed a private insurance claim.

In terms of severity, the average FEMA IA award was \$6,506, but there was large variation across municipalities. The town with the largest average FEMA IA grant was Kinnelon in Morris County with \$34,934, followed by Haworth in Bergen County and Long Branch in Monmouth County with over \$26,000, and Moorestown in Burlington County with \$20,500. There were only 12 towns with average grants over \$10,000. Most grants, 65 percent, were between \$1,000 and \$5,000, see Figure 7.

Figure 7.

Distribution of Compensation

	Average FEMA IA grant	Residential Paid Loss
\$1 - \$999	9%	79%
\$1,000 - \$4,999	65%	19%
\$5,000 - \$9,999	23%	1%
\$10,000 +	3%	1%

Source: FEMA, 2013, DOBI, 2013.

The town with the largest amount of residential paid loss per total housing units was Mantoloking in Ocean County with \$29,070, followed by Far Hills in Somerset County with 13,136, and Califon in Hunterdon County with \$12,386. These three towns were the only ones with amounts over \$10,000. Most awards, 78 percent, were less than \$1,000, and 20 percent were between \$1,000 and \$5,000.

Figure 8.

FEMA Public Assistance to New Jersey Towns

	Dollar amount		Per capita
Atlantic Highlands, Monmouth	\$ 17,220,000	Manchester Township, Ocean	\$ 4,903
Toms River, Ocean	\$ 16,880,000	Asbury Park City, Monmouth	\$ 3,416
Little Egg Harbor, Ocean	\$ 9,170,000	Bay Head Borough, Ocean	\$ 3,056
Brick, Ocean	\$ 7,840,000	Rumson Borough, Monmouth	\$ 2,647
Union Beach, Monmouth	\$ 5,940,000	Pine Hill Borough, Camden	\$ 1,261
Keansburg, Monmouth	\$ 5,740,000	Lakewood Township, Ocean	\$ 1,139
Jersey City, Hudson	\$ 5,652,041	Tinton Falls Borough, Monmouth	\$ 944
Sayreville, Middlesex	\$ 5,540,000	Avon-by-the-Sea Borough, Monmouth	\$ 913
Belmar, Monmouth	\$ 5,320,000	Eagleswood Township, Ocean	\$ 888
Stafford, Ocean	\$ 5,072,727	Point Pleasant Beach Borough, Ocean	\$ 699
Lavallette, Ocean	\$ 5,060,000	Millstone Township, Monmouth	\$ 561
Sea Bright, Monmouth	\$ 4,890,000	Seaside Park Borough, Ocean	\$ 551
Middletown, Monmouth	\$ 4,750,000	Longport Borough, Atlantic	\$ 507
Freehold, Monmouth	\$ 4,650,000	Little Egg Harbor Township, Ocean	\$ 503
Millstone, Monmouth	\$ 4,250,000	Point Pleasant Borough, Ocean	\$ 466
Hoboken, Hudson	\$ 4,230,000	Middletown Township, Monmouth	\$ 409
Beach Haven, Ocean	\$ 4,040,000	Moonachie Borough, Bergen	\$ 362

Source: NJC, 2013.

There was also variation in scope and severity of **commercial damage** between towns. Jamesburg in Middlesex County and Califon in Hunterdon County were the only towns where more than 10 percent of non-residential units filed a private insurance claim. The next highest were Matawan and Belmar in Monmouth County and Frenchtown in Hunterdon County with 9 percent. In most towns, 87 percent, less than 5 percent of non-residential units filed a private insurance claim.

In terms of severity, the average commercial claim paid was \$27,503. For commercial claims reported per commercial parcels, Moonachie in Bergen County had the largest with \$21,305, and there were only two more above \$5,000, Toms River in Ocean County and East Rutherford in Bergen County. The rest, 99 percent, were less than \$5,000.

The **municipal impact** is measured by the amount of FEMA Public Assistance per capita. Aid to municipalities, including FEMA Public Assistance, Community Disaster Loans, and Highway Administration grants as of July 2013, totaled \$262 million. Atlantic Highlands received the largest amount of federal aid, \$17.2 million, followed by \$16.9 million to Toms River, \$9.2 million to Little Egg Harbor, \$7.8 million to Brick, and \$6 million to Union Beach. Six additional municipalities received more than \$5 million each, see Figure 8. In total, 460 towns received assistance, 81 percent of all towns in New Jersey. Of those that received aid, 13 percent received more than 10 percent of their annual budget (NJ Office of the State Comptroller, 2013).

The Index uses the per capita measure of FEMA Public Assistance funds which totaled \$218 million. Manchester Township in Ocean County received the most with \$4,900 per capita, followed by Asbury Park in Monmouth and Bay Head in Ocean County with more than \$3,000 per capita, and Rumson in Monmouth County with \$2,600. Pine Hill in Camden County and Lakewood in Ocean County each received more than \$1,100 per capita. The remaining 455 towns that received FEMA Public Assistance funds of less than \$1,000 per capita.

The top hardest hit towns are listed in Figure 9.

Figure 9.

Community Hardship Index - Hardest Hit Towns

	Index	RANK
Mantoloking, Ocean	100	1
Moonachie, Bergen	100	2
Rumson, Monmouth	99	3
Bay Head, Ocean	95	4
Manchester Township, Ocean	93	5
Asbury Park, Monmouth	91	6
Shrewsbury, Monmouth	87	7
Flemington, Hunterdon	83	8
Califon, Hunterdon	83	9
Toms River, Ocean	81	10
Stockton, Hunterdon	79	11
Tuckerton, Ocean	79	12
Far Hills, Somerset	79	13
Allenhurst, Monmouth	78	14
South Toms River, Ocean	75	15
Carlstadt, Bergen	73	16
Green Brook, Somerset	73	17
Kinnelon, Morris	73	18
Lavallette, Ocean	72	19
Long Branch, Monmouth	72	20
Millstone, Monmouth	72	21
Jamesburg, Middlesex	72	22
Belmar, Monmouth	71	23
Union Beach, Monmouth	70	24
Point Pleasant Beach, Ocean	70	25
Monmouth Beach, Monmouth	70	26
Avon-by-the-Sea, Monmouth	69	27
Eagleswood, Ocean	68	28
Haworth, Bergen	68	29
Seaside Heights, Ocean	67	30

Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

II. HOUSEHOLD HARDSHIP RESULTING FROM SUPERSTORM SANDY

While towns and counties were challenged to respond to the damage inflicted by Sandy, households were not spared the storm's wrath. This is especially true for those that earn less than the cost of basic household necessities, defined as the ALICE Threshold. To understand how these fragile households fared in particular in the aftermath of the storm, a new measure has been developed, which evaluates conditions at both the county and municipal level. The Household Hardship Index measures the scope, severity, and resilience of households with income below the ALICE Threshold.

Household Hardship at the County Level

When looking at the effect of Superstorm Sandy on low-income households in comparison to the damage on overall communities, a slightly different distribution of negative impact is revealed, see Figure 10.

According to the Household Hardship Index, Hudson County had the highest score with 69 on a scale of 1 (least hardship) to 100 (greatest hardship), meaning households with income below the ALICE Threshold faced the greatest hardship in Hudson County. Bergen County was a close second with a score of 66, followed by Monmouth County with a score of 65. Middlesex, Ocean, and Essex counties each scored above 60, see Figure 11. Hunterdon County had the lowest score with 33. To understand how this index was calculated, the indicators are examined in more detail.

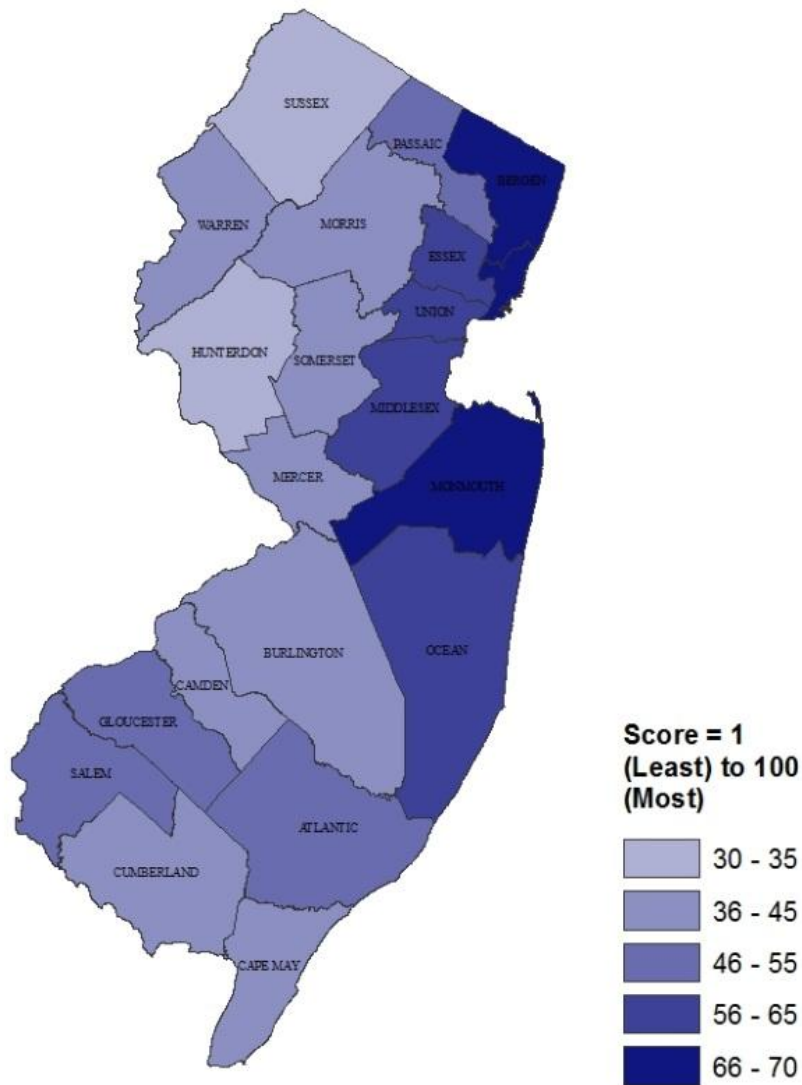
First, the **scope** of the financial impact on low-income households is measured by the value of lost wages. The calculation is based on the number of days without power (using the number of days public schools were closed according to the New Jersey Department of Education). For this index, a day without power equals a day of lost wages for those in jobs earning less than \$15 per hour. There are 1.4 million jobs in New Jersey that pay less than \$15 per hour, or \$30,000 per year, and most of these are held by someone living in an ALICE household. According to this calculation, households with income below the ALICE Threshold on average lost income totaling \$240 in Cumberland and Salem Counties to \$1,277 in Monmouth County.

The amount of total lost wages, the indicator used in this Index, is \$833 million. The total amount of lost wages was greatest in Essex County with \$101 million, followed by Ocean County with \$87.8 million and Hudson County with \$86 million. The least amount lost was in Salem County with \$3.4 million.

To measure the **severity** of the impact on households below the ALICE Threshold, the average FEMA IA award was used. Of the \$390 million FEMA IA has allocated to individuals in New Jersey, \$164 million went to households with income below the ALICE Threshold. The average award for these households was \$5,905. However, there was wide variation in award amounts from county to county; the highest average was in Ocean County with \$7,652, followed by Gloucester County with \$7,427 and Bergen with \$6,850. The least amount was in Passaic County with \$1,901.

Figure 10.

Sandy Household Hardship Index - NJ Counties



Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

The percent of households below the ALICE Threshold that did not have homeowners insurance was used to measure **resilience**. Lack of homeowners insurance threatens one's ability to repair damage or recoup losses. This was highest in Hudson County with 86 percent, followed by Essex County with 84 percent and Salem and Union Counties with 77 percent. The lowest percent was in Sussex with 38 percent.

Figure 11.

Sandy Household Hardship Index

	Lost wages	Average FEMA IA assistance	No Home Owners Insurance	Index score
Hudson	\$ 86,220,017	\$ 4,967	86%	69
Bergen	\$ 75,506,325	\$ 6,850	69%	66
Monmouth	\$ 83,408,432	\$ 6,395	65%	65
Essex	\$ 101,157,730	\$ 2,626	84%	64
Middlesex	\$ 67,794,562	\$ 6,350	67%	63
Ocean	\$ 87,825,227	\$ 7,652	46%	62
Union	\$ 68,181,367	\$ 3,379	77%	57
Salem	\$ 3,441,858	\$ 5,322	77%	53
Passaic	\$ 61,200,438	\$ 1,901	76%	51
Atlantic	\$ 16,094,304	\$ 4,646	71%	50
Gloucester	\$ 9,370,892	\$ 7,427	50%	50
Cumberland	\$ 5,826,829	\$ 5,677	54%	45
Mercer	\$ 22,215,717	\$ 2,464	70%	44
Camden	\$ 15,390,638	\$ 2,768	68%	43
Somerset	\$ 35,359,387	\$ 2,476	60%	42
Warren	\$ 3,785,404	\$ 4,580	51%	40
Morris	\$ 32,177,370	\$ 2,779	53%	40
Cape May	\$ 7,876,424	\$ 4,070	52%	40
Burlington	\$ 19,211,410	\$ 3,617	49%	39
Sussex	\$ 19,316,020	\$ 3,364	38%	34
Hunterdon	\$ 11,556,111	\$ 3,116	43%	33

Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

Not surprisingly, households with income below the ALICE Threshold were severely impacted in communities that ranked high on the Community Hardship Index, primarily in Monmouth, Middlesex, Ocean, and Union. But what this analysis reveals is that low-income households in counties with moderate community hardship were also strongly impacted, namely Bergen and Essex counties. The counties with the biggest difference between the two indices were Hunterdon and Sussex, ranking 6th and 7th respectively on the Community Hardship Index and 20th and 21st on the Household Hardship Index. Conversely, Salem County, which ranked last on the Community Hardship Index, was much higher on the Household Hardship Index, ranking 8th. There were several variations in between as well, see Figure 12.

Figure 12.

	Community Hardship Index	Community Hardship Index Rank		Household Hardship Index	Household Hardship Index Rank
Monmouth	84	1	Hudson	69	1
Ocean	73	2	Bergen	66	2
Somerset	62	3	Monmouth	65	3
Middlesex	59	4	Essex	64	4
Union	59	5	Middlesex	63	5
Hunterdon	58	6	Ocean	62	6
Sussex	57	7	Union	57	7
Morris	57	8	Salem	53	8
Bergen	52	9	Passaic	51	9
Hudson	48	10	Atlantic	50	10
Atlantic	47	11	Gloucester	50	11
Essex	47	12	Cumberland	45	12
Cape May	47	13	Mercer	44	13
Mercer	46	14	Camden	43	14
Passaic	46	15	Somerset	42	15
Warren	44	16	Warren	40	16
Burlington	39	17	Morris	40	17
Gloucester	33	18	Cape May	40	18
Cumberland	33	19	Burlington	39	19
Camden	32	20	Sussex	34	20
Salem	31	21	Hunterdon	33	21

Source: FEMA, 2013; NJDOE, 2013; NJ DOBI, 2013; NJC, 2013.

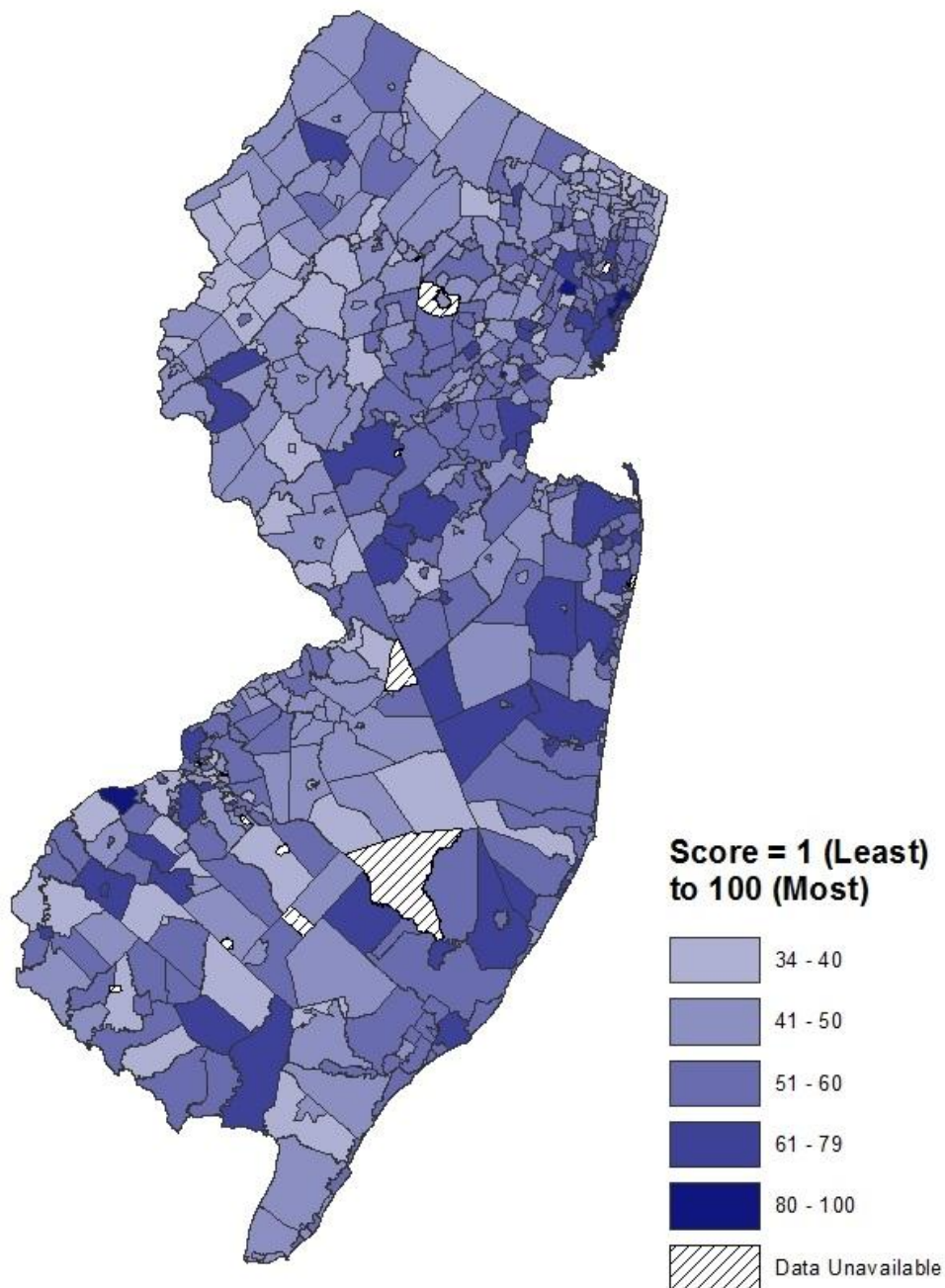
Household Hardship in each Municipality

Similar to the findings of the Community Hardship Index, the Household Hardship Index at the municipal level reveals an even wider range of impact, including pockets of severe household hardship across the state. These nuances were not visible in the county analysis. The Household Hardship Index at the municipal level is constructed using the same three dimensions described above in the county level: scope, severity, and resilience, for methodology see Appendix B.

Households, especially those with income below the ALICE Threshold, faced the greatest hardship in Newark in Essex County and Jersey City in Hudson County with each scoring 100 on a scale of 1 (least hardship) to 100 (greatest hardship). Patterson in Passaic County scored 92 and Franklin in Warren County and Elizabeth in Union County each scored 89. Hardwick Township in Warren County had the lowest score with 34, see Figure 13.

Figure 13.

Sandy Household Hardship Index - NJ Towns



Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

The individual indicators for the Household Hardship Index provide further insight into the impact of Superstorm Sandy on low-income households. For top scores see Figure 14, for all scores see Appendix C.

Figure 14.

Household Hardship Index - Hardest Hit Towns

	Lost wages	Average FEMA IA assistance	No Home Owners Insurance	Household Hardship Index	Index RANK
Newark, Essex	\$ 59,077,746	\$ 189	88%	100	1
Jersey City, Hudson	\$ 38,837,473	\$ 707	87%	100	3
Paterson, Passaic	\$ 27,853,811	\$ 79	81%	92	4
Franklin Township, Warren	\$ 75,935	\$ 11,541	38%	89	5
Elizabeth, Union	\$ 24,324,917	\$ 167	88%	89	6
Brick, Ocean	\$ 12,837,613	\$ 4,341	42%	79	7
Green Township, Sussex	\$ 560,460	\$ 10,956	0%	79	8
Toms River, Ocean	\$ 12,570,470	\$ 3,238	44%	75	9
Berkeley Township, Ocean	\$ 12,617,708	\$ 3,534	38%	75	10
Passaic City, Passaic	\$ 15,180,246	\$ 43	82%	74	11
Bayonne, Hudson	\$ 12,849,038	\$ 853	80%	74	12
Moonachie, Bergen	\$ 509,544	\$ 6,120	59%	73	13
Sayreville, Middlesex	\$ 5,462,337	\$ 3,458	75%	73	14
Seaside Heights, Ocean	\$ 1,185,366	\$ 4,483	76%	71	15
Lakewood, Ocean	\$ 13,897,336	\$ 103	73%	70	16
Bay Head, Ocean	\$ 172,685	\$ 6,570	42%	70	17
Atlantic City, Atlantic	\$ 6,055,803	\$ 2,265	81%	70	18
Union Beach, Monmouth	\$ 1,411,755	\$ 5,772	46%	70	19
Long Branch, Monmouth	\$ 6,494,246	\$ 2,313	75%	69	20
Deptford, Gloucester	\$ 1,031,941	\$ 5,595	50%	69	21
Keansburg, Monmouth	\$ 2,767,809	\$ 3,708	69%	68	22
Mullica Township, Atlantic	\$ 269,164	\$ 2,804	100%	68	23
Middletown, Monmouth	\$ 7,564,297	\$ 2,864	51%	68	24
Hoboken, Hudson	\$ 6,090,288	\$ 1,072	92%	67	25
Irvington, Essex	\$ 10,175,317	\$ 130	82%	67	26
Little Egg Harbor, Ocean	\$ 4,676,032	\$ 4,532	35%	67	27
Glassboro, Gloucester	\$ 664,096	\$ 5,325	46%	67	28
Highlands, Monmouth	\$ 1,508,221	\$ 3,711	70%	67	29
Penns Grove, Salem	\$ 318,291	\$ 3,095	85%	66	30
Little Ferry, Bergen	\$ 2,417,994	\$ 3,476	64%	66	31

Source: FEMA, 2013; NJDOE, 2013; DOBI, 2013; NJ DOBI, 2013; NJC, 2013.

The indicator for **scope**, as measured by the amount of lost wages for households with income below the ALICE Threshold, was greatest in Newark with \$59 million, followed by Jersey City with \$39 million and Patterson with \$28 million. New Jersey's largest cities are home to large numbers of households with income below the ALICE Threshold. The scores reflect this reality.

Severity was measured by the average amount of FEMA IA for households below the ALICE Threshold. Franklin Township in Warren County had the highest with \$11,541, followed by Green Township in Sussex County with \$10,956. Bay Head in Ocean County and South Harrison in Gloucester had more than \$6,000. There were 155 towns where households did not receive any FEMA IA.

Resilience was measured by the percent of households with income below the ALICE Threshold that registered for FEMA IA and did not have homeowners insurance. Most households with income below the ALICE Threshold, 69 percent, which registered for FEMA assistance did not have homeowners insurance. Even less had flood insurance, which is discussed further below. There were 12 towns where 100 percent had no insurance, and five towns where 90 percent of applicants did not have insurance. These 17 towns were spread across 12 counties. More details about FEMA awards and insurance are discussed in the next section.

III. ALICE HARDSHIP AND RECOVERY

With a median household income of \$67,681, many presume that New Jersey families had the resources to recover from Superstorm Sandy. However, 7 percent of households, or 258,000, registered for FEMA IA, indicating they did not have the necessary resources. The median income for those registering for FEMA IA was \$54,000, according to analysis of individual registration data. In addition, more than half of the FEMA registrations were from households with income below the ALICE Threshold. These applicants represent 11 percent of the total number of households who fall below this basic level of self-sufficiency.

Individual FEMA IA records provide a rare look into characteristics of applicants, specifically their income, age, housing, and insurance information. From this data, we gain greater insight into the details of these fragile households.

But FEMA IA registrations provide only part of the picture; many more low income households were impacted than detected from FEMA registrations. Estimates from power outages, extraordinary household expenses, and the Household Hardship Index help put the FEMA data into perspective of overall impact.

FEMA Window into ALICE households

Based on FEMA registration information, applicants with income below the ALICE Threshold are more likely to rent and are less likely to have insurance or a second home. Additionally, these low-income applicants are more likely to be under 65 years old.

Age

Of total FEMA IA applicants, only 18 percent were from households headed by someone 65 years and older; however, these applicants accounted for 32 percent of overall assistance. Similarly, of applicants with income below the ALICE Threshold, 18 percent were from households headed by someone 65 years or older; yet they accounted for 43 percent of total awarded to low-income households.

Owners vs. Renters

Renters accounted for 43 percent of total registrations and 63 percent of registrations from households with income below the ALICE Threshold, see Figure 15. Of these, approximately 20 percent received FEMA IA assistance. There was virtually no difference in award rate; applicants who were low-income renters were just as likely to receive assistance as those with income above the ALICE Threshold.

However, in terms of home owners, there was a significant difference between the award rate for low-income households and overall registrations. Only 10 percent of owners with income below the ALICE Threshold received assistance from FEMA, as of February 15, 2013, as compared to 26 percent of all owners.

Figure 15.

Owners vs. Renters

	Total	% Registered Renters	% owners awarded FEMA assistance	% renters awarded FEMA assistance
ALICE	122,978	63%	10%	20%
Total	261,020	43%	26%	21%

Source: FEMA, 2013; Hoopes Halpin, 2012.

One reason ALICE owners may have such a low award rate is that their FEMA funds are often tied to preliminary work being completed, such as removing asbestos before FEMA will provide payment for demolition, or completing repairs before FEMA will provide payment for raising a house above approved flood levels. ALICE households may not have the savings or the cash flow to complete this work, or at least not quickly (O'Brien, 2013; Spoto, 2013). And, in fact, the New Jersey Office of the Comptroller has noted that FEMA amounts have increased as well as decreased over time as households qualify and later do not meet requirements.

Second Homes

FEMA clearly states: "Damages to a secondary or vacation home are not eligible under FEMA's disaster assistance program," and the FEMA application clearly asks, "Is this your primary residence?" However, 13 percent of applicants answered "No," indicating the damaged property was not their primary residence at the time of the disaster. Perhaps the applicant was confused, but in any event, of the 32,647 registrations for second homes, 78 percent received assistance. This award rate is much higher than the overall rate of 24 percent. FEMA officials have not provided an explanation for this apparent conflict with stated policy.

Geographically, almost half of the second home registrations, 48 percent, were in Ocean County, 11 percent were in Monmouth County, and 9 percent in Atlantic County. The percent of second homes receiving assistance was also highest in these counties, 88 percent in Ocean County, 82 percent in Monmouth County, and 75 percent in Atlantic County.

Not surprisingly, households with income below the ALICE Threshold were less likely to have a second home, 3 percent compared to 13 percent of the overall registrations, see Figure 16. Second homes for households with income below the ALICE Threshold might be a modest inherited family property, represent the household's retirement strategy, or a small business. The fact that the majority of second home applications from low-income households were in Hudson, Monmouth, and Essex counties suggests that they are businesses.

For those households headed by someone 65 years or older, only 3 percent of their registrations were for second homes. The majority of these, 61 percent, were located in Ocean County.

There is a large variance in the rate of awards for second homes by income. Overall, 78 percent of registrations for second homes received assistance while only 5 percent were for households with income below the ALICE Threshold and 21 percent were for households headed by someone 65 years and older.

Figure 16.

FEMA Registration - Second Homes

	2nd Homes	Percent of Registrations	Percent of 2nd homes receiving FEMA assistance
ALICE	8,860	3%	5%
65 and older	8,632	3%	21%
Total	32,647	13%	78%

Source: FEMA, 2013; Hoopes Halpin, 2012.

Insurance

FEMA IA registration also asked for insurance information, specifically whether a resident had either homeowners or flood insurance. Overall, 38 percent of those who registered had no homeowners insurance and 64 percent had no flood insurance, see Figure 17. Households with income below the ALICE Threshold who registered were even less likely to have insurance: 69 percent did not have homeowners insurance, more than double the overall rate, and 90 percent did not have flood insurance. Interestingly, households headed by someone 65 years and older were far more likely to have homeowners insurance, only 22 percent did not have home owners insurance; however they were just as likely as the total population not to have flood insurance with 65 percent.

Figure 17.

FEMA IA and Insurance

	Percent with No Home Owners Insurance	Percent with No Flood Insurance	Percent of those with No HOI who received assistance	Percent of those with No FI who received assistance
ALICE	69%	90%	90%	98%
65 years and older	22%	65%	75%	74%
Total	38%	64%	80%	81%

Source: FEMA, 2013; Hoopes Halpin, 2012.

Households without insurance had much higher rates of assistance than overall registrations. Of those without homeowners insurance and flood insurance, 80 percent and 81 percent

respectively received assistance compared to the overall rate of 24 percent. The rate was even higher for households with income below the ALICE Threshold, where the rate was 90 percent for those without homeowners insurance and 98 percent for those without flood insurance. The rate was slightly lower for those 65 years and older, where the rate was 75 percent for those without homeowners insurance and 74 percent for those without flood insurance.

Thus, FEMA was able to provide a safety net for those without other resources, those with low-income and no insurance, though modest with the average amount being \$5,905 for households with income below the ALICE Threshold. However, there is a notable exception with FEMA providing assistance to 78 percent of those who applied for second homes.

Consequences - Household Survival Budget

The impact from Superstorm Sandy on the average low-income household's budget was severe both in terms of extraordinary expenses and lost income. While some households suffered significant property damage, thousands more had minor damage and other expenses that were not covered by FEMA.

This section examines the impact of Superstorm Sandy on the five categories of the ALICE Household Survival Budget as outlined in the 2012 ALICE Report: housing, child care, food, transportation and health care, and estimates the added financial burden for an ALICE household of 2 adults, an infant, and a toddler, see Figure 18. In addition, due to power outages, blocked roads, and building damage, many employees could not work. This post-Sandy budget analysis also accounts for lost wages.

Housing

Many households with income below the ALICE Threshold faced additional expenses for housing in the month following Sandy. Some decided to stay in their homes and bought generators to provide heat for young children or the elderly; the most basic generator costs at least \$500. Others were forced to leave their homes due to damage or lack of power. For this example, we estimate an inexpensive hotel room for 4 people at \$100 a night for 3 nights, increasing their monthly housing cost from \$1,217 to \$1,517.

Child care

Families are responsible for their child care fee even if they do not use the facility, and even if the center is closed, according to standard policy, no different than a snow day. Family child care operations are not as formal as child care centers and some did not charge for the full time they were closed. However, child care centers are lean operations and cannot afford to forego income (Morris, 2013). Thus, for this budget there is no change to the child care cost.

Food

There was the obvious loss of food in a refrigerator and freezer without power. There were also additional costs for eating out if there was no power to cook. Food was clearly a concern for many households, it was the number one reason people called NJ 2-1-1 in the two weeks following Superstorm Sandy. In fact, 30 percent of calls were for information about the Disaster Supplemental Nutrition Assistance Program (NJ 211, 2013). For a family of four, an estimate of

increased cost for food includes replacing food in the refrigerator, \$300, and added expense from 8 fast food meals, \$200, nearly doubling the budget to \$1,048.

Figure 18.

Household Survival Budget, New Jersey Average

2 adults, 1 infant, 1 toddler			
<u>Expenses</u>	Monthly, 2010	Sandy change, 2013	Total
Housing	\$1,217	\$300	\$1,517
Child care	\$1,319		\$1,319
Food	\$548	\$500	\$1,048
Transportation	\$463	\$50	\$513
Health care	\$397		\$397
Miscellaneous	\$443	\$500	\$943
Taxes	\$488		\$488
Monthly total	\$4,875	\$1,350	\$6,225

<u>Income</u> = \$14.62/hour for two adults	\$4,875	(\$1,404)	\$3,471
Balance	\$0		(\$2,754)

Source: Hoopes Halpin, 2012, and new estimates from this Report.

Health care

Some residents sustained injuries from emergency evacuation or rescue, but most health care expenses will occur in the future from long-term exposure to contaminants, such as flood water or mold. For this budget, health care costs remain the same primarily because households with income below the ALICE Threshold typically do not have insurance and only seeks medical attention in an emergency.

Transportation

The storm caused significant damage to roads and public transportation as well as to personal autos. According to DOBI there were over 50,000 private auto insurance claims reported in the aftermath of Superstorm Sandy. The average paid loss was \$11,336, but most claims, 57 percent, were between \$5,000 and \$9,999 (DOBI, 2013). For those without insurance, estimated to be 11 percent of New Jersey drivers (Insurance Research Council, 2011) and most likely more prevalent among low-income households, damage to their cars would not be included in insurance claims data. The owners of these uninsured vehicles face the full cost of replacement.

With roads closed and slow or intermittent public transportation, as well as gasoline shortages, New Jersey residents faced difficult commutes. For those who drive to work, their commute was hampered by traffic and gas shortages. For those who rely on mass transit, tunnels and subways to New York were closed due to flooding; many vital rail lines in suburban New Jersey were suspended for 1-2 weeks. New Jersey Transit lost one in four of its cars, rail lines were washed away, and service was disrupted in some areas for two weeks, in others up to 3 months. PATH services were suspended for 7 days in most towns and 27 days from Newark (Bernstein and Hinds, 2013; Kaufman et al, 2012). For ALICE's Household Survival Budget, we estimate that transportation costs increased by \$50, the cost of an extra tank of gas needed to travel away from the damaged area or for the added cost to get to work.

Miscellaneous

Households also faced new expenses, such as those for emergency repairs to their housing or car, replacing electrical equipment damaged with the power outages, a generator or fees for missed bill payments. For ALICE's Household Survival Budget, we estimate that miscellaneous expenses would be \$500, doubling the miscellaneous category to \$943.

Meanwhile, all regular bills continued; the rent or mortgage still needed to be paid, as well as auto loans, credit cards, and phone and water bills. Thus, total expenses for the month following Superstorm Sandy increased by \$1,404.

Lost Income

With all the added expenses resulting from the storm, any lost income further challenged a family to recover. However, that was just the case for many who were unable to work due to business interruptions. For some, the consequence was unemployment; 107,300 people lost their job due to damage from Superstorm Sandy. For many more it meant lost wages. According to the U.S. Department of Labor, Unemployment Insurance Weekly Claims Data, 103,882 more people filed unemployment claims in the six weeks after Superstorm Sandy than during the same period the year before, and 120,241 more than the six weeks prior to the storm. In addition, there were 3,974 claims for Federal Disaster Unemployment Insurance (individuals that are out of work because of a disaster, but do not qualify for regular unemployment benefits). Of these, 86 percent were approved and benefits paid through June 2013 (Preston, 2013).

While the total cost of lost wages will eventually be known, it has not yet been published by the New Jersey Department of Labor or a payroll company such as ADP. For this report, an estimate of lost wages by households with income below the ALICE Threshold was calculated and presented above in the Household Hardship Index (number of days with no power multiplied by the number of households with income below the ALICE Threshold, times \$15/hour for 8 hours/day). According to this calculation, there were \$832 million in lost wages for households with income below the ALICE Threshold, on average \$760 per household. Essex County had the largest loss with \$294 million, followed by Bergen County with \$252 million and Essex County with \$101 million, see Figure 19. In terms of the average amount per household with income below the ALICE Threshold, the largest amount was in Monmouth County with \$1,277, followed by Union County with \$1,120 and Somerset and Sussex counties with just over \$1,000. The least was in Salem and Cumberland counties with \$240.

Figure 19.

Lost Wages for Households with Income below the ALICE Threshold

	Lost wages	Per household
Essex	101,157,730	\$ 869
Ocean	87,825,227	\$ 933
Hudson	86,220,017	\$ 852
Monmouth	83,408,432	\$ 1,277
Bergen	75,506,325	\$ 751
Union	68,181,367	\$ 1,120
Middlesex	67,794,562	\$ 834
Passaic	61,200,438	\$ 859
Somerset	35,359,387	\$ 1,091
Morris	32,177,370	\$ 791
Mercer	22,215,717	\$ 607
Sussex	19,316,020	\$ 1,041
Burlington	19,211,410	\$ 381
Atlantic	16,094,304	\$ 358
Camden	15,390,638	\$ 254
Hunterdon	11,556,111	\$ 778
Gloucester	9,370,892	\$ 282
Cape May	7,876,424	\$ 392
Cumberland	5,826,829	\$ 240
Warren	3,785,404	\$ 267
Salem	3,441,858	\$ 240
Total	832,916,461	\$ 760

Source: NJ DOE, 2013; Hoopes Halpin, 2012.

Assuming that one or both parents could not work at their hourly wage job, their income decreased, further challenging their ability to cover the increase in expenses. As means of example, if two parents were unable to work at their \$14.62/hour job for 6 days, a family lost \$1,404 in income in the month following Sandy. Thus, in this example, the monthly balance was negative \$2,754. While this amount would be difficult for nearly any family to cover, for a family with little or no savings, this is crippling, accounting for more than a 50 percent of their normal monthly income, and 5 percent of their total annual income.

IV. MUNICIPAL RESPONSE

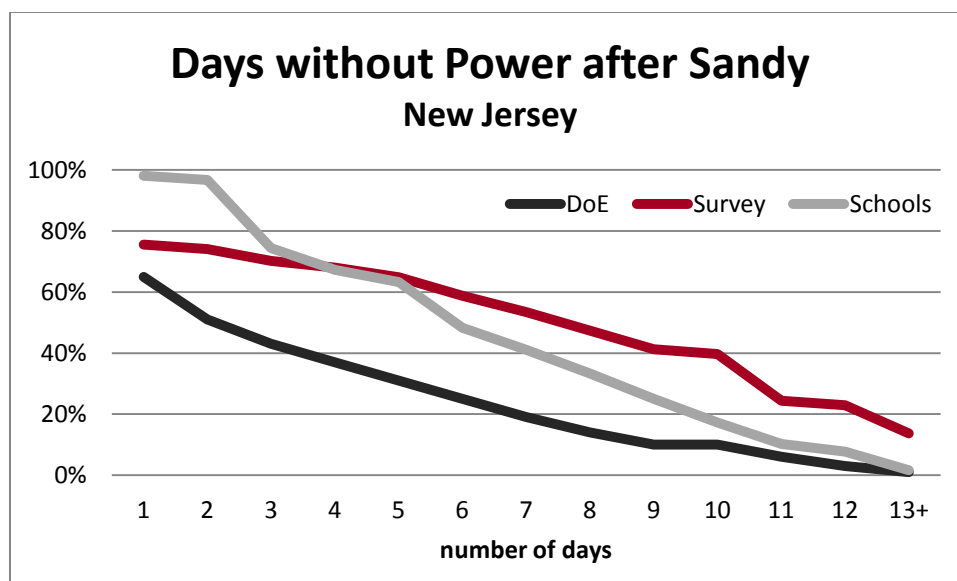
Municipalities are the front line response to a disaster. Their staff not only includes first responders, police and fire, but second responders, such as Department of Public Works, and school and health officials. A survey conducted in partnership between the School of Public Affairs at Rutgers-Newark and the New Jersey League of Municipalities during the spring of 2013 provides insight into the impact not only of wind and flood damage, but power outages and gas shortages, and fills in gaps from state statistics, news reports, and the New Jersey Department of Community Affairs Action Plan. Supplemented by dozens of interviews with senior administrators and community leaders, this section provides data on the municipal role in power restoration, debris removal, communications, emergency shelter, as well as how the towns used outside assistance and managed financially.

Of the 533 municipalities that reported damage, 140 completed the Survey, a 25 percent response rate. These towns cover 32 percent of all New Jersey households and provide a representative sample of municipalities across the state. For Survey details, see Appendix D.

Pervasiveness of Power Loss

Of all the states in the region, New Jersey suffered the most in terms of power outages from Superstorm Sandy. New Jersey had the largest number of customers without power at the peak, 2.6 million, and the largest percent of customers without power, 65 percent, according to the U.S. Department of Energy, see Figure 20 (Mansfield and Linzey, 2013).

Figure 20.



Source: DOE, 2012; Sandy Municipal Survey, March 2013; and NJ Department of Education, 2013.

Even 10 months after the storm, there is no accurate record of which customers were without power and for how long. Outage numbers reported by the power companies varied between their websites, e-mails, the Board of Public Utilities compilations, and official statements. This reflects the fact that the power companies did not have a reliable system to determine if a customer was without power. Ralph LaRossa, the president of PSE&G, admitted, "We look antiquated" (Friedman, 2012).

Analysis of the power companies' estimates shows that the information provided by both PSE&G and JCP&L did not match the survey data in 50 percent of towns. This led us to find an alternative measure of power outages: the number of days the public schools in a town were closed was selected as the alternate metric. The results of the Sandy Municipal Survey and schools closings data suggest that there were wider outages of longer duration than reported by the power companies. While the power companies report that half of the customers were without power for only 2 days, the majority of schools were closed for more than 6 days and the survey reports that the majority of towns were without power for more than 7 days (as shown in Figure 1).

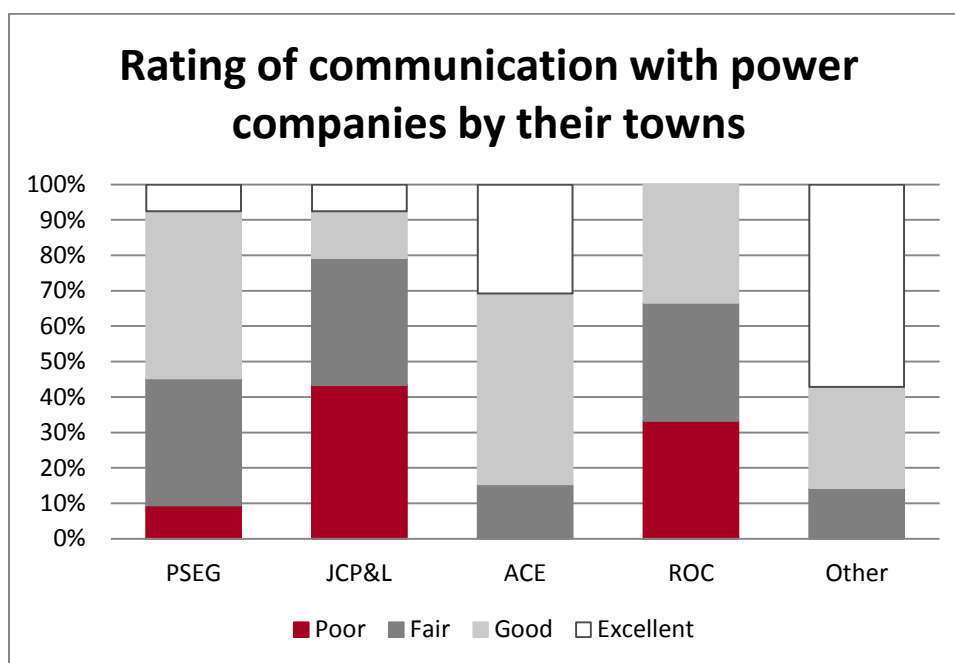
Power outages were caused by damaged substations and power plants as well as downed utility poles. 68 percent of towns reported utility poles down immediately after the storm with an average of 38 down per town. Thus, towns had to deal with the possibility of live electric wires across roads and properties, all while functioning without key infrastructure. According to the Sandy Municipal Survey, 62 percent of towns reported no power at their police station, 65 percent at their fire station, 76 percent at the municipal building, and 52 percent lost power for their water/sewer facility.

The detrimental effect of the power outages was exacerbated by the gasoline shortage that hit New Jersey in the days following Superstorm Sandy. According to the Sandy Municipal Survey, 95 percent of towns had generators to help power their municipal facilities, but fueling them became an issue. While 52 percent reported that they almost ran out of gasoline to power their generators, only 9 percent actually ran out. Finding gasoline supplies, however, took considerable time and energy of municipal personnel (Schneider, 2012; Tovo, 2013, Amoruso, 2013).

Because so much recovery activity depended on having power, inaccurate and infrequent information made it difficult to plan and meet the challenges of clearing roads, setting up shelters, getting residents to shelters, and communicating information to residents. In some instances, towns and shelters were not equipped to help residents who needed it the most - those with special needs and those who didn't have a generator or alternative housing.

Most towns reported that they were disappointed with the quality of communication from their power company. According to the Survey: 53 percent rated the quality of communication as poor or fair, while 47 percent rated it as good or excellent, see Figure 21. ACE was the exception, receiving 85 percent good and excellent ratings, and the next closest was PSE&G with 55 percent. JCP&L received the highest percentage of poor and fair ratings with 79 percent, and Rockland received 67 percent.

Figure 21.



Source: Sandy Municipal Survey, 2013.

The New Jersey's Board of Public Utilities records the wide range of complaints made by utility customers. The largest number in recent history were from JCP&L customers after Superstorm Sandy; 3,200 of JCP&L's 1.2 million customers complained to BPU's hotline between November 1-14, 2012. In comparison, only 719 of PSE&G's 2.2 million customers logged a complaint (Hennelly, 2012).

Despite the fact that the two largest providers, PSE&G and JCP&L, had equally inaccurate data, their communications were rated very differently by town officials in their Survey responses. PSE&G was rated significantly better than JCP&L. This is most likely due to the quantity of communication, rather than the accuracy of the information. It was well noted during and after the storm that PSE&G sent regular e-mails to towns and customers, posted more information on their website, and had a twitter feed. In interviews, towns and residents repeatedly complained that JCP&L provided minimal information to its customers.

Dealing with Debris

One of the biggest issues municipalities had to address in the aftermath of Sandy was clearing debris from roads and infrastructure and then removing it to landfills. The Survey responses confirmed the FEMA estimates that there were 6 million cubic yards of debris across the state in the immediate aftermath of Superstorm Sandy (which would fill 1,770 Olympic size swimming pools). According to FEMA, there were an additional 2.5 million cubic yards of sand and silt that needed to be removed from the road and waterways (@FEMASandy, 2013)

While this is an enormous amount, it is significantly less than the amount generated by other storms of this magnitude. For example, there were 38 million CY of debris removed from New Orleans after Hurricane Katrina (Times-Picayune, 2011).

FEMA debris experts were on the ground in New Jersey within 3 days of landfall by Superstorm Sandy. Visiting each municipality, they estimated the amount of debris to be collected as the basis for future reimbursement.

In terms of collecting debris, towns reported using multiple means. Of the 107 towns responding to the debris questions, 74 percent reported using their own personnel to collect the debris, 45 percent used a contractor with whom they had an existing contract, 8 percent used a new contractor, and 3 percent used a contractor selected from a state or federal Cooperative Purchasing Program, see Figure 22. In terms of removing debris, 57 percent reported using their own personnel for debris removal, 46 percent used a contractor with whom they had an existing contract, 13 percent used a new contractor, and 3 percent used a contractor selected from a state or federal Cooperative Purchasing Program.

Figure 22.

Methods for Collecting and Removing Debris after Sandy

	Debris Collected	Debris Removed
Town Personnel	74%	57%
Existing Contractor	45%	46%
New contractor	8%	13%
Cooperative Purchasing Program	3%	3%

Source: Sandy Municipal Survey, 2013.

Towns had to improvise to get the job done, especially working with downed, potentially live power lines. State regulations prohibit working in areas of downed power lines until the utility company verifies they are not live. Yet the utility companies were overwhelmed and were not able to provide this service in a timely manner. Many towns resorted to hiring their own electrician to test the power lines (Amoruso, 2013; Reiman, 2013).

Establishing Shelters

Shelter was a major service provided by towns in the immediate aftermath of the storm. The need is evident from the number of calls received by NJ 2-1-1; 23 percent of all calls in the two weeks following Superstorm Sandy were about evacuation shelters (NJ 2-1-1, 2013). Of the 138 towns that responded to the Survey questions about shelters, 86 percent had a shelter in their town. The largest amount, 47 percent, were run by town personnel. The county ran 24 percent of the shelters, and the rest were distributed between the Red Cross, faith based groups, and

other non-profits. The shelters were open from 1 to 20 days with an average of 3 days, and were used by over 17,698 people. Of those, 3,946 stayed overnight.

Shelters primarily provided heat, food, and beds. Many provided additional services: charging stations were offered by 46 percent of shelters, and FEMA application information was offered by 24 percent of shelters. A major concern for many seeking shelter was what to do with their pet. The Sandy Municipal Survey records that 19 percent of shelters provided accommodation for pets.

The shelters were staffed from multiple sources: 39 percent were staffed by town personnel, 33 percent were staffed by local volunteer groups, and 12 percent were staffed by out-of-town volunteers. Additional shelters were provided by county level staff for special populations such as Mennan Arena for homeless and mentally ill patients and Middlesex County College for those needing sub-acute medical care (D'Amico, 2012; Pinto, 2013).

For the whole state, the Red Cross National Shelter System carefully records the number of people using a shelter daily at noon and midnight. Their total for New Jersey recorded that 31,000 residents used shelters (Red Cross NSS, 2013). However, the results of the Sandy Municipal Survey suggest that more than double that number used shelters. The difference may be due to definitions of shelter. Many towns opened municipal buildings and libraries for heat and charging, but were not official shelters that offered food and overnight accommodation. Thus, towns met the needs of their residents in ways that are not recorded in official statistics.

Effectiveness of Communication to Residents

Because of the extent of damage and power loss, residents were eager for information; towns were challenged to provide it. Of the 106 towns responding to the questions about communication, most reported using the town's website as their primary means of disseminating information, see Figure 23. More than 80 percent of towns had a website in place before Superstorm Sandy and 80 percent used it in the two weeks after the storm. Cell phones, land line mass notification systems, and e-mails were also highly used. More than 60 percent of towns had these communication tools in place before the storm and each was used by more than 60 percent of towns in the two weeks after Superstorm Sandy. Radio communication was in place in 19 percent of towns and community bulletin boards were in place in 34 percent of towns and used accordingly.

Communication challenges in the wake of Superstorm Sandy galvanized many towns to add new media capacities. For Facebook, 43 percent of towns had an account established before the storm and yet 48 percent reported using it in the two weeks after the storm to communicate with residents. For Twitter, 26 percent of towns had an account established before the storm and yet 29 percent reported using it in the two weeks after the storm. For cable access channel, 26 percent of towns had an account established before the storm and 28 percent reported using it in the two weeks after the storm.

Many towns improvised using other, more creative forms of communication, including a utility bill stuffer, town meetings, local newspapers, flyers or hand delivered letters, and door-to-door

communication. The most commonly mentioned “other” form of communication however was Nixle Emergency Alert. Nixle is a notification system for verified government agencies to send messages to local residents via phone, email, and web. Information is delivered almost instantly to geographically targeted consumers. In the Survey comments, many towns noted that they would use this service in the future.

Figure 23.

Types of media towns have to communicate with residents

	In place before Sandy	Used during Sandy
Website	84%	80%
Cell phone	70%	66%
Land line mass notification system	69%	62%
E-mail	66%	62%
Facebook	43%	48%
Community bulletin board	34%	30%
Twitter	26%	29%
Cable access channel	26%	28%
Other	18%	24%
Radio	19%	19%

Source: Sandy Municipal Survey, 2013.

In terms of frequency, 77 percent of towns communicated with their residents at least once a day in the two weeks following Superstorm Sandy. With various forms of media, these towns responded that they communicated “about once a day” or “several times a day.” Most used their website daily, followed by cell phone and e-mail, but there was great variation across towns.

Towns were prepared with different communication methods, in fact, 96 percent used 3 or more forms of communication. Due to power outages and inoperable cell phone towers, this redundancy proved useful. In the Survey responses, several towns commented that they needed to improve their off-site communication capabilities.

Utilizing Outside Assistance

After a one-in-a-hundred year storm, a key question was whether towns had the capacity to maintain safety and basic services. In addition to outside assistance for debris collection and removal, of the 140 towns responding, 79 percent reported using information, supplies, manpower, or financial assistance from outside organizations to limit disruptions in municipal services in the month after the storm; most reported using more than one kind of assistance. The most common type of assistance was information; 53 percent of towns responded that they received information from outside sources, see Figure 24. In addition, 25 percent received supplies, 19 percent used manpower from outside groups, and only 4 percent received financial

assistance. Even when information was not included as a category of assistance, 70 percent of towns reported receiving outside assistance.

Figure 24.
Types of Assistance to NJ Towns

Information	53%
Supplies	25%
Manpower	19%
Finance	4%

Source: Sandy Municipal Survey, 2013.

Towns reported 12 different sources for assistance, see Figure 25. Interestingly, much of the assistance was home-grown, coming from local residents, businesses, and groups. Other than local efforts, County Offices of Emergency Management provided the most assistance with 16 percent of the total, followed by FEMA with 11 percent. The utility companies provided 9 percent, the New Jersey Office of Emergency Management 8 percent, and the Red Cross and Salvation Army provided 6 percent. New Jersey departments, such as HUD or NJDCA, and social media each provided 5 percent, neighboring towns provided 4 percent and outside groups provided only 2 percent.

Figure 25.
Sources of Assistance to NJ Towns

% of total assistance	
County OEM	16%
Town residents	11%
FEMA	11%
Local businesses	11%
Local group	10%
Utility	9%
NJ OEM	8%
Red Cross or Salvation Army	6%
NJ Department	5%
Social media	5%
Neighbor town	4%
Outside group	2%

Source: Sandy Municipal Survey, 2013.

Several towns highlighted the effective role individual residents, local groups, and local businesses played immediately following the storm. In fact, businesses were essential to providing gas during rationing, emergency supplies, and building supplies. Home Depot and Lowe's stores throughout New Jersey positioned FEMA building specialists in stores for weeks after the storm to offer advice on repairing and/or rebuilding homes. The role of businesses in disaster response was so clear, that the head of Morris County OEM noted that for the next disaster they would include a seat for the local chamber of commerce in the Emergency Operations Center (Schneider, 2012; Paul, 2013).

While outside assistance increased over time, it was not available in the immediate aftermath of the storm. Because the storm path was so wide, all towns were in the same circumstances, leaving them primarily on their own to deal with the crisis in their municipality. Town officials recounted the way their municipal staff rose to the challenge, adapting quickly to changing circumstances, and displaying extreme dedication. They emphasized their ingenuity in the face of repeated challenges (Amoruso, 2013; Keen, 2013; Paul, 2013; Schneider, 2012). Significant amounts of aid from FEMA and relief agencies did not come until weeks or months later. This is particularly true for FEMA Municipal Public Assistance; only 4 percent of towns reported that they had received FEMA financial assistance at the time of the Survey in March. This number rose significantly as time elapsed. According to the New Jersey Comptroller, 81 percent of all New Jersey towns had received FEMA assistance by July 2013.

Towns seemed to be proud of their self-sufficiency following the storm. While they reported using resources that were available, the common perception was that they did not need them to maintain basic services. When asked directly in the Survey if they required assistance beyond their municipal staff to maintain municipal services (i.e. from the state or federal government or nonprofit groups), 96 percent said that they did not.

This sentiment is captured in some of the comments provided from the Survey respondents, for example, "We have to be more self-reliant as assistance did not come quickly enough."

Dealing with Lost Revenue

The impact of Superstorm Sandy was also severe in financial terms. Many towns lost revenue. According to the Survey, 19 percent reported losing a part of the town's ratable base, ranging from .03 to 8 percent; 3 percent of towns reported losing 5 or more percent. Similarly, 18 percent of towns reported losing from 1 to 10 percent of total non-property tax revenue, such as fees and fines; 4 percent of towns reported losing 5 or more percent.

The Press of Atlantic City estimates that total property values in New Jersey dropped by \$4.3 billion, and the Star-Ledger estimates they dropped by \$5 billion, costing local government more than \$77 million in revenue. Ocean County lost \$3.6 billion from its total ratable base due solely to storm damage and Monmouth County lost \$511 million, followed by Atlantic County with \$72 million, and Cape May County with \$26 million. Outside these counties, no municipality lost more than 1 percent of its tax base, except Downe on the Delaware Bay in Cumberland County (Procida, 2013; Star-Ledger, 2013). The hardest hit town, Seaside Heights had its bond rating

lowered and 5 other municipalities were issued warnings, making it harder to borrow (Star-Ledger, December 2012). At the same time, these towns faced significantly greater expenses.

To fill the budget gap from lost revenue, FEMA offers a Community Disaster Loan program for any town with projected revenue shortfall of at least 5 percent (lost tax ratables, as well as parking meters, hotel taxes and beach badges). As of August 2013, 33 towns had applied to the Community Disaster Loan program (Star-Ledger, 2013).

Exorbitant Additional Expenses

In terms of expenses, of the 100 towns responding to the Survey questions about expenses in the aftermath of Superstorm Sandy, all incurred numerous expenses that were not included in their current budget. The most common expense was overtime for town employees, see Figure 26. In fact, 96 percent of towns paid Department of Public Works personnel (DPW) overtime, 87 percent paid public safety personnel overtime, and 57 percent paid overtime for other town personnel. Towns also incurred expenses for non-personnel costs; 72 percent had costs for debris collection and removal; 60 percent had costs for supplies, 40 percent had expenses for infrastructure repairs, and 27 percent incurred expenses for office supplies. Other expenses were incurred by 11 percent of towns, including costs for temporary help, food, gasoline for generators, outside crane equipment, and library repairs.

Figure 26.

Expenses incurred beyond current budget by category

Overtime for Department of Public Works personnel	96%
Overtime for public safety personnel	87%
Non personnel cost for debris collection and removal	72%
Office of Emergency Management supplies	60%
Overtime for other town personnel	57%
Non personnel cost for Infrastructure repairs	40%
Supplies	27%
Other	11%

Source: Sandy Municipal Survey, 2013.

Rough estimates for expenses for towns total \$2.2 billion. Assessments for damaged infrastructure reveal staggering costs. The greatest damage was to transportation with an estimate of \$882 million, followed by schools with \$401 million, then public and community buildings with \$386 million, utilities with \$277 million, and public health facilities with \$21 million, totaling \$1.97 billion. In addition, towns lost an estimated \$77 million in lost revenue (Star Ledger, 2013). However, the state estimates that there is an additional cost of \$23.5 billion to fully address necessary hazard mitigation work (NJDC, 2013). In addition, extraordinary costs for debris removal total \$171 million (Rouse, 2013; Office of the Governor, June 2013).

Towns used a multitude of means to cover expenses after Sandy, see Figure 27. In addition to their current budget, towns were forced to use additional means to recoup excessive expenses: 38 percent made an emergency appropriation, 33 percent borrowed funds until they received reimbursement from FEMA, 14 percent used funds from their snow removal trust fund, and 5 percent used long-term borrowing. At the time of this Survey, 15 percent of towns planned a tax increase, which later proved unnecessary. Other funding methods were used by 13 percent of towns, including utilizing insurance and budget surpluses.

Figure 27.

Methods to pay for additional costs

Current budget	81%
Emergency appropriation	38%
Borrow until reimbursed by FEMA	33%
Tax increase	15%
Snow removal trust fund	14%
Borrow - long term	5%
Other	13%

Source: Sandy Municipal Survey, 2013.

FEMA announced in January 2013 that it would provide Public Assistance funds to New Jersey towns to bear this financial burden. As of July 2013, FEMA had allocated \$262 million to 457 towns (81 percent of towns) across the state (New Jersey Office of the State Comptroller, 2013). FEMA Public Assistance can be used for immediate expenses such as debris removal, emergency protective measures, as well as reparations to infrastructure damage, such as road systems and bridges, water control facilities, public buildings and contents, public utilities, and parks and recreation (Public Assistance, FEMA.gov, 2013; FEMA, April 2013; NJ Office of the Governor, June 2013). Thus, FEMA Public Assistance funds have prevented the need for towns to raise taxes and ensured that most could maintain a balanced budget.

In addition, some damage costs are remediated by state agencies, for example \$30 million has been provided directly to New Jersey Transit and \$224 million to NJ Department of Transportation (Rouse, 2013).

Because FEMA was a reliable source to reimburse emergency costs, towns could plan, borrow, and complete essential work (Amoruso, 2013; Keen, 2013; Razzoli, 2013; Schneider, 2012). Even towns that lost part of their tax base were eligible for FEMA loans, enabling them to develop a plan for their recovery.

V. HOW WELL DID RESOURCES MEET NEEDS?

This section compares the needs with all available resources, examining the residential sector, overall and low-income, and the commercial and municipal sectors, see Figure 28. This analysis is intended to highlight gaps, and therefore opportunities, to improve provision and allocation of resources, as well as where to build resilience before the next disaster strikes.

Figure 28.

Financial Impact of Sandy on Communities and Households

\$ millions				
	Communities			
	Residents	Businesses	Municipalities	Vulnerable Households
Expenses				
Cost of damage	\$ 5,929	\$ 1,684	\$ 1,970	\$ 2,787
Lost income	\$ 1,383	\$ 1,873	\$ 77	\$ 1,089
Extra expenses	\$ 532		\$ 171	\$ 250
Total expenses	\$ 7,844	\$ 3,557	\$ 2,218	\$ 4,125
Income				
Insurance payments	\$ 5,365	\$ 1,161		\$ 966
Private assistance (nonprofit or biz)	\$ 146			\$ 146
Public Assistance	\$ 816		\$ 516	\$ 590
Total income	\$ 6,327	\$ 1,161	\$ 516	\$ 1,702
Gap	\$ 1,517	\$ 2,396	\$ 1,702	\$ 2,424
Loans	\$ 630	\$ 186	\$ -	\$ 195
Remaining gap	\$ 887	\$ 2,210	\$ 1,702*	\$ 2,229
* plus \$23.5 billion for hazard mitigation				

Source: FEMA, 2013; DOBI, 2013; SBA, 2013; Star-Ledger, 2013; also see Figure 29.

Were the needs of New Jersey residents met?

Overall, Superstorm Sandy caused the greatest financial damage in the residential sector. Initial estimates were that 56,077 housing units suffered major or severe damage, 22,000 of those units were rendered uninhabitable; total damage was estimated to be \$4.97 billion (DCA, 2013; Blake, et al, 2013; NJ Office of the Governor, 2012). However, insurance claim data as of May 2013 reveal that the incurred loss for the residential sector was significantly greater, totaling \$5.9 billion. Since this estimate only includes insured properties, the real impact is even higher.

New Jersey residents were also impacted by lost work. Most dramatically, 107,300 people lost their job due to the storm (BLS, 2012). Assuming these individuals remained unemployed for 6 weeks, the lost income totaled \$515 million (based on an average hourly rate of \$20/hour). In addition, there were substantial lost wages due to closed businesses, estimated to be \$868 million (see Section II). In total, lost income accounted for a total of \$1.38 billion.

In terms of expenses, most households faced additional unexpected costs. For example, the National Insurance Crime Bureau estimates 60,000 vehicles were damaged from Superstorm Sandy (NICB, 2013). According to the case incurred loss of private insurance claims, the total personal auto damage was \$532 million. Since this estimate only includes insured autos, the real impact is even higher. There were also additional expenses for spoiled food, a generator, or emergency travel or accommodation, for which there was no reimbursement.

A smaller group of residents are still facing steep unexpected costs, those for immediate hazard mitigation, primarily to elevate homes to meet the new FEMA flood plain guidelines. To date, there has been no estimate for this cost and therefore no way to estimate if the small amount of FEMA household hazard mitigation funds are sufficient.

Were these needs met?

- \$5.37 billion: amount paid by private insurance, including \$1.5 billion for private residential and \$532 million for personal auto.
- \$3.3 billion: amount from private and National Flood Insurance Program (prorated reflecting that 95 percent of NFIP policies are residential; NFIP, February and July 2013)
- \$816 million: amount public assistance provided, including \$389 million from FEMA IA, \$393 million from unemployment benefits based on the maximum benefit of \$611/week for 6 weeks, and \$33.6 million from Department of Human Services.
- \$146 million: amount relief organizations have raised for families impacted by Superstorm Sandy, detailed in the next section.

Thus, there is a gap of \$1.5 billion in covering costs to residents. However, the Small Business Administration (SBA) has provided \$630 million in home disaster loans, leaving unmet need of \$887 million.

Were the needs of households with income below the ALICE Threshold met?

A subset of the residential group, households earning below the ALICE Threshold, were disproportionately impacted. These households were more likely to incur damage and have fewer resources to respond. Of the \$7.8 billion in residential damage, we estimate that households with income below the ALICE Threshold incurred \$4.1 billion. This is comprised of the following:

- \$2.79 billion: housing damage (prorating the total residential amount according to the FEMA award rate of 47 percent of registrations for households with income below the ALICE Threshold)
- \$832 million: lost wages
- \$257 million: jobs lost in the 6 weeks after Sandy. This is based on the fact that tourism was the industry most affected by the Storm, which is comprised primarily of retail trade (56.8 percent of employment) and food services/drinking places (29 percent) (DCA, 2013). Since these are primarily low paying jobs, we estimate two-thirds were held by households earning below the ALICE Threshold.
- \$250 million: auto damage (prorating the residential auto amount according to the FEMA award rate of 47 percent of registrations for households with income below the ALICE Threshold)

Were these needs met?

In terms of meeting the need of households with income below the ALICE Threshold, there were three sources - private insurance, non-profits, and public assistance - providing \$1.7 billion.

- \$966 million: Insurance provided for households with income below the ALICE Threshold; as reported in the FEMA IA registrations data, 31 percent had homeowners insurance, \$634 million, and 10 percent had flood insurance, \$332 million (DOBI, 2013; NFIP, February 2013).
- \$146 million: disaster donations raised by non-profit relief agencies (we estimate that all of that is targeted towards households with income below the ALICE Threshold.)
- \$590 million: Public assistance including \$164 million from FEMA, \$33.6 million from the Department of Human Services for Disaster SNAP (DHS, 2013), and \$392 million from unemployment benefits.

Thus, there is a gap of \$2.4 billion, for which there is roughly \$195 million in disaster SBA home loans. The remaining gap is \$2.2 billion for families with the least resources.

There are additional longer term needs that pose an even more serious problem for low-income: the cost of immediate hazard mitigation, that has yet to be fully recognized. For example, six towns in Atlantic County are in the top 100 hardest hit Household Hardship towns: Atlantic City, Mullica, Port Republic, Ventnor City, Corbin City, and Somers Point. On top of immediate damage and lost wages, the residents in these coastal towns cannot afford insurance, let alone the costs to elevate their homes to meet the new FEMA flood elevation guidelines.

Did Non-profits meet needs of households with income below the ALICE Threshold?

The outpouring of concern and assistance in the aftermath of Superstorm Sandy was large. There was a celebrity concert, texting donations, and truck loads of food and clothing. There were also carloads of volunteers who came to help clean up. How much aid was there? And did it reach those most in need in New Jersey?

While fundraising for Sandy was impressive, it was less than other recent disasters. According to the Center on Philanthropy at Indiana University-Purdue University, in the three weeks following Superstorm Sandy, charities raised \$219 million, compared to \$752 million for the 2010 earthquake in Haiti, \$876 million for 9/11, and \$1.3 billion for Hurricane Katrina in 2005 (Sullivan, 2012).

As of August 2013, the estimated amount raised for Sandy relief specifically in New Jersey was \$146 million. The bulk of money was raised by large, national or statewide organizations that then make grants to smaller, local non-profits who provide the relief services. The top fundraiser was the American Red Cross with \$70 million, followed by the Hurricane Sandy New Jersey Relief Fund with \$38 million and the Robin Hood Foundation with over \$26 million, see Figure 29. Small local fundraisers have also raised money for Sandy relief, and many of those benefited these large organizations and are therefore included in these totals. For example, on CraigConnects' fundraising website, the Red Cross received \$54,000, more than twice the next charity.

Figure 29.
Sandy Relief

Amount Raised for NJ	
American Red Cross	\$ 70,560,000
Hurricane Sandy New Jersey Relief Fund	\$ 38,000,000
Robin Hood Foundation	\$ 26,040,000
Salvation Army	\$ 4,620,000
New Jersey Recovery Fund	\$ 3,800,000
United Way Hurricane Sandy Recovery Fund	\$ 3,220,000
Total	\$ 146,240,000

Sources: Hurricane Sandy New Jersey Relief Fund, 2013; Robin Hood Foundation, 2013; Joslyn, 2012; Strickland, 2012; and Leamy, 2013. Note - for Salvation Army and American Red Cross only total funds raised were available. To determine amount allocated to New Jersey, the Robin Hood Foundation ration of 42 percent was used.

Is \$146 million enough to meet the needs of those impacted? Because nonprofits are not required to report information about how they distribute their money, there is no data detailing the number of individuals served and amounts dispersed. However, if the money were divided

among those who applied for FEMA IA but did not receive assistance, 95,198 applicants, each would receive \$1,538. But far more households were impacted. If all the non-profit funding raised for Sandy relief went only to the 550,000 low-income families who experienced an interruption in wages and uncovered expenses, each would receive a mere \$266, see Figure 30. These amounts are clearly inadequate to meet the losses suffered.

In the wake of Superstorm Sandy, there was unprecedented coordination among nonprofits in an effort to reach as many suffering households as possible. Catholic Charities took the lead in overseeing the case work, but a wide range of groups are providing services. The process can be cumbersome, but the biggest problem is the lack of resources.

In addition to money, there have been large numbers of volunteers. FEMA reports that 507 volunteer organizations have participated in the recovery effort in New Jersey and 166,598 volunteers have contributed 951,731 hours helping with flood debris cleanup, home repairs and reconstruction, as well as providing short-term needs, such as food, clothing and shelter assistance, and counseling services (FEMA.gov, 2013). In terms of connecting those in need to relief services, each non-profit organization has their own network.

Clearly charitable donations and volunteer efforts have made a huge difference for individual families; however, the majority has probably not received any assistance. No matter how \$146 million is distributed, the huge amount of need of those most impacted will not be met.

Figure 30.

ALICE households average possible Sandy assistance

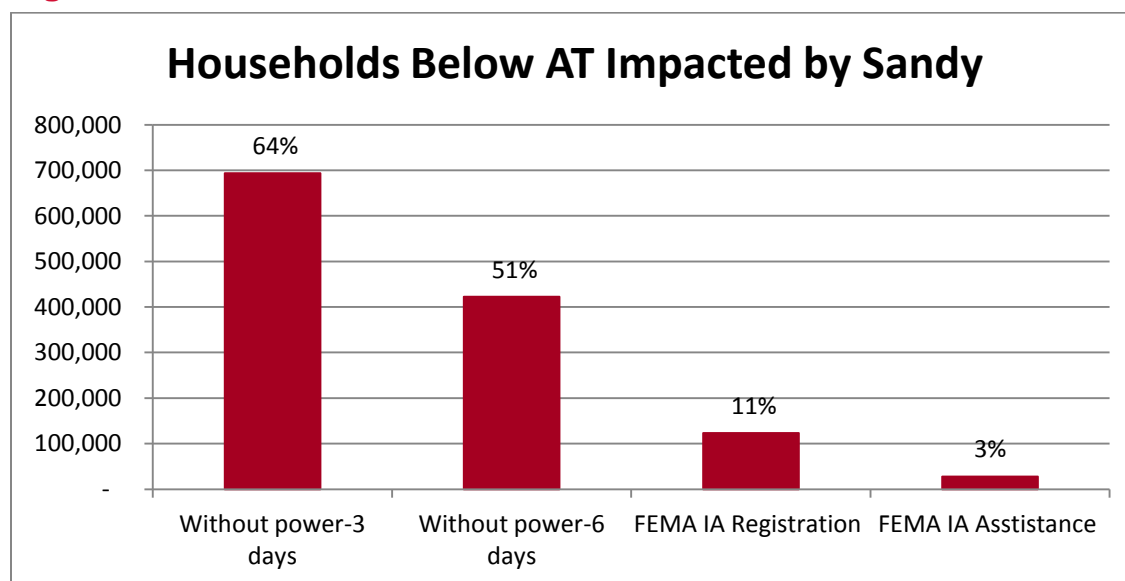
	Number of Households	Average grant	Average volunteer hours received
Property damage with FEMA (actual)	27,780	\$ 5,905	8
Property damage, no FEMA, non-profit relief (possible)	95,198	\$ 1,538	8
Reduced income, increased expenses non-profit relief (possible)	553,000	\$ 266	2

Sources: Hurricane Sandy New Jersey Relief Fund, Robin Hood Foundation, Joslyn, 2012; Strickland, 2012; Hoopes Halpin, 2012; DOE, 2012.

Did government programs meet needs of households with income below the ALICE Threshold?

With widespread hardship, it is surprising that only 11 percent of households below the ALICE Threshold applied for FEMA IA. When compared to the number of these households that were without power and therefore lost wages and incurred additional expenses, it is even more puzzling, see Figure 31.

Figure 31.



Source: DOE, 2012; FEMA, 2013; Hoopes Halpin, 2012.

Using the Department of Energy estimate, which is a very conservative figure as discussed earlier in this Report, at least 693,700 households below the ALICE Threshold, 64 percent, suffered some hardship from 3 days without power, from losing food in the refrigerator to a day of lost wages, and 422,200 households below the ALICE Threshold, 39 percent, were without power for at least 6 days and thus incurred extraordinary expenses and more days of lost work.

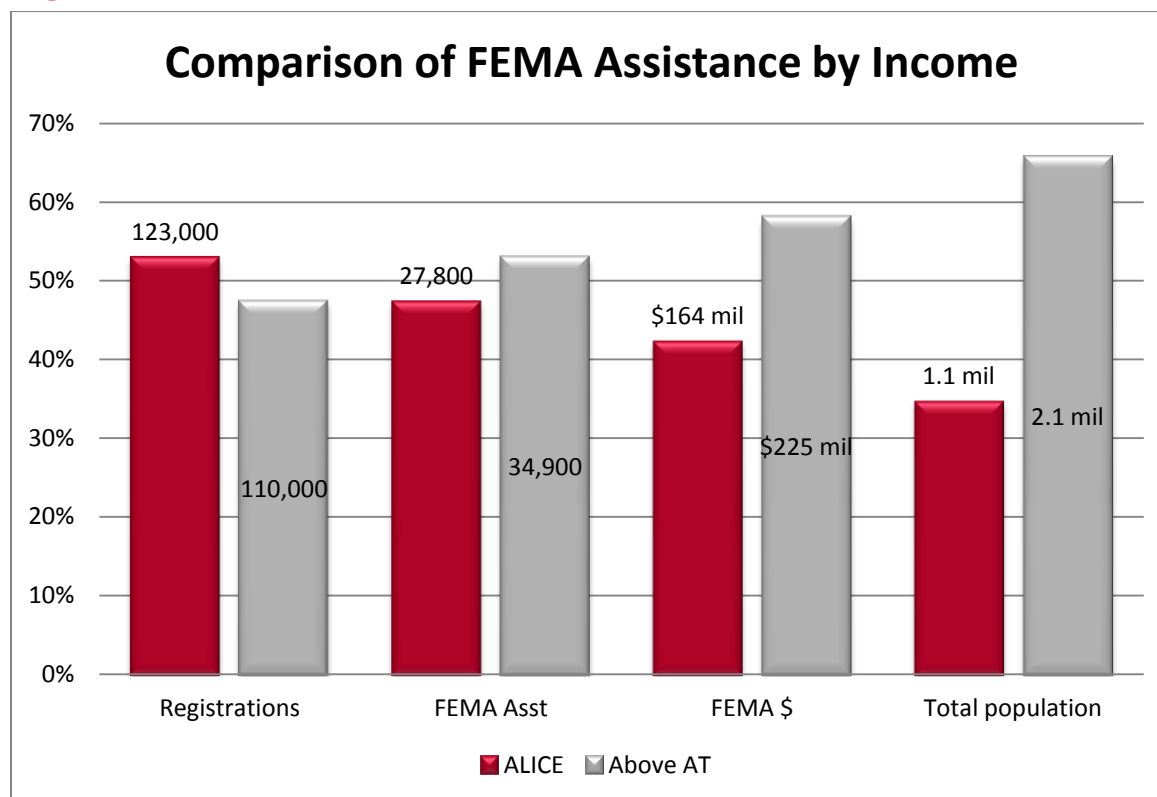
With so many households below the ALICE Threshold impacted by the storm, it is curious that so few applied for FEMA IA, a program designed to help for those who "are unable to meet the needs through other means" (FEMA, "Assistance to Individuals and Households Fact Sheet"). Any insight into the reason why this discrepancy occurred may help more vulnerable families receive the assistance they need in after a future disaster.

Who got what assistance?

The primary source of assistance has come from FEMA IA, totaling \$164 million, which was distributed to 27,780 owners and renters with income below the ALICE Threshold for an average of \$5,905 per household. In addition, the Department of Human Services provided \$33.6 million in D-SNAP (disaster food stamps), which depending on household size ranged from \$100 for one person to \$668 for a family of four (DHS, 2013) (Vargas, 2013).

Analysis of the FEMA IA individual registrations reveals that they were heavily weighted towards households with income below the ALICE Threshold. While these low-income households represent 34 percent of total households in New Jersey, they accounted for 53 percent of FEMA IA registrations, 44 percent of FEMA awards, and 42 percent of dollars allocated, see Figure 32. In comparison, those with income above the ALICE Threshold represent 66 percent of total households in New Jersey, and accounted for 47 percent of FEMA IA registrations, yet they accounted for 53 percent of FEMA awards and 58 percent of dollars allocated.

Figure 32.



Source: FEMA, 2013; Hoopes Halpin, 2012.

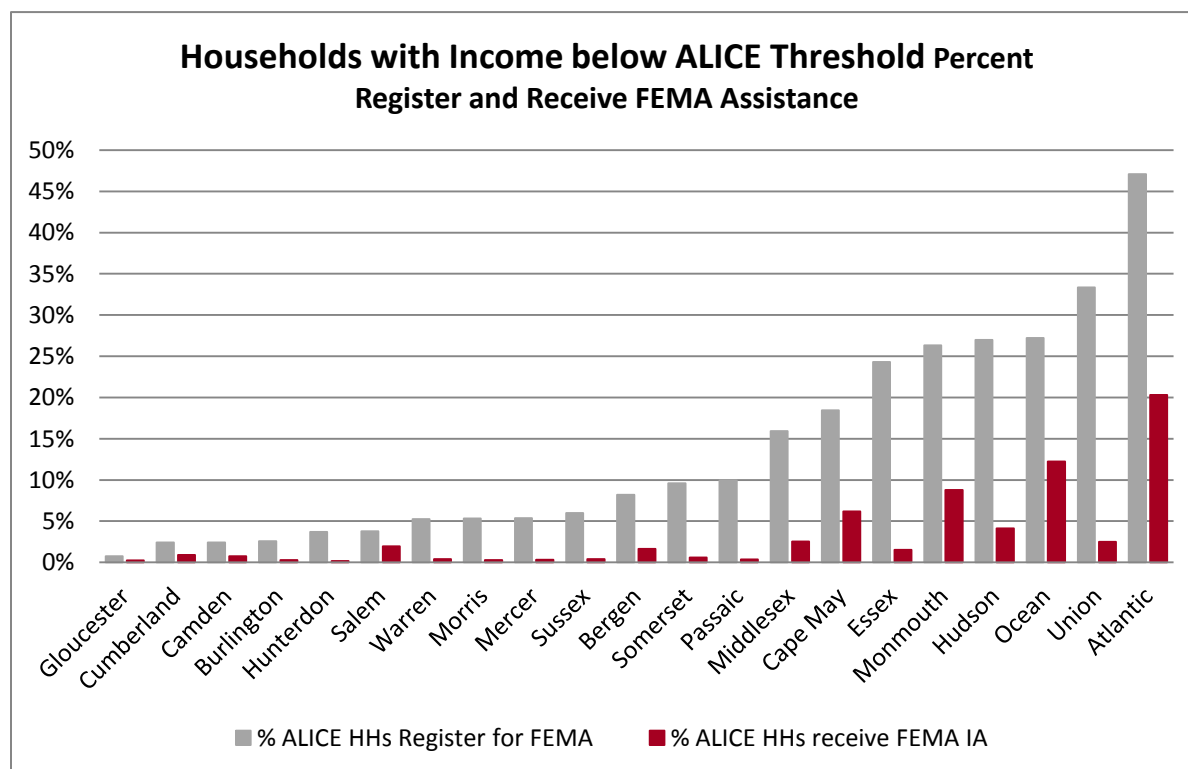
Interestingly, the biggest gap between the two income groups is the amount of financial assistance received, \$164 million for households with income below the ALICE Threshold for an average amount of \$5,905 and \$225 million for households with income above the ALICE Threshold for an average amount of \$7,248. Presumably the expenses of households with higher incomes are greater; however, one could argue that the need for assistance is greater for those with lower income. In either case, the amounts of FEMA assistance are so low that they do not cover a typical disaster expense, such as replacing a flooded boiler, pumping out the ground floor of a house, repairing damaged items such as furnishings, flooring and ceilings, replacing damaged walls or support beams, or cleaning up sewage or other toxic debris that pose health threats. For most, the amount of FEMA assistance received has not been sufficient (NJSpotlight, 2013).

Geographic disparity in FEMA assistance

While FEMA IA targets low-income households, there were large geographic discrepancies in the registration and receipt of assistance. Analysis of FEMA IA registrations reveal that the percent of low-income households who applied for assistance varies widely by county, see Figure 33 (grey bars). This discrepancy could be due to the varying availability of credible and consistent information about who qualifies and how to apply for assistance. Presumably, if information were distributed uniformly to all low-income households, then registrations rates should be the same in every county. This is not the case. The percent of all households with income below the ALICE Threshold that registered for FEMA IA, ranged from 47 percent in Atlantic County to 1 percent in Gloucester County.

Similarly, information about how to complete the application were uniform, the award rate for low-income households would be similar across counties. However, there was a wide range in the rate ALICE households were awarded FEMA IA, though not exactly the same as with registrations, see Figure 33 (red bars). The percent of all households with income below the ALICE Threshold that were awarded FEMA IA, ranged from 20 percent in Atlantic County to .17 percent in Hunterdon County.

Figure 33.



Source: FEMA, 2013.

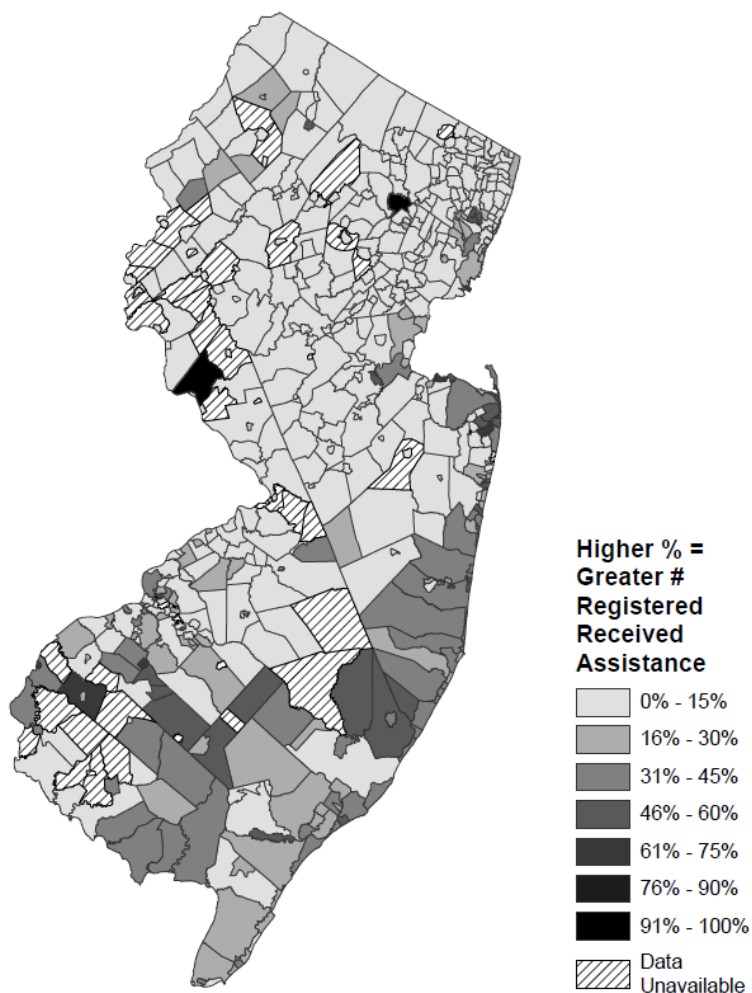
The differences in rates of award suggest that there was better information about how to complete the FEMA IA process in Atlantic, Union, Ocean, Monmouth, and Essex counties and

to a lesser extent in Cape May and Middlesex than the other counties. One of the most confusing parts of the FEMA IA application process, according to interviews, was the requirement to complete a SBA disaster loan form (O'Brien, 2013; Burgo, 2013). While insiders shared this knowledge at emergency shelters and FEMA disaster recovery centers, it was only posted on a few websites, such as United Methodist Committee on Relief and a local Monmouth blog.

Another indicator of geographic disparity is comparing FEMA IA with private residential insurance claims. While there were 258,000 FEMA IA registrations, there were many more private insurance claims, 321,000. These claims also varied significantly by geography, see Figure 34. In Hunterdon, Warren, Burlington, and Morris counties, residents made 5 times as many private insurance claims as FEMA registrations. In comparison, residents in Hudson, Atlantic, Essex, and Ocean counties made twice as many FEMA registrations as private insurance claims.

Figure 34.

FEMA Registrations Compared to Private Insurance Claims



Source: FEMA, 2013; DOBI, 2013.

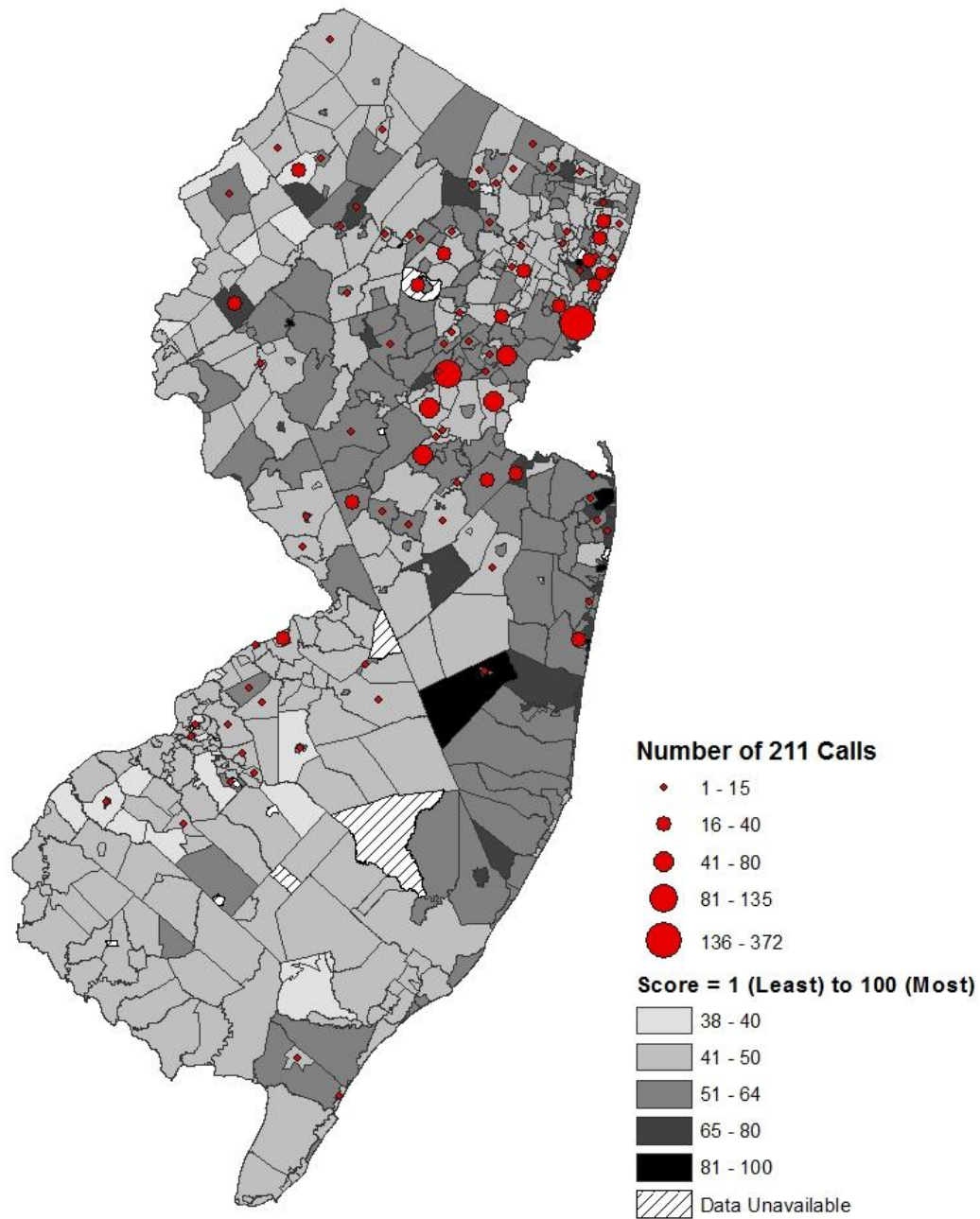
One possible explanation for the discrepancy in applicants and awards is that there may have been duplicate FEMA IA registrations in the hardest hit counties. In fact, Lavallette, Mantoloking, and Seaside Heights in Ocean County and Sea Bright in Monmouth County had more FEMA IA registrations than there were housing units (occupied and vacant including for seasonal, recreational, or occasional use recorded by the American Community Survey in their 2007-2011 survey). This may be due to the difficulty of counting vacant seasonal properties as well as households making multiple FEMA registrations in the confusion after the storm. However, analysis of individual records shows very few duplicate registrations, less than 5 percent of registrations have the same birth date in the same zip code.

Another possible explanation is that information was not disseminated equally. Despite the fact that FEMA application information was available through disaster recovery centers, town halls, and all levels of government websites, it was not accessible to all affected individuals. For example, the results of the Municipal Sandy Survey indicate that only 24 percent of shelters disseminated FEMA information. For those most in need, many were disoriented from damage to their home or lack of power. For others, this would be the first time they ever needed social services (Kalet, 2012). Even in Sayreville, one of the hardest hit towns, 44 percent of residents surveyed felt that they were not receiving sufficient public information on recovery resources, and the percent increased to 53 percent in for residents living in direct impact neighborhoods (Burgo, 2013).

Analysis of NJ 2-1-1 service after Sandy is also very troubling. NJ 2-1-1 is a 24/7 statewide service that links residents to local resources during times of distress. 2-1-1 connects callers to everything from basic needs like food, housing, and health care to legal services, drug treatment, jobs assistance, child care, mental health services, transportation, and financial assistance. A map the Community Hardship Index overlaid with the number of calls to NJ 2-1-1 (red dots) reveals that there are impacted areas with no calls, see Figure 35. The mismatch suggests that residents do not know about the NJ 2-1-1 service, especially in southern and western New Jersey, despite its existence since 2005. If awareness of this service improved, it could make a difference in disseminating information to those in need after a future disaster.

Figure 35.

Sandy Community Hardship Index and 2-1-1 Calls - NJ Towns



Source: FEMA, 2013; NJ DOBI, 2013; NJC, 2013; SBA, 2013; NJ211, 2013.

Did the Small Business Administration and Private Insurance meet Business needs in New Jersey?

Superstorm Sandy also significantly impacted the commercial sector in New Jersey. Initial damage estimates stated that 391,664 businesses suffered impact from high winds either through direct damage or from temporary closures, unavailability of critical inputs, and/or displaced customer bases; and over 19,000 businesses sustained more than \$250,000 in damage (NJDCA, 2013; Blake, et al, 2013). A more accurate picture of physical damage incurred is derived from the incurred loss of all private commercial insurance claims as of May 2013 which totals \$1.68 billion (DOBI). Because these only include businesses with insurance, the actual need is even higher. In addition, the estimate for business interruption totals \$1.87 million (NJDCA, 2013), making the impact on the commercial sector at least \$3.56 billion.

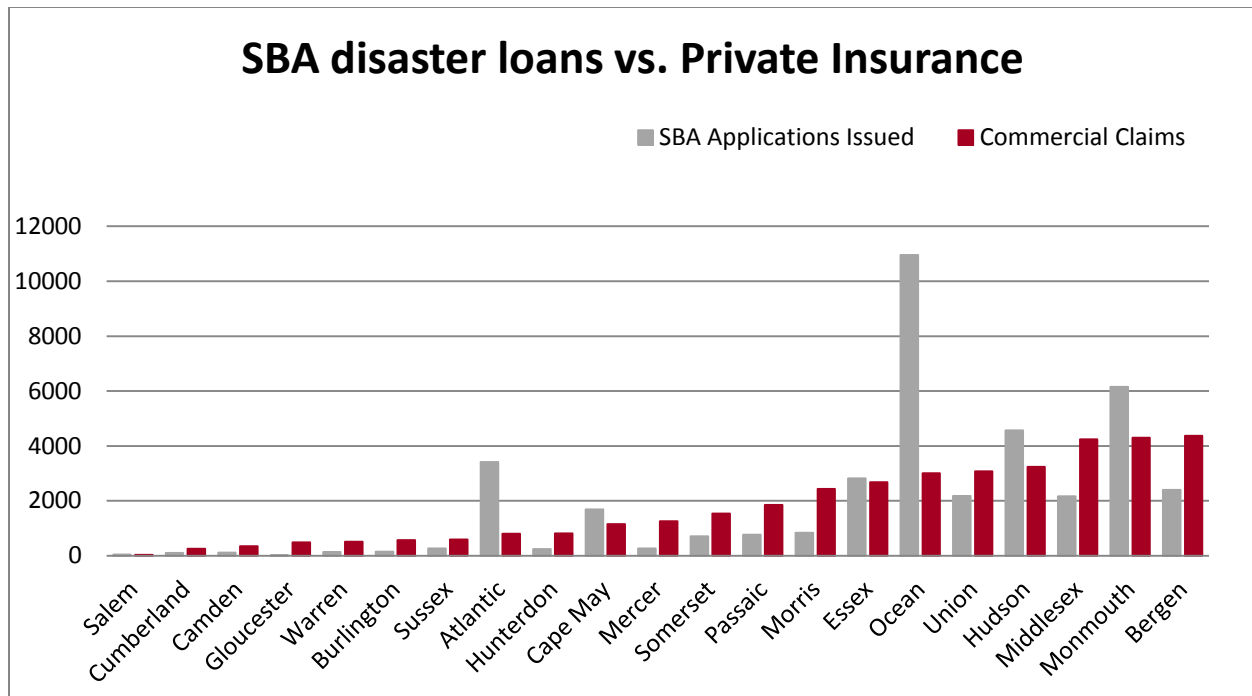
Businesses were prepared with private insurance which paid \$1.1 billion in commercial claims (DOBI, 2013). But a gap of \$2.4 billion remained, for which there has only been \$186 million issued in SBA business disaster loans.

SBA business disaster loans are for businesses of any size that are located in a declared disaster area and have incurred damage during the disaster. These loans are designed to help replace damaged property or restore it to its pre-disaster condition. Interestingly, only 40,006 SBA Disaster Loan applications were issued, and 37,500 private insurance commercial property claims filed. To date, \$651 million has been paid for property damage, \$102 million for commercial autos, \$145 million for business interruption, and \$263 million for private and National Flood Insurance (DOBI, 2013; NFIP, February 2013; SBA, 2013). SBA disaster business loans totaling \$186 million fill only part of the remaining gap. Thus, there is \$2.2 billion of unmet need in the commercial sector.

Given that there is a level playing field between businesses with access and eligibility for SBA and private insurance, there should be significant geographic overlap in these applications, with a concentration in areas of most damage. However, geographic analysis of SBA loans and private insurance claims reveals surprising disparities. The number of SBA applications issued is strongly skewed towards Ocean and Monmouth counties and to a lesser extent Hudson and Atlantic counties. In nearly all other counties, the number of private insurance claims was significantly higher than the number of SBA applications issued, see Figure 36.

The geographic differences suggest that information about SBA loans was not well known across the state. The scarcity of SBA applications issued in Middlesex, Bergen, and Union counties, and to a lesser extent in Morris and Passaic counties, is especially surprising given the number of private insurance claims, which suggest widespread damage.

Figure 36.



Source: SBA, 2013; DOBI, 2013.

Another troubling statistic is the steep drop off from applications issued to those that were received by the SBA for consideration. Of the 40,006 applications issued, only 15 percent were submitted to the SBA, see Figure 37. There was wide variation of rate of submission among the counties. The highest rate was 22 percent for Cumberland County followed by 19 percent in Cape May, Monmouth and Ocean counties and 18 percent in Atlantic County. In Essex and Union County, despite high rates of private insurance claims, the rate of SBA submission was 8 percent. Approval rates also varied greatly, ranging from 37 percent in Hunterdon County to zero in Salem, Camden and Gloucester counties. Interestingly, the average amount approved was much higher in counties with low percentages of applications issues; \$205,840 in Cumberland County, \$164,936 in Bergen County and \$137,832 in Middlesex County.

Figure 37.
SBA Disaster Loans

	Applications Issued	Percent of Issued that were Received	Percent of Received that were Approved	Average amount
Ocean	10,951	19%	34%	\$ 93,497
Monmouth	6,152	19%	30%	\$ 95,743
Hudson	4,564	13%	28%	\$ 130,390
Atlantic	3,414	18%	21%	\$ 116,497
Essex	2,824	9%	19%	\$ 76,911
Bergen	2,394	13%	30%	\$ 164,936
Union	2,177	8%	20%	\$ 114,644
Middlesex	2,162	12%	29%	\$ 137,832
Cape May	1,686	19%	36%	\$ 68,597
Morris	836	8%	18%	\$ 103,315
Passaic	768	8%	23%	\$ 118,821
Somerset	715	7%	31%	\$ 63,273
Mercer	272	11%	23%	\$ 77,871
Sussex	272	5%	21%	\$ 24,333
Hunterdon	247	8%	37%	\$ 32,014
Burlington	150	12%	22%	\$ 65,800
Warren	136	8%	27%	\$ 68,000
Camden	110	7%	0%	\$ -
Cumberland	106	22%	22%	\$ 205,840
Salem	44	9%	0%	\$ -
Gloucester	26	4%	0%	\$ -

Source: SBA, 2013.

Did FEMA meet the needs of New Jersey Municipalities?

New Jersey municipalities faced two financial challenges in the aftermath of Sandy. The first was covering the expenses of their current budget; the second was addressing the long-term capital budget. FEMA has provided funds to cover a small portion of the \$2.2 billion current budget shortfalls, which includes \$1.97 billion in immediate damage, \$77 million in lost revenue and \$171 million in additional expenses primarily from debris removal. As of July 2013, FEMA had allocated \$262 million for damage repair and debris reimbursement, leaving a gap of \$1.7 billion.

Towns also have the ability to borrow. For damages, towns can access financial markets to issue bonds or borrow to spread the cost over time. FEMA has also offered a Community Disaster Loan program for towns with a projected revenue shortfall of at least 5 percent (lost tax ratables, as well as parking meters, hotel taxes and beach badges). As of August 2013, 33 towns applied (Star-Ledger, 2013).

In contrast to the low rates of registration and awards for New Jersey residents and businesses, New Jersey municipalities had a very high rate of assistance, 81 percent. This is most likely due to the fact that the state not only has an effective communications network, but a long and effective history of monitoring and overseeing the finances of its local governments (State Budget Crisis Task Force, 2012). New Jersey state departments, including the Treasury and the Department of Community Affairs, and the New Jersey League of Municipalities communicate regularly with New Jersey's mayors and top administrators through e-mail, letter, websites, conferences, and meetings.

The much bigger challenge for municipalities is finding ways to invest in aging infrastructure in order to prevent compounded damage from future disasters. NJ DCA estimates that the cost of direct damage to infrastructure from Sandy, including transportation, schools, public and community buildings, utilities, and public health facilities, totals \$1.97 billion. However, the cost for hazard mitigation is an additional \$23.5 billion (NJDCA, 2013).

This is not surprising given the fact that 66 percent of roads are graded poor or mediocre quality, 26 percent of bridges are functionally obsolete, and 10 percent of New Jersey bridges are identified as structurally deficient, according to the 2013 Report Card for America's Infrastructure. Even before Superstorm Sandy, severe infrastructure funding needs were identified: \$32.5 billion in waste water infrastructure, \$8 billion for drinking water infrastructure, \$7 billion for bridges, \$4.9 for New Jersey Transit, \$1 billion for highways, \$1 billion for New Jersey schools, \$360 million for rail freight infrastructure, \$340 for airports, and \$323 million for the parks system (Transportation for America, 2013; Blue Ribbon Commission, 2003).

While FEMA Public Assistance covered some of the immediate damage, there is a gap of \$25.2 billion when including hazard mitigation costs.

VI. CONCLUSION - PREPARATION FOR THE NEXT DISASTER

In terms of resilience for the state of New Jersey, the response to Superstorm Sandy provides invaluable insight into strengths as well as the gaps. With \$4.85 billion in unmet need and an additional \$23.5 billion needed for hazard mitigation, clearly more resources are needed to ensure that New Jersey is prepared for the next inevitable disaster. This evaluation by sector provides insight as to how New Jersey can better prepare for inevitable future disasters. Detailed analysis of municipalities and low-income households reveals both strengths and weaknesses, in the response to and aftermath of Superstorm Sandy, see Figure 38. The report concludes with several specific recommendations.

The **residential sector** of New Jersey's communities suffered the greatest direct impact from Superstorm Sandy, as measured in financial terms with \$7.4 billion of combined damage and lost income. While this sector had extensive resources to draw upon, the need far exceeded the available resources, leaving a gap in unmet needs of \$873 million.

The **commercial sector** was also greatly affected, as measured in financial terms with \$3.56 billion of combined physical damage and business interruption. This sector was also left with unmet need, totally \$2.2 billion. For many large companies the loss can be absorbed, but for small businesses or those that were not insured, Sandy was devastating.

Municipalities suffered extensive damage, estimated at \$2.2 billion. Municipalities had to deal with a multitude of unbudgeted expenses for debris collection and removal, staff overtime and emergency supplies, estimated to be \$171 million, as well as direct damage totaling \$1.97 million. Towns also lost tax and fee revenue, estimated at \$77 million. Towns with extensive residential and commercial damage lost part of their tax base and will face additional revenue loss in the future; 3 percent of towns lost more than 5 percent of their tax base, and 4 percent of towns lost more than 5 percent of their non-tax base. While the impact on towns was enormous, municipalities have resources to address a crisis: a staff of first and second responders, equipment, cash, and access to financing. These resources meant municipalities could pay their staff throughout the disaster and recovery period (many were even paid overtime), and for the most part address and recover from the disaster: 81 percent of municipalities received grants, and FEMA assistance totals of \$516 million; 13 percent of towns received loans to cover their significant revenue shortfall.

For **households with income below the ALICE Threshold** the story is not as rosy. Not unlike municipalities, their greatest impact was property damage, estimated to be \$2.7 billion. They also faced a multitude of unforeseen expenses, such as replacing spoiled food and the added cost of transportation and shelter. As if damage and expenses were not enough, these households also faced \$1.1 billion in lost income as a result of business closures, averaging \$990 per household. Loss of income and skyrocketing expenses is inconceivable for a family that barely makes enough to meet their needs in any given month. Since most of these households do not have savings or insurance, they were forced to rely on their personal networks of friends and family, public shelters, and public assistance to recover from the storm. The fact that only 11 percent of these households applied for FEMA IA is worth investigating for improvements.

Figure 38.

Evaluation of Resilience after Superstorm Sandy

	Municipalities	ALICE
Impact of Superstorm Sandy	Extensive * \$2.2 billion in expenses * 3% of towns lost more than 5% of tax base * 4% of town lost more than 5% of non-tax revenue	Extensive * 2.4% annual budget in lost wages * 2.3% annual budget in emergency costs * 11% or more homes damaged
Emergency expenses	Debris collection and removal	Lost food and eating out
	Staff overtime	Added cost for gas or shelter
	Emergency supplies	Damage electrical appliances
Resources for mitigation	1st and 2nd responders	Network of friends and family
	Generators	Public shelters
	Budget surplus	D-SNAP
	Ability to borrow	69% no homeowner insurance; 90 no flood insurance
Work compensation	Paid salary	Lost wages
	Earned overtime	
Resources for reimbursement	81 percent received FEMA assistance	3 percent received FEMA assistance
	\$516 million in FEMA aid	\$198 million in FEMA aid
	13% of towns received more than 10% of annual budget	3% received more than 10% of annual income
Consequences	Plan recovery	Wait for repairs
	Minimal debt	In debt and no savings
		Mortgage foreclose
Needs met?	No tax increases, defaults or bankruptcies	Living in poor conditions
	Aging infrastructure needs remain or increased	Health risks
Future	Better informed, largest vulnerabilities remain	More vulnerable

As a result, the recovery story in New Jersey is mixed. With grants, loans, and access to financial markets, municipalities could plan for their recovery and incur minimal debt; no towns raised taxes or defaulted on loans. In contrast, households with income below the ALICE Threshold did not know if they would receive public assistance and were unable to plan. Since many were already living in poor conditions, Sandy was a crisis from which they may never recover.

Looking ahead, municipalities have mostly cleaned up from Sandy and learned important lessons in how to respond. It is even more evident now that their biggest vulnerability is aging infrastructure. For households with income below the ALICE Threshold, they are even more vulnerable than before Sandy. Their savings have been exhausted, many of their homes are in worse condition, and they still cannot afford insurance.

Recommendations

Based on the findings from this Report, there are several recommendations that would improve resilience in New Jersey in the future. These are directed at the power companies, municipalities, households with income below the ALICE Threshold, the state and federal government, and NJ 2-1-1.

Power

Because so much recovery activity depended on having power, and so many expenses were associated with the outages, this report echoes the need for better protection of the state's electrical infrastructure. For towns, rapid power restoration would have expedited recovery and reduced costs. For low-income households, their work and income, would not have been interrupted, and expenses would have been minimal.

Since infrastructure improvements are a long-term strategy, an interim step would be to focus on improving the flow and accuracy of information from the utility companies in such emergencies. Inaccurate and infrequent communication made it difficult to plan and meet the challenges of clearing roads, setting up and getting residents to shelters, and keeping residents informed. Better information would facilitate remediation and planning, such as how long shelters would need to be open, and enable families to plan for alternative accommodation and travel.

In addition, utility companies could have a formal plan in place for how they can accommodate out-of-state workers in close proximity to the areas of distress. Since it is against policy for them to stay in shelters with residents, many municipalities could establish a plan for separate shelters to accommodate those providing this critical assistance.

Municipalities

Most towns had the means to handle their immediate problems – safety, debris collection and removal, and maintain basic services. However, they continue to need financial and technical assistance to repair aging infrastructure.

There are some best practices that could be implemented universally to improve the ability of all towns to respond to a disaster, for example: previously established contracts with outside vendors, county level debris removal systems, multiple communication channels with offsite capabilities, and established information exchanges, through the county Offices of Emergency Management being the largest provider.

Communication methods need to be continually updated, and redundancy maintained. Municipalities should harness new technology, such as open source maps, to communicate power outages and road closures.

Municipalities could also formalize their partnerships with businesses and residents so that everyone knows what to do in a crisis. For example, FEMA's Community Emergency Response Team (CERT) program provides training for local residents in basic disaster response skills so they can assist others in their neighborhood or workplace (FEMA.gov, CERT, 2013).

There is no question that municipal capital budgets need attention. More infrastructure spending is vital to ensure future resilience of New Jersey's aging roads, bridges, schools, public transportation, rail, air, parks and water infrastructure. Without such improvements, New Jersey towns will continue to be vulnerable.

Households with Income below the ALICE Threshold

There are a few measures that would help vulnerable families protect themselves, including affordable insurance. This is an obvious need since 69 percent of these households that applied for FEMA Individual Assistance indicated that they did not have home owners insurance and 90 percent did not have flood insurance. The number of ALICE households without insurance has likely increased as the cost of private insurance and flood insurance has increased.

To repair damaged homes, a greater amount of public assistance would make a big difference in their ability to respond and recover from a disaster. Qualifying and receiving assistance would enable those with income below the ALICE Threshold to better plan their recovery. Assistance is also needed for those households who face necessary immediate hazard mitigation, such as elevating housing above the new flood plain guidelines. Additionally, better and more accessible information about the process and timing of registering is essential.

With so many eager volunteers who look to assist in times of crisis, another possible improvement could be establishing a system to connect those with damage with trained and skilled volunteers. This could minimize the need for public assistance and the prevalence of victims living in unrepaired structures and poor condition for months, or worse, leaving their homes altogether and foregoing any equity (Kov, 2013; Nurin, 2013; HCDNJ, 2013).

In the absence of additional public assistance, low rate loans could be made available to households without access to reasonable credit to help cover extraordinary costs and lost income associated with a disaster.

The only way to truly change things for these vulnerable households is to help them relocate to a safer area and/or secure a job with a sustainable salary rather than a low-wage job paid by

the hour. With increased and reliable income, a family would be able to save for an emergency, and would not suffer sudden wage loss in the face of a disaster. A safer location could prevent storm damage and associated expenses. Efforts to relocate households as well as prevent future development in flood-prone areas would help make New Jersey more resilient for the next natural disaster.

Disaster Relief organizations

For the many organizations that raise money for disaster relief and provide services to those most impacted but without other resources, there are three recommendations. First, the process to receive assistance needs to be less cumbersome; finding resources is time-consuming and frustrating, especially for those with real needs. Second, the greatest need is for those households with income below the ALICE Threshold, they should be the primary target for assistance. Third, the process needs to be more transparent, especially with respect to how funds are spent. Ultimately, these organizations need more money to effectively do their work and these improvements will improve donor confidence.

NJ 2-1-1

NJ 2-1-1 has a system of collating necessary information and assisting those in need. But New Jersey residents need to know about it before they are in need. Thus, greater promotion of the service would be beneficial, especially in southern and western New Jersey. Additionally, a campaign about disaster preparedness and prevention could be useful before another crisis.

State of New Jersey

Because assistance is often based on initial damage estimates, more care needs to be taken to assess all costs of a major storm, especially residential damage and lost wages. There also need to be estimates for immediate and long term hazard mitigation costs for households as well as for public infrastructure.

In the long term, what would make the biggest difference is to invest in New Jersey's infrastructure before the next disaster. Improving roads, bridges, water, sewer and utility infrastructure would help minimize damage from the inevitable next disaster. Investment in household infrastructure would also make a difference for ALICE, specifically attracting more medium and high skilled jobs to New Jersey and establishing safer, stronger housing.

Federal recommendations

The biggest burden for outside assistance falls to the federal government. The current amounts for all disaster programs are not sufficient to meet the needs of a major weather incident, such as Superstorm Sandy. Specifically, more resources are needed for businesses, especially small businesses in impacted areas, and households with income below the ALICE Threshold to cover damage as well as lost wage income.

In the short term, there needs to be wider geographic distribution of information about the programs such as FEMA, SBA, and NFIP and a simplification of the process. For FEMA, in particular, there needs to be clarification about coverage for a second home.

APPENDIX A - SANDY COMMUNITY HARDSHIP INDEX

The Sandy Community Hardship Index standardizes different types of indicators providing a clearer picture of the severity and extent of impact from Superstorm Sandy. It is calculated at the county level and the municipal level.

Sandy Community Hardship Index - County

For the county Sandy Community Hardship Index, the total impact of Superstorm Sandy is calculated with 8 indicators across 6 areas: residential, commercial, municipal indicators, emergency shelter and gasoline shortage. In order to create a common scale across rates, percentages, and other scores, each indicator is measured from the average. Raw indicator scores are converted to “z-scores”, which measure how far any value falls from the mean of the set, measured in standard deviations. The formula for normalizing indicator scores is:

$$z = (x - \mu) / \sigma$$

where x is the indicator's value, μ is the unweighted average and σ the standard deviation for that indicator and z is the resulting z-score. The score for each area is created by averaging the z-scores together and to make the resulting scores more accessible, translating them from a scale of -3 to 3 to 0 to 20 for each area. With five areas, the total possible points are then 100. To create the most realistic picture, the areas are weighted.

$$SII = \text{Power outage (20\%)} + (\text{Residential*tax\%} + \text{Commercial*tax\%})(40\%) + \text{Municipal(20\%)} + \text{Shelter(10\%)} + \text{Gas(10\%)}$$

Because counties have different compositions, the residential and commercial areas are included in the index in proportion to their contribution to the county's total value as calculated for tax purposes. The Residential indicators are averaged together and multiplied by the proportion residential value represents of the county's total value; and similarly, the Commercial indicators are averaged together and multiplied by the proportion non-residential value represents of the county's total value. Added together, these two areas account for 40 percent of the index score.

Power outages and the Municipal area account for 20 percent each of the Index. The Shelter area and the Gasoline Shortage area account for 10 percent each of the Index. The individual indicators are described below.

The first area is the length of time power was out for most of the geographic area. Because data from the power companies was notoriously inaccurate, we use a proxy, the number of days schools were closed as obtained from the county and district offices of the superintendent of the New Jersey Department of Education. Power outages caused range of problems and compounded problems, such as no power for pumps. Thus, the longer the power was out, the greater the damage incurred, and therefore the higher the Index score.

In the Residential area, there are two indicators averaged together for the residential score; both indicators are from the New Jersey Department of Banking and Insurance's Sandy insurance call of claims as of May 3, 2013. The first is an indicator of the scope of residential damage. The scope measured by the number of private insurance residential claims, and controlled for size of geographic area by total housing units. This assumes that the greater the number of claims, the greater the damage incurred, and therefore the higher the Index score. The second indicator, the severity of residential damage, is measured by the amount of private insurance residential paid loss controlled for size by total housing units. This assumes that the greater the value of assistance awarded, the greater the damage incurred, and therefore the higher the Index score.

In the Commercial area, there are two indicators averaged together for the commercial score; they are both from the New Jersey Department of Banking and Insurance's Sandy insurance call of claims as of May 3, 2013. The first is an indicator of scope of damage to the commercial sector, the number of commercial claims reported, controlled for the size of the commercial sector by the number of non-residential parcels in the municipality. The second is an indicator of severity of commercial damage, the amount of private insurance commercial paid loss controlled for size by the number of non-residential parcels in the municipality. Both assume that the higher number, the more severe the damage incurred, and therefore the higher the Index score.

In the Municipal area, there is one indicator, the dollar amount of FEM AI Public Assistance per capita. This assumes that the greater the amount of FEMA municipal assistance, the greater the damage incurred, and therefore the higher the Index score.

In the Shelter area, there is one indicator, the number of people served at Shelters controlled for by county size as recorded by the Red Cross National Shelter System as of May 2013. This assumes that the greater the number of people served, the greater the damage incurred, and therefore the higher the Index score.

In the Gasoline Shortage area, there is one indicator, the number of calls to the state's emergency hotline from gas station managers for assistance with power or gas delivery. This assumes that the greater the number of calls to the emergency hotline, the less gas available and therefore the greater the impact, and the higher the Index score.

Note - flood insurance data is not included because there is poor geographic breakdown; in the DOBI data call more than 50 percent of flood claims did not report a zip code, and the National Flood Insurance Program has only released statewide data.

Sandy Community Hardship Index - Municipal

The municipal level Sandy Community Hardship Index uses the same Power, Residential, Commercial and Municipal areas as the county Sandy Community Hardship Index. Because the shelter and gas indicators are wider than one town, they are not included in the municipal Sandy Community Hardship Index. The indicators are slightly different as well due to different availability at the municipal level, and described below. As in the county Index, in order to create a common scale across rates, percentages, and other scores, each indicator is measured from the average. Raw indicator scores are converted to "z-scores", which measure how far any

value falls from the mean of the set, measured in standard deviations. The formula for normalizing indicator scores is:

$$z = (x - \mu) / \sigma$$

where x is the indicator's value, μ is the unweighted average and σ the standard deviation for that indicator and z is the resulting z-score. Because the results are wide ranging, the score is created from the natural log of the z-score and then averaged together in each area. To make the resulting scores more accessible, they are translated from a scale of -3 to 3 to 0 to 33.33 for each area. With three areas, the total possible points are then 100. To create the most realistic picture, the areas are weighted.

$$SII = \text{Power (20\%)} + (\text{Residential*tax\%} + \text{Commercial*tax\%})(60\%) + \text{Municipal}(20\%)$$

Because towns have very different compositions, the residential and commercial areas are included in the index in proportion to their contribution to the town's total value as calculated for tax purposes. The Residential indicators are averaged together and multiplied by the proportion residential value represents of the town's total value; and similarly, the Commercial indicators are averaged together and multiplied by the proportion non-residential value represents of the town's total value. Added together, these two areas account for 60 percent of the index score. Then the Power and Municipal area accounts for 20 percent each of the Index.

The indicators for the Power, Municipal and Commercial areas are the same for the municipal as the county index, for details, see the section above. Due to different availability of data and the extremes revealed in small municipalities, the indicators are slightly different for the Residential area.

In the Residential area, there are three indicators averaged together for the residential score. The first two indicators for scope and severity from the NEW JERSEY Department of Banking and Insurance are the same as the county Index. A third indicator is added because the DOBI data is reported by zip code and leaves gaps between some municipalities. The average grant for FEMA IA awards provides another indicator of severity, providing data for many towns that were not recognized in the DOBI data. The measure assumes that the greater the number of claims and the higher the award amounts, the greater the damage incurred, and therefore the higher the Index score.

Sources for the Sandy Community Hardship Index

Days without Power – number of days schools were closed (plus 2 for each weekend) as recorded by the New Jersey Department of Education, county and district offices of the superintendent, e-mail and phone, 9/21-9/28.

Average FEMA IA grant - FEMA IA registrant data - obtained via an Open Public Records Act request to NJDCA by Fair Share Housing Center as of 2/15/2013.

Residential Private Insurance Claims Reported per housing unit - NJ Division of Banking and Insurance (DOBI), data call as of 05/03/2013.

Residential Private Insurance dollar value of Paid Loss per housing unit - NJ Division of Banking and Insurance (DOBI), data call as of 05/03/2013.

Commercial Private Insurance Claims Reported as percent of non-residential parcels - NJ Division of Banking and Insurance (DOBI), data call as of 05/03/2013.

Commercial Private Insurance dollar value of Paid Loss as percent of non-residential value - NJ Division of Banking and Insurance (DOBI), data call as of 05/03/2013.

Small Business Association disaster loans, applications received as a percent of non-residential parcels - Small Business Association, disaster loan statistics for NJ 13367, August 2013.

Small Business Association disaster loans, dollars approved as a percent of non-residential value - Small Business Association, disaster loan statistics for NJ 13367, August 2013.

FEM IA Public Assistance per capita - Sandy Federal Funds Tracker, NJ Office of the Comptroller, as of July 2013. <http://nj.gov/comptroller/sandytransparency/>

Number of days emergency shelters open - Red Cross NSS NJ Reported Shelter Data, May 2013.

Number of people served in emergency shelters per 1,000 - Red Cross NSS NJ Reported Shelter Data, May 2013.

Calls to the NJ emergency hotline from gas station managers for assistance with power or gas delivery per 10,000 - New Jersey Economic Development Authority, March 2013.

Total Housing Units and Total Population - American Community Survey, 2007-2011.

Residential and Non-residential parcels and value for tax purposes - Non-residential parcels and values were calculated from total parcels or value parcels minus residential parcels or value so as to include any industrial, farm or vacant parcels or value. Government data compiled by Rutgers School of Continuing Studies, New Jersey District Data Book.

No Private Insurance Data Available

Alpha Borough, Warren
Beach Haven Borough, Ocean
Bethlehem Township, Hunterdon
Bordentown Township, Burlington
Brooklawn Borough, Camden
Burlington Township, Burlington
Byram Township, Sussex
Carneys Point Township, Salem
Collingswood Borough, Camden
Corbin City, Atlantic
Delanco Township, Burlington
East Newark Borough, Hudson
East Windsor Township, Mercer
Eastampton Township, Burlington
Edgewater Park, Burlington
Elsinboro Township, Salem
Englishtown Borough, Monmouth
Fairfield Township, Essex
Farmingdale Borough, Monmouth
Fieldsboro Borough, Burlington
Florham Park Borough, Morris
Fredon Township, Sussex
Freehold Borough, Monmouth
Freehold Township, Monmouth
Galloway Township, Atlantic
Gloucester Township, Camden
Hardwick Township, Warren
Harmony Township, Warren
Harvey Cedars Borough, Ocean
Hazlet Township, Monmouth
Hi-Nella Borough, Camden
Hopewell Township, Cumberland
Interlaken Borough, Monmouth
Kinnelon Borough, Morris
Laurel Springs Borough, Camden
Liberty Township, Warren

North Caldwell Borough, Essex
North Haledon Borough, Passaic
Northvale Borough, Bergen
Oakland Borough, Bergen
Oldmans Township, Salem
Oradell Borough, Bergen
Palisades Park Borough, Bergen
Palmyra Borough, Burlington
Pilesgrove Township, Salem
Pine Hill Borough, Camden
Pittsgrove Township, Salem
Pohatcong Township, Warren
Prospect Park Borough, Passaic
Raritan Township, Hunterdon
River Vale Township, Bergen
Riverton Borough, Burlington
Rockleigh Borough, Bergen
Sandyston Township, Sussex
Sea Girt Borough, Monmouth
Shamong Township, Burlington
Ship Bottom Borough, Ocean
Somerdale Borough, Camden
Stow Creek Township, Cumberland
Surf City Borough, Ocean
Tabernacle Township, Burlington
Tinton Falls Borough, Monmouth
Union Township, Hunterdon
Upper Deerfield Township, Cumberland
Upper Pittsgrove Township, Salem
Upper Saddle River Borough, Bergen
Wantage Township, Sussex
Watchung Borough, Somerset
West Amwell Township, Hunterdon
West Caldwell Township, Essex
West Cape May Borough, Cape May
West New York Town, Hudson

Lindenwold Borough, Camden
Little Egg Harbor Township, Ocean
Little Falls Township, Passaic
Loch Arbour village, Monmouth
Lopatcong Township, Warren
Mannington Township, Salem
Manville Borough, Somerset
Medford Township, Burlington
Monroe Township, Gloucester

West Wildwood Borough, Cape May
Westampton Township, Burlington
Westwood Borough, Bergen
White Township, Warren
Wildwood City, Cape May
Wildwood Crest Borough, Cape May
Winfield Township, Union
Woodcliff Lake Borough, Bergen
Woodlynne Borough, Camden
Woolwich Township, Gloucester

The data reported by DOBI is by zip code so some of these towns may share a zip code with another town. They also may not have had any insurance claims.

APPENDIX B - SANDY HOUSEHOLD HARDSHIP INDEX

The Sandy Household Hardship Index (SHHI) standardizes different types of indicators to provide a clearer picture of the severity and extent of impact of Superstorm Sandy on low-income households. The Index focuses on households with income below the ALICE Threshold, a level defined in the 2012 ALICE Report as not earning enough to afford a basic household survival budget. The Household Hardship Index is calculated at the county level and at the municipal level.

The county and municipal Index is calculated across three areas: Scope, Severity and Resilience. In order to create a common scale across rates, percentages, and other scores, each indicator is measured from the average. Raw indicator scores are converted to “z-scores”, which measure how far any value falls from the mean of the set, measured in standard deviations. The formula for normalizing indicator scores is:

$$z = (x - \mu) / \sigma$$

where x is the indicator's value, μ is the unweighted average and σ the standard deviation for that indicator and z is the resulting z-score. The score for each area is created by averaging the z-scores together and to make the resulting scores more accessible, translating them from a scale of -3 to 3 to 0 to 33.33 for each area. With three indicators, the total possible points is then 100. To create the most realistic picture, the areas are weighted.

$$\text{SHHI} = \text{Scope (1/3)} + \text{Severity (1/3)} + \text{Resilience (1/3)}$$

The indicator for Scope is the amount of lost wages for households with income below the ALICE Threshold. The amount of lost wages is a calculation of the number of days with no power, as reflected in the number of days schools were closed according to the NJ Department of Education, multiplied by the number of households with income below the ALICE Threshold times \$15/hour for 8 hours/day. This indicator assumes that the greater the amount of lost wages, the greater the hardship and therefore the higher the Index score.

The indicators for Severity and Resilience rely on the individual FEMA IA records that recorded income and insurance status. This indicator assumes that the greater the amount of lost wages, the greater the hardship and therefore the higher the Index score. The indicator for Severity is the average amount of FEMA IA for households below the AT. This assumes that the greater the amount of assistance, the more severe the impact, and therefore, the higher the Index score. The indicator for Resilience is the percent of households below the AT that did not have homeowners insurance. This assumes that the more residents without insurance, the less ability to recover and therefore, the higher the Index score.

The indicator for Severity is the average amount of assistance each household with income below the ALICE Threshold received from FEMA IA. This assumes that the higher the amount, the greater the damage, and therefore the higher the Index score.

The indicator for Resilience is whether households with income below the ALICE Threshold had homeowners insurance as measured by individual FEMA IA registration data. This assumes that the more residents without insurance, the less ability to recover and therefore, the higher the Index score.

Sources for the Sandy Household Hardship Index

Days without Power – number of days schools were closed (plus 2 for each weekend) as recorded by the New Jersey Department of Education, county and district offices of the superintendent, e-mail and phone, 9/21/13 - 9/28/13.

Percent of Households with Income below the ALICE Threshold without homeowners insurance - Individual FEMA IA registrant data obtained via an Open Public Records Act request to NJDCA by Fair Share Housing Center as of 2/15/2013.

Average amount of FEMA IA for each Household with Income below the ALICE Threshold Individual FEMA IA registrant data - obtained via an Open Public Records Act request to NJDCA by Fair Share Housing Center as of 2/15/2013.

Lost Wages - a calculation of the number of days with no power, as reflected in the number of days schools were closed according to the NJ Department of Education, multiplied by the number of households with income below the ALICE Threshold times \$15/hour for 8 hours/day.

Household with Income below the ALICE Threshold - Stephanie Hoopes Halpin, *ALICE (Asset-Limited, Income-Constrained, Employed): A Study of Financial Hardship in New Jersey*, United Way of Northern New Jersey, 2012.
http://www.unitedwaynnj.org/documents/UWNNJ_ALICE%20Report_FINAL2012.pdf

APPENDIX C - SANDY MUNICIPAL SURVEY – METHODOLOGY

The Sandy Municipal Survey was undertaken at the School of Public Affairs and Administration at Rutgers-Newark in co-operation with the New Jersey League of Municipalities in the spring of 2013, four months after Superstorm Sandy hit New Jersey. The initial request to complete the Sandy Municipal Survey was sent by the New Jersey League of Municipalities on March 5, 2013 to their complete e-list of Mayors and top administrators. Reminders were sent by Rutgers throughout the month of March to 468 municipalities with populations greater than 2,500.

There were 140 complete surveys, a 25 percent response rate. Initially there were 265 responses; however 125 were duplicates or empty surveys. In cases where towns responded two times, only the most complete survey was included. In a few cases, where there were multiple responses, and it was clear that the second picked up where the other left off, the responses were combined into one.

There are three slight biases in the Survey, the first is geographic distribution. Morris, Middlesex and Union Counties are slightly over represented, see Figure 39. And Atlantic is slightly underrepresented, which is not surprising because Atlantic is the one county where municipalities are highly coordinated by the county government. The second is bias towards larger towns. The towns responding represent 32 percent of all households, but only 19 percent of towns with household populations below 2,500. This bias is inevitable with a survey because larger towns more likely to have the resources to receive and complete a survey, and with an e-survey because they are more likely to have the electronic communication. The third is a slight bias towards higher income municipalities. The median income for the towns responding was \$83,461 while the median income for the towns that did not respond was \$75,652.

In terms of representation of the territory of the power companies, the Survey is slightly skewed, but each of the companies had significant numbers of responses. There are roughly 4 million residential power customers in New Jersey. PSE&G serves 45 percent of the state's customers primarily in central and northeastern New Jersey, JCP&L serves 24 percent in northern and northwestern New Jersey, ACE serves 12 percent in southern New Jersey, RECO serves 2 percent in northern New Jersey, and the rest are smaller utility companies. In this Survey, PSEG is underrepresented by 15 percent while JCPL is over represented by 11 percent. ACE is underrepresented by 4 percent and RECO is fairly represented.

Figure 39.

Sandy Municipal Survey – county distribution

	Survey	Total	Difference
Atlantic	1%	4%	3%
Bergen	13%	12%	0%
Burlington	6%	7%	1%
Camden	4%	7%	2%
Cape May	3%	3%	0%
Cumberland	1%	2%	2%
Essex	4%	4%	0%
Gloucester	4%	4%	0%
Hudson	2%	2%	0%
Hunterdon	3%	5%	2%
Mercer	3%	2%	-1%
Middlesex	9%	4%	-4%
Monmouth	7%	9%	2%
Morris	13%	7%	-6%
Ocean	4%	6%	2%
Passaic	2%	3%	1%
Salem	1%	3%	2%
Somerset	3%	4%	1%
Sussex	6%	4%	-2%
Union	7%	4%	-3%
Warren	3%	4%	1%

Sandy Municipal Survey - questionnaire

03/13/2013

1. In what county is your town located?
2. What is the name of your town?
3. What is the name of your town?
22. In the days after the storm, how many of your roads were closed to traffic due to fallen trees or wires, flooding or other storm damage?
23. Immediately after the storm, roughly how many telephone poles and trees were down?
24. How many days was most of your town with out power?
25. Which company provides power to your town?

26. How would you rate the quality of communication from your power company?

27. Did your town have a shelter(s)? (Check all that apply)

Emergency overnight shelter run by the Town
Emergency overnight shelter run by the County
Emergency overnight shelter run by the FEMA
Other type of shelter run by the Red Cross
Other type of shelter run by other non-profit organization
Other type of shelter run by faith based organization
None

28. If you had an Emergency shelter, how many days was it open? If you had multiple shelters, how many days after the storm did the last one close?

29. What facilities and services were available at the shelter(s) in your town? (Check all that apply)

30. Which of the following power problems, if any, did your town have? (Check all that apply)

Lost power at police station
Lost power at fire station
Lost power at municipal building
Lost power for water/sewer
Used back up generators for essential services
Almost ran out of gasoline
Ran out of gasoline

31. Please approximate the number of residents during the month following Sandy in the following categories:

Number using local shelter(s)
Number staying over night at shelter(s)
Number that sought shelter out of town

32. How many HOUSES were impacted by the Hurricane? (FEMA categories listed below)

Destroyed: The structure has been completely destroyed or washed away
Major: Some solid structures are destroyed. They may be missing roofs, interior walls may be visible or there may be partial collapse due to storm surge. Mobile homes and similar buildings are destroyed.
Minor: Solid structures have exterior damage such as missing roof segments while some mobile homes and other lighter structures have been destroyed or displaced.
Affected: There is superficial damage to solid structures such as loss of tiles or roof shingles. Lighter structures such as mobile homes may have been more severely damaged or displaced.
Internal damage - Major: flooding or other damage reducing ability to live in the house
Internal damage - Minor: - flooding in basement or interior damage but still able to occupy the house

33. How many BUSINESSES were impacted by the Hurricane? (FEMA categories listed below)

Destroyed: The structure has been completely destroyed or washed away
Major: Some solid structures are destroyed. They may be missing roofs, interior walls may be visible or there may be partial collapse due to storm surge. Mobile homes and similar buildings are destroyed.
Minor: Solid structures have exterior damage such as missing roof segments while some mobile homes

and other lighter structures have been destroyed or displaced.

Affected: There is superficial damage to solid structures such as loss of tiles or roof shingles. Lighter structures such as mobile homes may have been more severely damaged or displaced.

Internal damage - Major: flooding or other damage reducing ability to live in the house

Internal damage - Minor: - flooding in basement or interior damage but still able to occupy the house

34. Due to the Hurricane, how much of your town's ratable base (total value of property) did you lose? By what percent?

35. Due to the Hurricane, please estimate the percent of total non-property tax revenue that was lost?

36. In the weeks following Hurricane Sandy, did you require assistance beyond your municipal staff to maintain municipal services? (i.e. from the state or federal government or nonprofit groups)

37. In the month following the Hurricane, approximately how many people came to your town from the following organizations?

FEMA

County officials

State officials

AmeriCorp or other government group

Non-profit organizations

Local or state businesses

Municipal volunteer groups

Faith based groups

38. Please answer the following questions about the amount of debris COLLECTED in your town (your best guess or recollection):

What is the FEMA estimate for the total cubic yards of debris following Hurricane Sandy?

How many cubic yards have been collected?

How many cubic yards were collected by town personnel?

How many cubic yards were collected by contractors already working with your town?

How many cubic yards were collected by a new contractor selected from a state or federal Cooperative Purchasing Program?

How many cubic yards were collected by another contractor?

39. Please answer the following questions about the amount of debris REMOVED in your town (your best guess or recollection):

How many cubic yards have been removed?

How many cubic yards were removed by town personnel?

How many cubic yards were removed by contractors already working with your town?

How many cubic yards were removed by a new contractor selected from a state or federal Cooperative Purchasing Program?

How many cubic yards were removed by another contractor?

40. What types of media did the government in your town have in place to communicate with residents before Hurricane Sandy? (Check all that apply)

Cell phone

Land line mass notification system

E-mail

Website
Twitter
Facebook
Radio
Community bulletin board
Cable access channel
Other

41. Did you face any challenges for Election Day? (Check all that apply)

Relocate polling site to another location in town
Relocate polling site to a neighboring town
Provide generator to power polling site
National Guard provided assistance
Other

42. What types of media did you use to communicate with your residents and businesses during the two weeks following Hurricane Sandy? And how many times did you use each?

- Not at all, Once or twice, Few times per week, About once a day, Several times a day or more
Cell phone
Land line mass notification system
E-mail
Announcements on local Radio stations
Website
Twitter
Hand delivered letter
Facebook
Community bulletin board
Cable access channel
Other

43. How did the following organizations help you provide municipal services in the month after Hurricane Sandy? (Check all that apply) Information, Supplies, Manpower, Financial Assistance, None

County OEM
New Jersey OEM
FEMA
New Jersey government departments
Utility company
Neighboring towns
Red Cross and/or Salvation Army
Local community groups
Community groups from outside your county/state
Social media

Town residents
Local businesses
Other

44. did you or are you facing any public health issues? (Check all that apply and add descriptive comments as needed)

Mold/mildew
Sewage
Contaminated drinking water
Water pollution
Mental health issues
Other

45. What types of assistance did the special populations in your town need that were different than those provided to the town as a whole? (Check all that apply)

Evacuation
Communication
Medical assistance
Shelter
No special assistance
None located in town
Nursing home/assisted living
Senior housing
Home for those with a disability
Prison
Hospital/medical facility
Residents with pets
Other
Nursing home/assisted living
Senior housing
Home for those with a disability
Prison
Hospital/medical facility
Residents with pets
Other

46. In which areas did your town incur expenses beyond the scope of your current budget? (Check all that apply)

Overtime for Department of Public Works personnel
Overtime for public safety personnel
Overtime for other town personnel
Non personnel cost for debris collection and removal

Non personnel cost for Infrastructure repairs
Office of Emergency Management supplies
Office supplies
Other - please specify

47. How will you pay for costs incurred through Hurricane Sandy? (Check all that apply)

Current budget
Tax increase
Snow removal trust fund
Emergency appropriation
Borrow until reimbursed by FEMA
Borrow - long term
Other - please specify
Other 2 - please specify

48. What was the annual budget for your town in 2012?

49. For each of the following, please indicate how big a priority it is for your town in the year ahead:

Rebuild housing
Repair roads or bridges
Rebuild or repairing public buildings
Rebuild beaches, dunes or other environmental protection
Rebuild or repair infrastructure
Clean waterways
Relocate residents
Economic development
Revive tourism
Loss of ratables and revenue
Other - please specify
Other 2 - please specify

50. In this open-ended question, please share any lessons learned from the Hurricane. What would you do differently in the future?

51. What position do you hold in your town?

Mayor or top elected official
Chief administrator
Chief financial officer
Other
Total

52. If you would be willing to be contacted for any follow-up information, please provide your name and e-mail address

APPENDIX D - MUNICIPAL INDEX SCORES

Index scores and key Sandy impact data for all municipalities are also posted the NJ DataBank website, Municipal Profiles, <http://njdatabank.newark.rutgers.edu/profilecomparison>

Sandy Hardship Index

	Community			Household	
	Index	RANK		Index	RANK
Aberdeen, Monmouth	66	33	Aberdeen, Monmouth	49	286
Absecon City, Atlantic	45	377	Absecon City, Atlantic	53	173
Alexandria , Hunterdon	51	190	Alexandria, Hunterdon	47	356
Allamuchy, Warren	40	536	Allamuchy, Warren	34	528
Allendale, Bergen	53	148	Allendale, Bergen	45	408
Allenhurst, Monmouth	78	14	Allenhurst, Monmouth	48	329
Allentown, Monmouth	56	97	Allentown, Monmouth	45	392
Alloway Township, Salem	40	524	Alloway Township, Salem	34	535
Alpha, Warren	40	519	Alpha, Warren	40	484
Alpine, Bergen	54	132	Alpine, Bergen	34	536
Andover Borough, Sussex	62	56	Andover Borough, Sussex	43	444
Andover Township, Sussex	46	360	Andover Township, Sussex	43	440
Asbury Park, Monmouth	91	6	Asbury Park, Monmouth	63	43
Atlantic City, Atlantic	48	274	Atlantic City, Atlantic	70	17
Atlantic Highlands, Monmouth	65	41	Atlantic Highlands, Monmouth	54	145
Audubon, Camden	40	509	Audubon, Camden	52	199
Avalon, Cape May	46	327	Avalon, Cape May	44	422

Avon-by-the-Sea, Monmouth	69	27	Avon-by-the-Sea, Monmouth	60	65
Barnegat Light, Ocean	48	283	Barnegat Light, Ocean	44	429
Barnegat Township, Ocean	54	129	Barnegat Township, Ocean	58	83
Barrington, Camden	40	526	Barrington, Camden	34	516
Bass River, Burlington	50	212	Bass River, Burlington	57	97
Bay Head, Ocean	95	4	Bay Head, Ocean	70	16
Bayonne, Hudson	56	110	Bayonne, Hudson	74	11
Beach Haven, Ocean	51	192	Beach Haven, Ocean	57	95
Beachwood, Ocean	54	127	Beachwood, Ocean	47	353
Bedminster, Somerset	49	242	Bedminster, Somerset	49	300
Belleville, Essex	49	255	Belleville, Essex	59	72
Bellmawr, Camden	43	457	Bellmawr, Camden	43	445
Belmar, Monmouth	71	23	Belmar, Monmouth	65	35
Belvidere Town, Warren	47	325	Belvidere Town, Warren	48	334
Bergenfield, Bergen	45	384	Bergenfield, Bergen	51	222
Berkeley Heights, Union	51	200	Berkeley Heights, Union	45	404
Berkeley Township, Ocean	55	121	Berkeley Township, Ocean	75	9
Berlin, Camden	42	468	Berlin, Camden	51	232
Berlin Township, Camden	41	489	Berlin Township, Camden	45	399
Bernards Township, Somerset	57	91	Bernards Township, Somerset	47	348
Bernardsville, Somerset	61	70	Bernardsville, Somerset	45	405
Bethlehem, Hunterdon	42	463	Bethlehem, Hunterdon	34	525
Beverly City, Burlington	46	356	Beverly City, Burlington	52	204
Blairstown Township, Warren	54	133	Blairstown Township, Warren	49	304

Bloomfield, Essex	46	344	Bloomfield, Essex	56	108
Bloomington, Passaic	46	357	Bloomington, Passaic	51	221
Bloomsbury, Hunterdon	55	115	Bloomsbury, Hunterdon	41	475
Bogota, Bergen	47	303	Bogota, Bergen	53	186
Boonton, Morris	44	407	Boonton, Morris	49	310
Boonton Township, Morris	61	67	Boonton Township, Morris	34	509
Bordentown City, Burlington	50	224	Bordentown City, Burlington	52	189
Bordentown, Burlington	41	490	Bordentown, Burlington	34	510
Bound Brook, Somerset	49	247	Bound Brook, Somerset	52	192
Bradley Beach, Monmouth	61	68	Bradley Beach, Monmouth	59	79
Branchburg, Somerset	48	272	Branchburg, Somerset	42	463
Branchville, Sussex	60	75	Branchville, Sussex	42	457
Brick, Ocean	59	83	Brick, Ocean	79	6
Bridgeton, Cumberland	43	432	Bridgeton, Cumberland	56	120
Bridgewater, Somerset	53	155	Bridgewater, Somerset	50	259
Brielle, Monmouth	63	51	Brielle, Monmouth	55	140
Brigantine, Atlantic	52	173	Brigantine, Atlantic	56	110
Brooklawn, Camden	42	478	Brooklawn, Camden	51	242
Buena, Atlantic	41	482	Buena, Atlantic	50	274
Buena Vista, Atlantic	42	461	Buena Vista, Atlantic	56	126
Burlington City, Burlington	47	289	Burlington City, Burlington	49	288
Burlington, Burlington	41	493	Burlington, Burlington	57	89
Butler, Morris	50	210	Butler, Morris	53	183
Byram, Sussex	53	157	Byram, Sussex	45	403

Caldwell, Essex	55	114	Caldwell, Essex	53	178
Califon, Hunterdon	83	9	Califon, Hunterdon	41	476
Camden, Camden	42	477	Camden, Camden	60	66
Cape May, Cape May	46	343	Cape May, Cape May	47	340
Cape May Point, Cape May	40	535	Cape May Point, Cape May	34	550
Carlstadt, Bergen	73	16	Carlstadt, Bergen	54	157
Carneys Point, Salem	43	448	Carneys Point, Salem	51	217
Carteret, Middlesex	54	126	Carteret, Middlesex	63	42
Cedar Grove, Essex	47	326	Cedar Grove, Essex	48	331
Chatham Borough, Morris	49	260	Chatham Borough, Morris	43	448
Chatham Township, Morris	46	358	Chatham Township, Morris	42	466
Cherry Hill, Camden	43	440	Cherry Hill, Camden	52	198
Chester Borough, Morris	65	39	Chester Borough, Morris	46	375
Chester Township, Morris	49	233	Chester Township, Morris	42	461
Chesterfield, Burlington	44	417	Chesterfield, Burlington	34	539
Cinnaminson, Burlington	44	422	Cinnaminson, Burlington	51	213
Clark, Union	51	194	Clark, Union	46	376
Clayton, Gloucester	42	472	Clayton, Gloucester	54	147
Clementon, Camden	44	431	Clementon, Camden	52	202
Cliffside Park, Bergen	46	341	Cliffside Park, Bergen	56	122
Clifton, Passaic	46	355	Clifton, Passaic	57	99
Clinton Town, Hunterdon	48	281	Clinton Town, Hunterdon	49	296
Clinton, Hunterdon	47	322	Clinton, Hunterdon	47	351
Closter, Bergen	50	216	Closter, Bergen	43	446

Collingswood, Camden	40	537	Collingswood, Camden	54	162
Colts Neck, Monmouth	56	111	Colts Neck, Monmouth	51	247
Commercial, Cumberland	47	315	Commercial, Cumberland	59	73
Corbin City, Atlantic	47	298	Corbin City, Atlantic	59	78
Cranbury, Middlesex	62	59	Cranbury, Middlesex	53	168
Cranford, Union	53	156	Cranford, Union	49	307
Cresskill, Bergen	44	421	Cresskill, Bergen	45	414
Deerfield, Cumberland	51	177	Deerfield, Cumberland	51	227
Delanco, Burlington	40	507	Delanco, Burlington	47	341
Delaware, Hunterdon	51	178	Delaware, Hunterdon	34	511
Delran, Burlington	45	387	Delran, Burlington	46	380
Demarest, Bergen	50	204	Demarest, Bergen	45	401
Dennis, Cape May	54	138	Dennis, Cape May	46	379
Denville, Morris	51	201	Denville, Morris	44	428
Deptford, Gloucester	44	420	Deptford, Gloucester	69	20
Dover Town, Morris	45	369	Dover Town, Morris	50	264
Downe, Cumberland	47	308	Downe, Cumberland	58	86
Dumont, Bergen	45	388	Dumont, Bergen	44	426
Dunellen, Middlesex	58	88	Dunellen, Middlesex	51	218
Eagleswood, Ocean	68	28	Eagleswood, Ocean	59	77
East Amwell, Hunterdon	55	117	East Amwell, Hunterdon	43	447
East Brunswick, Middlesex	56	99	East Brunswick, Middlesex	53	179
East Greenwich, Gloucester	39	545	East Greenwich, Gloucester	45	395
East Hanover, Morris	51	181	East Hanover, Morris	44	437

East Newark, Hudson	47	313	East Newark, Hudson	53	176
East Orange, Essex	44	430	East Orange, Essex	53	180
East Rutherford, Bergen	66	38	East Rutherford, Bergen	51	241
East Windsor, Mercer	44	414	East Windsor, Mercer	52	193
Eastampton, Burlington	41	501	Eastampton, Burlington	48	332
Eatontown, Monmouth	56	106	Eatontown, Monmouth	58	85
Edgewater, Bergen	49	257	Edgewater, Bergen	57	101
Edgewater Park, Burlington	41	495	Edgewater Park, Burlington	46	372
Edison, Middlesex	50	220	Edison, Middlesex	59	81
Egg Harbor City, Atlantic	46	359	Egg Harbor City, Atlantic	51	224
Egg Harbor, Atlantic	46	353	Egg Harbor, Atlantic	50	261
Elizabeth, Union	57	96	Elizabeth, Union	89	5
Elk Township, Gloucester	38	551	Elk Township, Gloucester	34	554
Elmer, Salem	45	406	Elmer, Salem	46	365
Elmwood Park, Bergen	53	150	Elmwood Park, Bergen	57	102
Elsinboro, Salem	41	486	Elsinboro, Salem	34	543
Emerson, Bergen	45	376	Emerson, Bergen	48	312
Englewood, Bergen	47	311	Englewood, Bergen	55	136
Englewood Cliffs, Bergen	54	141	Englewood Cliffs, Bergen	45	393
Englishtown, Monmouth	45	382	Englishtown, Monmouth	49	290
Essex Fells, Essex	54	128	Essex Fells, Essex	52	212
Estell Manor, Atlantic	40	538	Estell Manor, Atlantic	41	474
Evesham, Burlington	40	513	Evesham, Burlington	50	269
Ewing, Mercer	47	321	Ewing, Mercer	52	194

Fair Haven, Monmouth	61	69	Fair Haven, Monmouth	47	342
Fair Lawn, Bergen	49	254	Fair Lawn, Bergen	50	262
Fairfield, Cumberland	47	320	Fairfield, Cumberland	44	430
Fairfield, Essex	46	352	Fairfield, Essex	34	512
Fairview, Bergen	47	302	Fairview, Bergen	55	130
Fanwood, Union	53	149	Fanwood, Union	43	455
Far Hills, Somerset	79	13	Far Hills, Somerset	47	338
Farmingdale, Monmouth	46	339	Farmingdale, Monmouth	52	191
Fieldsboro, Burlington	41	497	Fieldsboro, Burlington	34	549
Flemington, Hunterdon	83	8	Flemington, Hunterdon	44	433
Florence, Burlington	42	466	Florence, Burlington	52	211
Florham Park, Morris	53	143	Florham Park, Morris	55	143
Fort Lee, Bergen	47	304	Fort Lee, Bergen	56	121
Frankford, Sussex	41	498	Frankford, Sussex	41	468
Franklin, Sussex	44	409	Franklin, Sussex	51	230
Franklin Lakes, Bergen	54	130	Franklin Lakes, Bergen	49	291
Franklin Township, Gloucester	43	433	Franklin Township, Gloucester	35	498
Franklin Township, Hunterdon	48	269	Franklin Township, Hunterdon	43	454
Franklin Township, Somerset	53	153	Franklin Township, Somerset	61	57
Franklin Township, Warren	54	136	Franklin Township, Warren	89	4
Fredon Township, Sussex	40	539	Fredon Township, Sussex	34	532
Freehold Borough, Monmouth	52	175	Freehold Borough, Monmouth	50	252
Freehold Township, Monmouth	49	245	Freehold Township, Monmouth	52	205
Frelinghuysen, Warren	42	462	Frelinghuysen, Warren	41	473

Frenchtown, Hunterdon	55	112	Frenchtown, Hunterdon	40	483
Galloway, Atlantic	45	386	Galloway, Atlantic	52	187
Garfield, Bergen	49	241	Garfield, Bergen	61	60
Garwood, Union	46	366	Garwood, Union	48	328
Gibbsboro, Camden	41	505	Gibbsboro, Camden	34	546
Glassboro, Gloucester	46	354	Glassboro, Gloucester	67	27
Glen Gardner, Hunterdon	58	84	Glen Gardner, Hunterdon	44	431
Glen Ridge, Essex	44	413	Glen Ridge, Essex	50	273
Glen Rock, Bergen	51	197	Glen Rock, Bergen	35	502
Gloucester City, Camden	39	547	Gloucester City, Camden	43	453
Gloucester, Camden	41	484	Gloucester, Camden	55	131
Green Brook, Somerset	73	17	Green Brook, Somerset	42	459
Green Township, Sussex	65	40	Green Township, Sussex	79	7
Greenwich, Cumberland	41	496	Greenwich, Cumberland	39	490
Greenwich, Gloucester	41	485	Greenwich, Gloucester	40	482
Greenwich Township, Warren	46	332	Greenwich Township, Warren	43	452
Guttenberg Town, Hudson	47	307	Guttenberg Town, Hudson	55	142
Hackensack, Bergen	52	167	Hackensack, Bergen	63	48
Hackettstown Town, Warren	47	305	Hackettstown Town, Warren	49	297
Haddon Heights, Camden	40	540	Haddon Heights, Camden	34	520
Haddon Township, Camden	42	460	Haddon Township, Camden	34	508
Haddonfield, Camden	45	399	Haddonfield, Camden	44	439
Hainesport, Burlington	43	444	Hainesport, Burlington	48	322
Haledon, Passaic	50	203	Haledon, Passaic	48	324

Hamburg, Sussex	48	270	Hamburg, Sussex	45	407
Hamilton Township, Atlantic	52	168	Hamilton Township, Atlantic	52	203
Hamilton Township, Mercer	42	474	Hamilton Township, Mercer	49	285
Hammonton Town, Atlantic	46	351	Hammonton Town, Atlantic	46	385
Hampton, Hunterdon	59	82	Hampton, Hunterdon	47	345
Hampton, Sussex	41	502	Hampton, Sussex	34	524
Hanover Township, Morris	47	288	Hanover Township, Morris	44	438
Harding Township, Morris	50	208	Harding Township, Morris	40	481
Hardwick, Warren	38	550	Hardwick, Warren	34	555
Hardyston, Sussex	49	252	Hardyston, Sussex	41	471
Harmony, Warren	41	492	Harmony, Warren	34	533
Harrington Park, Bergen	44	412	Harrington Park, Bergen	42	458
Harrison Town, Hudson	56	107	Harrison Town, Hudson	63	46
Harrison, Gloucester	43	436	Harrison, Gloucester	34	517
Harvey Cedars, Ocean	46	330	Harvey Cedars, Ocean	42	467
Hasbrouck Heights, Bergen	47	299	Hasbrouck Heights, Bergen	48	333
Haworth, Bergen	68	29	Haworth, Bergen	49	306
Hawthorne, Passaic	46	346	Hawthorne, Passaic	51	235
Hazlet, Monmouth	47	318	Hazlet, Monmouth	46	368
Helmetta, Middlesex	45	381	Helmetta, Middlesex	44	417
High Bridge, Hunterdon	45	375	High Bridge, Hunterdon	49	284
Highland Park, Middlesex	50	229	Highland Park, Middlesex	54	148
Highlands, Monmouth	66	37	Highlands, Monmouth	67	28
Hightstown, Mercer	60	77	Hightstown, Mercer	48	320

Hillsborough, Somerset	50	207	Hillsborough, Somerset	51	236
Hillsdale, Bergen	61	71	Hillsdale, Bergen	47	337
Hillside, Union	52	160	Hillside, Union	54	151
Hi-Nella, Camden	39	544	Hi-Nella, Camden	34	553
Hoboken, Hudson	54	131	Hoboken, Hudson	67	24
Ho-Ho-Kus, Bergen	52	161	Ho-Ho-Kus, Bergen	45	397
Holland, Hunterdon	42	467	Holland, Hunterdon	35	505
Holmdel, Monmouth	55	120	Holmdel, Monmouth	48	317
Hopatcong, Sussex	65	44	Hopatcong, Sussex	48	318
Hope, Warren	42	479	Hope, Warren	36	496
Hopewell Borough, Mercer	50	225	Hopewell Borough, Mercer	34	540
Hopewell, Cumberland	40	516	Hopewell, Cumberland	34	522
Hopewell, Mercer	45	394	Hopewell, Mercer	46	366
Howell, Monmouth	53	151	Howell, Monmouth	55	141
Independence, Warren	41	481	Independence, Warren	47	350
Interlaken, Monmouth	51	199	Interlaken, Monmouth	41	472
Irvington, Essex	49	237	Irvington, Essex	67	25
Island Heights, Ocean	58	85	Island Heights, Ocean	57	104
Jackson, Ocean	47	306	Jackson, Ocean	51	229
Jamesburg, Middlesex	72	22	Jamesburg, Middlesex	51	225
Jefferson, Morris	49	239	Jefferson, Morris	45	406
Jersey City, Hudson	51	182	Jersey City, Hudson	100	2
Keansburg, Monmouth	60	73	Keansburg, Monmouth	68	21
Kearny Town, Hudson	60	78	Kearny Town, Hudson	62	52

Kenilworth, Union	50	214	Kenilworth, Union	46	378
Keyport, Monmouth	64	45	Keyport, Monmouth	57	94
Kingwood, Hunterdon	43	439	Kingwood, Hunterdon	45	390
Kinnelon, Morris	73	18	Kinnelon, Morris	53	174
Knowlton, Warren	43	434	Knowlton, Warren	36	497
Lacey, Ocean	56	108	Lacey, Ocean	55	138
Lafayette, Sussex	49	240	Lafayette, Sussex	57	93
Lake Como, Monmouth	61	60	Lake Como, Monmouth	53	175
Lakehurst, Ocean	49	258	Lakehurst, Ocean	50	275
Lakewood, Ocean	59	81	Lakewood, Ocean	70	15
Lambertville, Hunterdon	51	198	Lambertville, Hunterdon	46	381
Laurel Springs, Camden	43	435	Laurel Springs, Camden	62	54
Lavallette, Ocean	72	19	Lavallette, Ocean	59	80
Lawnside, Camden	41	500	Lawnside, Camden	43	443
Lawrence, Cumberland	45	391	Lawrence, Cumberland	63	44
Lawrence Township, Mercer	46	348	Lawrence Township, Mercer	52	196
Lebanon Borough, Hunterdon	64	47	Lebanon Borough, Hunterdon	46	364
Lebanon Township, Hunterdon	51	180	Lebanon Township, Hunterdon	35	501
Leonia, Bergen	44	427	Leonia, Bergen	52	208
Liberty, Warren	39	543	Liberty, Warren	34	531
Lincoln Park, Morris	51	183	Lincoln Park, Morris	49	308
Linden, Union	58	87	Linden, Union	61	59
Lindenwold, Camden	41	503	Lindenwold, Camden	54	154
Linwood, Atlantic	45	385	Linwood, Atlantic	44	424

Little Egg Harbor, Ocean	61	63	Little Egg Harbor, Ocean	67	26
Little Falls, Passaic	49	264	Little Falls, Passaic	50	250
Little Ferry, Bergen	62	55	Little Ferry, Bergen	66	30
Little Silver, Monmouth	66	32	Little Silver, Monmouth	56	119
Livingston, Essex	48	285	Livingston, Essex	41	469
Loch Arbour village, Monmouth	46	349	Loch Arbour village, Monmouth	49	294
Lodi, Bergen	49	253	Lodi, Bergen	59	82
Logan Township, Gloucester	43	442	Logan Township, Gloucester	59	71
Long Beach, Ocean	56	101	Long Beach, Ocean	50	249
Long Branch, Monmouth	72	20	Long Branch, Monmouth	69	19
Long Hill, Morris	56	109	Long Hill, Morris	45	402
Longport, Atlantic	61	65	Longport, Atlantic	44	418
Lopatcong, Warren	40	534	Lopatcong, Warren	34	519
Lower Alloways Creek, Salem	41	487	Lower Alloways Creek, Salem	56	113
Lower Township, Cape May	42	470	Lower Township, Cape May	47	347
Lumberton, Burlington	46	347	Lumberton, Burlington	47	344
Lyndhurst, Bergen	49	248	Lyndhurst, Bergen	51	216
Madison, Morris	46	335	Madison, Morris	50	260
Magnolia, Camden	40	517	Magnolia, Camden	53	169
Mahwah, Bergen	56	103	Mahwah, Bergen	51	233
Manalapan, Monmouth	46	362	Manalapan, Monmouth	44	416
Manasquan, Monmouth	66	31	Manasquan, Monmouth	42	460
Manchester Township, Ocean	93	5	Manchester Township, Ocean	56	125
Mannington, Salem	41	504	Mannington, Salem	34	545

Mansfield, Burlington	45	401	Mansfield, Burlington	43	442
Mansfield Township, Warren	46	342	Mansfield Township, Warren	50	276
Mantoloking, Ocean	100	1	Mantoloking, Ocean	54	164
Mantua, Gloucester	44	408	Mantua, Gloucester	52	195
Manville, Somerset	43	456	Manville, Somerset	48	313
Maple Shade, Burlington	42	459	Maple Shade, Burlington	54	150
Maplewood, Essex	48	266	Maplewood, Essex	51	238
Margate City, Atlantic	53	146	Margate City, Atlantic	54	160
Marlboro, Monmouth	57	90	Marlboro, Monmouth	64	39
Matawan, Monmouth	66	36	Matawan, Monmouth	51	231
Maurice River, Cumberland	47	323	Maurice River, Cumberland	62	49
Maywood, Bergen	46	333	Maywood, Bergen	50	248
Medford Lakes, Burlington	43	450	Medford Lakes, Burlington	34	541
Medford Township, Burlington	39	542	Medford Township, Burlington	44	432
Mendham, Morris	56	105	Mendham, Morris	40	479
Mendham Township, Morris	46	363	Mendham Township, Morris	45	396
Merchantville, Camden	43	443	Merchantville, Camden	45	391
Metuchen, Middlesex	48	277	Metuchen, Middlesex	48	323
Middle Township, Cape May	45	395	Middle Township, Cape May	50	257
Middlesex, Middlesex	55	122	Middlesex, Middlesex	51	228
Middletown, Monmouth	62	57	Middletown, Monmouth	68	23
Midland Park, Bergen	51	189	Midland Park, Bergen	49	278
Milford, Hunterdon	63	49	Milford, Hunterdon	45	412
Millburn, Essex	49	263	Millburn, Essex	51	245

Millstone, Monmouth	72	21	Millstone, Monmouth	43	441
Milltown, Middlesex	49	230	Milltown, Middlesex	46	382
Millville, Cumberland	44	411	Millville, Cumberland	55	135
Mine Hill, Morris	50	228	Mine Hill, Morris	49	293
Monmouth Beach, Monmouth	70	26	Monmouth Beach, Monmouth	58	84
Monroe, Gloucester	47	300	Monroe, Gloucester	50	251
Monroe, Middlesex	44	423	Monroe, Middlesex	55	132
Montague, Sussex	43	454	Montague, Sussex	47	355
Montclair, Essex	45	380	Montclair, Essex	54	165
Montgomery, Somerset	51	186	Montgomery, Somerset	53	171
Montvale, Bergen	54	134	Montvale, Bergen	42	464
Montville, Morris	52	172	Montville, Morris	45	409
Moonachie, Bergen	100	2	Moonachie, Bergen	73	12
Moorestown, Burlington	57	89	Moorestown, Burlington	55	129
Morris Plains, Morris	52	170	Morris Plains, Morris	44	434
Morristown Town, Morris	61	66	Morristown Town, Morris	54	153
Mount Arlington, Morris	51	184	Mount Arlington, Morris	48	336
Mount Ephraim, Camden	40	531	Mount Ephraim, Camden	45	398
Mount Holly, Burlington	46	336	Mount Holly, Burlington	46	363
Mount Laurel, Burlington	45	392	Mount Laurel, Burlington	52	207
Mount Olive, Morris	47	296	Mount Olive, Morris	51	240
Mountain Lakes, Morris	54	140	Mountain Lakes, Morris	38	493
Mountainside, Union	57	95	Mountainside, Union	43	456
Mullica, Atlantic	47	310	Mullica, Atlantic	68	22

National Park, Gloucester	48	268	National Park, Gloucester	49	303
Neptune, Monmouth	57	93	Neptune, Monmouth	54	149
Neptune, Monmouth	54	124	Neptune, Monmouth	62	53
Netcong, Morris	52	164	Netcong, Morris	54	158
New Brunswick, Middlesex	51	195	New Brunswick, Middlesex	65	36
New Hanover, Burlington	45	367	New Hanover, Burlington	53	181
New Milford, Bergen	47	324	New Milford, Bergen	50	267
New Providence, Union	47	294	New Providence, Union	45	413
Newark, Essex	57	94	Newark, Essex	100	1
Newton Town, Sussex	52	162	Newton Town, Sussex	46	373
North Arlington, Bergen	48	278	North Arlington, Bergen	53	166
North Bergen, Hudson	46	334	North Bergen, Hudson	60	67
North Brunswick, Middlesex	52	169	North Brunswick, Middlesex	59	74
North Caldwell, Essex	44	426	North Caldwell, Essex	37	494
North Haledon, Passaic	42	473	North Haledon, Passaic	48	316
North Plainfield, Somerset	51	196	North Plainfield, Somerset	55	134
North Wildwood, Cape May	46	361	North Wildwood, Cape May	50	255
Northfield, Atlantic	46	364	Northfield, Atlantic	52	188
Northvale, Bergen	45	372	Northvale, Bergen	50	263
Norwood, Bergen	46	331	Norwood, Bergen	47	349
Nutley, Essex	47	290	Nutley, Essex	53	182
Oakland, Bergen	49	235	Oakland, Bergen	45	415
Oaklyn, Camden	40	515	Oaklyn, Camden	51	244
Ocean City, Cape May	50	227	Ocean City, Cape May	55	128

Ocean Gate, Ocean	62	53	Ocean Gate, Ocean	64	40
Ocean, Monmouth	47	316	Ocean, Monmouth	51	237
Ocean Township, Ocean	53	158	Ocean Township, Ocean	57	98
Oceanport, Monmouth	60	72	Oceanport, Monmouth	60	68
Ogdensburg, Sussex	43	453	Ogdensburg, Sussex	60	70
Old Bridge, Middlesex	51	176	Old Bridge, Middlesex	54	144
Old Tappan, Bergen	54	125	Old Tappan, Bergen	34	552
Oldmans, Salem	40	530	Oldmans, Salem	34	537
Oradell, Bergen	44	410	Oradell, Bergen	44	436
Orange, Essex	49	250	Orange, Essex	61	55
Oxford, Warren	48	286	Oxford, Warren	47	354
Palisades Park, Bergen	46	365	Palisades Park, Bergen	56	124
Palmyra, Burlington	40	541	Palmyra, Burlington	34	514
Paramus, Bergen	49	249	Paramus, Bergen	45	386
Park Ridge, Bergen	45	404	Park Ridge, Bergen	34	507
Parsippany-Troy Hills, Morris	50	223	Parsippany-Troy Hills, Morris	55	137
Passaic City, Passaic	50	215	Passaic City, Passaic	74	10
Paterson, Passaic	50	217	Paterson, Passaic	92	3
Paulsboro, Gloucester	43	451	Paulsboro, Gloucester	51	220
Peapack and Gladstone, Somerset	53	144	Peapack and Gladstone, Somerset	44	423
Pemberton, Burlington	51	191	Pemberton, Burlington	49	298
Pemberton, Burlington	45	393	Pemberton, Burlington	49	282
Pennington, Mercer	65	43	Pennington, Mercer	42	462
Penns Grove, Salem	44	428	Penns Grove, Salem	66	29

Pennsauken, Camden	45	390	Pennsauken, Camden	53	185
Pennsville, Salem	46	337	Pennsville, Salem	52	200
Pequannock, Morris	47	309	Pequannock, Morris	46	367
Perth Amboy, Middlesex	45	396	Perth Amboy, Middlesex	60	64
Phillipsburg Town, Warren	47	292	Phillipsburg Town, Warren	51	246
Pilesgrove, Salem	42	469	Pilesgrove, Salem	54	152
Pine Beach, Ocean	60	74	Pine Beach, Ocean	56	123
Pine Hill, Camden	54	139	Pine Hill, Camden	46	384
Piscataway, Middlesex	48	280	Pine Valley, Camden	62	51
Pitman, Gloucester	43	452	Piscataway, Middlesex	48	326
Pittsgrove, Salem	43	445	Pitman, Gloucester	52	209
Plainfield, Union	55	118	Pittsgrove, Salem	60	69
Plainsboro, Middlesex	50	206	Plainfield, Union	61	63
Pleasantville, Atlantic	48	276	Plainsboro, Middlesex	57	103
Plumsted, Ocean	48	279	Pleasantville, Atlantic	56	109
Pohatcong, Warren	40	511	Plumsted, Ocean	50	272
Point Pleasant Beach, Ocean	70	25	Pohatcong, Warren	34	523
Point Pleasant, Ocean	64	46	Point Pleasant Beach, Ocean	65	37
Pompton Lakes, Passaic	42	476	Point Pleasant, Ocean	50	270
Port Republic, Atlantic	50	202	Pompton Lakes, Passaic	44	420
Princeton boro+twp, Mercer	53	152	Port Republic, Atlantic	65	32
Prospect Park, Passaic	52	159	Princeton boro+twp, Mercer	53	167
Quinton, Salem	40	512	Prospect Park, Passaic	53	170
Rahway, Union	56	100	Quinton, Salem	34	529

Ramsey, Bergen	46	350	Rahway, Union	61	56
Randolph, Morris	46	345	Ramsey, Bergen	35	504
Raritan Borough, Somerset	52	165	Randolph, Morris	51	239
Raritan, Hunterdon	43	458	Raritan Borough, Somerset	50	271
Readington, Hunterdon	54	123	Raritan, Hunterdon	35	499
Red Bank, Monmouth	60	76	Readington, Hunterdon	46	383
Ridgefield, Bergen	45	403	Red Bank, Monmouth	55	127
Ridgefield Park village, Bergen	51	187	Ridgefield, Bergen	52	206
Ridgewood village, Bergen	52	163	Ridgefield Park village, Bergen	57	105
Ringwood, Passaic	47	287	Ridgewood village, Bergen	47	343
River Edge, Bergen	45	397	Ringwood, Passaic	45	387
River Vale, Bergen	42	475	River Edge, Bergen	51	215
Riverdale, Morris	40	529	River Vale, Bergen	39	488
Riverside, Burlington	40	508	Riverdale, Morris	49	301
Riverton, Burlington	39	546	Riverside, Burlington	46	362
Robbinsville, Mercer	45	370	Riverton, Burlington	34	534
Rochelle Park, Bergen	46	329	Robbinsville, Mercer	48	319
Rockaway Borough, Morris	49	261	Rochelle Park, Bergen	45	389
Rockaway Township, Morris	44	425	Rockaway Borough, Morris	43	449
Rockleigh, Bergen	44	429	Rockaway Township, Morris	35	500
Rocky Hill, Somerset	48	273	Rockleigh, Bergen	34	551
Roosevelt, Monmouth	48	265	Rocky Hill, Somerset	56	111
Roseland, Essex	48	267	Roosevelt, Monmouth	56	115
Roselle, Union	49	256	Roseland, Essex	36	495

Roselle Park, Union	51	185	Roselle, Union	52	201
Roxbury, Morris	48	271	Roselle Park, Union	51	226
Rumson, Monmouth	99	3	Roxbury, Morris	46	361
Runnemede, Camden	43	446	Rumson, Monmouth	57	100
Rutherford, Bergen	48	275	Runnemede, Camden	42	465
Saddle Brook, Bergen	50	221	Rutherford, Bergen	50	266
Saddle River, Bergen	66	34	Saddle Brook, Bergen	50	258
Salem, Salem	45	402	Saddle River, Bergen	41	470
Sandyston, Sussex	40	506	Salem, Salem	64	41
Sayreville, Middlesex	55	113	Sandyston, Sussex	40	480
Scotch Plains, Union	53	147	Sayreville, Middlesex	73	13
Sea Bright, Monmouth	61	62	Scotch Plains, Union	48	315
Sea Girt, Monmouth	53	145	Sea Bright, Monmouth	64	38
Sea Isle City, Cape May	47	295	Sea Girt, Monmouth	49	311
Seaside Heights, Ocean	67	30	Sea Isle City, Cape May	46	357
Seaside Park, Ocean	65	42	Seaside Heights, Ocean	71	14
Secaucus Town, Hudson	50	226	Seaside Park, Ocean	61	58
Shamong, Burlington	40	518	Secaucus Town, Hudson	56	112
Ship Bottom, Ocean	47	301	Shamong, Burlington	34	526
Shrewsbury Borough, Monmouth	53	142	SHILOH	56	118
Shrewsbury, Monmouth	87	7	Ship Bottom, Ocean	54	159
Somerdale, Camden	39	548	Shrewsbury Borough, Monmouth	49	283
Somers Point, Atlantic	46	338	Shrewsbury, Monmouth	49	292
Somerville, Somerset	47	317	Somerdale, Camden	34	538

South Amboy, Middlesex	51	179	Somers Point, Atlantic	57	96
South Bound Brook, Somerset	47	293	Somerville, Somerset	51	223
South Brunswick, Middlesex	49	244	South Amboy, Middlesex	54	156
South Hackensack, Bergen	64	48	South Bound Brook, Somerset	46	370
South Harrison, Gloucester	40	532	South Brunswick, Middlesex	53	177
South Orange Village, Essex	49	251	South Hackensack, Bergen	52	197
South Plainfield, Middlesex	49	231	South Harrison, Gloucester	59	75
South River, Middlesex	52	171	South Orange Village, Essex	48	321
South Toms River, Ocean	75	15	South Plainfield, Middlesex	47	346
Southampton, Burlington	46	328	South River, Middlesex	65	34
Sparta, Sussex	61	64	South Toms River, Ocean	61	61
Spotswood, Middlesex	48	282	Southampton, Burlington	49	279
Spring Lake, Monmouth	57	92	Sparta, Sussex	46	371
Spring Lake Heights, Monmouth	53	154	Spotswood, Middlesex	46	358
Springfield, Burlington	44	416	Spring Lake, Monmouth	49	302
Springfield, Union	51	193	Spring Lake Heights, Monmouth	54	163
Stafford, Ocean	56	102	Springfield, Burlington	49	287
Stanhope, Sussex	63	50	Springfield, Union	51	219
Stillwater, Sussex	40	522	Stafford, Ocean	56	106
Stockton, Hunterdon	79	11	Stanhope, Sussex	43	450
Stone Harbor, Cape May	62	54	Stillwater, Sussex	34	521
Stow Creek, Cumberland	40	510	Stockton, Hunterdon	46	369
Stratford, Camden	40	521	Stone Harbor, Cape May	41	477

Summit, Union	52	174	Stow Creek, Cumberland	34	547
Surf City, Ocean	60	79	Stratford, Camden	56	107
Sussex, Sussex	63	52	Summit, Union	51	214
Swedesboro, Gloucester	41	488	Surf City, Ocean	50	254
Tabernacle, Burlington	41	494	Sussex, Sussex	46	374
Teaneck, Bergen	49	236	Swedesboro, Gloucester	56	114
Tenaflly, Bergen	45	368	Tabernacle, Burlington	44	435
Tewksbury, Hunterdon	50	218	Teaneck, Bergen	53	172
Tinton Falls, Monmouth	59	80	Tenaflly, Bergen	46	359
Toms River, Ocean	81	10	Teterboro, Bergen	56	116
Totowa, Passaic	49	246	Tewksbury, Hunterdon	39	487
Trenton, Mercer	45	400	Tinton Falls, Monmouth	52	210
Tuckerton, Ocean	79	12	Toms River, Ocean	75	8
Union Beach, Monmouth	70	24	Totowa, Passaic	48	330
Union City, Hudson	47	312	Trenton, Mercer	66	31
Union, Hunterdon	45	379	Tuckerton, Ocean	62	50
Union, Union	52	166	Union Beach, Monmouth	70	18
Upper Deerfield, Cumberland	40	520	Union City, Hudson	65	33
Upper Freehold, Monmouth	45	374	Union Township, Hunterdon	34	506
Upper Pittsgrove, Salem	40	514	Union, Union	57	92
Upper Saddle River, Bergen	43	437	Upper Deerfield, Cumberland	34	513
Upper Township, Cape May	56	104	Upper Freehold, Monmouth	44	419
Ventnor City, Atlantic	51	188	Upper Pittsgrove, Salem	34	530
Vernon, Sussex	50	219	Upper Saddle River, Bergen	39	489

Verona, Essex	46	340	Upper Township, Cape May	44	421
Vineland, Cumberland	42	464	Ventnor City, Atlantic	59	76
Voorhees, Camden	42	471	Vernon, Sussex	50	253
Waldwick, Bergen	50	209	Verona, Essex	49	289
Wall Township, Monmouth	55	119	Vineland, Cumberland	54	161
Wallington, Bergen	47	319	Voorhees, Camden	55	139
Walpack, Sussex	41	483	Waldwick, Bergen	39	486
Wanaque, Passaic	50	205	Wall Township, Monmouth	54	155
Wantage, Sussex	47	314	Wallington, Bergen	57	90
Warren, Somerset	61	61	Walpack, Sussex	56	117
Washington, Warren	66	35	Wanaque, Passaic	49	281
Washington, Warren	43	438	Wantage, Sussex	50	256
Washington Township, Bergen	43	449	Warren, Somerset	44	425
Washington Township, Gloucester	62	58	Washington, Warren	34	515
Washington Township, Morris	49	262	Washington Township, Bergen	43	451
Watchung, Somerset	50	211	Washington Township, Gloucester	38	491
Waterford Township, Camden	40	528	Washington Township, Morris	39	485
Wayne, Passaic	47	297	Washington Township, Warren	45	400
Weehawken, Hudson	49	243	Watchung, Somerset	49	277
Wenonah, Gloucester	40	523	Waterford Township, Camden	40	478
West Amwell, Hunterdon	49	234	Wayne, Passaic	49	280
West Caldwell, Essex	47	291	Weehawken, Hudson	63	47
West Cape May, Cape May	43	447	Wenonah, Gloucester	34	548

West Deptford, Gloucester	41	491	West Amwell, Hunterdon	35	503
West Long Branch, Monmouth	55	116	West Caldwell, Essex	48	327
West Milford, Passaic	50	213	West Cape May, Cape May	47	339
West New York Town, Hudson	45	371	West Deptford, Gloucester	45	394
West Orange, Essex	56	98	West Long Branch, Monmouth	49	309
West Wildwood, Cape May	45	405	West Milford, Passaic	45	411
West Windsor, Mercer	44	418	West New York Town, Hudson	63	45
Westampton, Burlington	42	465	West Orange, Essex	61	62
Westfield Town, Union	54	135	West Wildwood, Cape May	48	314
Westville, Gloucester	44	424	West Windsor, Mercer	57	88
Westwood, Bergen	45	398	Westampton, Burlington	45	410
Weymouth, Atlantic	40	533	Westfield Town, Union	50	268
Wharton, Morris	48	284			
White Township, Warren	40	527			
Wildwood, Cape May	44	415			
Wildwood Crest, Cape May	44	419			
Willingboro, Burlington	50	222			
Winfield, Union	45	378			
Winslow, Camden	43	455			
Woodbine, Cape May	45	373			
Woodbridge, Middlesex	49	232			
Woodbury, Gloucester	43	441			
Woodbury Heights, Gloucester	40	525			

Woodcliff Lake, Bergen	45	389			
Woodland Park, Passaic	45	383			
Woodland, Burlington	41	499			
Woodlynne, Camden	42	480			
Wood-Ridge, Bergen	49	238			
Woodstown, Salem	49	259			
Woolwich, Gloucester	39	549			
Wrightstown, Burlington	58	86			
Wyckoff, Bergen	54	137			

Source: FEMA IA registrant data - obtained via an Open Public Records Act request to NJDCA by Fair Share Housing Center as of 2/15/2013; NJ Division of Banking and Insurance, data call as of May 3, 2013; Sandy Federal Funds Tracker, NJ Office of the Comptroller, as of July 2013.

SOURCES

American Community Survey, 2007-2011.

Amoruso, Louis, DPW Director and Assistant Business Administrator, Toms River, "Recovering from Sandy - The Public Works Perspective," Annual Public Works Continuing Education Conference, Atlantic City, March 21, 2013.

Beeson, Ed, "Sandy's impact on insurance rates, policies already being felt: agents," The Star-Ledger, nj.com, April 21, 2013. Accessed 8/30/13.
http://www.nj.com/business/index.ssf/2013/04/sandys_impact_on_insurance_rat.htmlThe Star-Ledger

Bernstein, Andrea, and Kate Hinds, "How New Jersey Transit Failed Sandy's Test," WNYC, May 13, 2013, accessed 8/29/13. <http://www.wnyc.org/blogs/transportation-nation/2013/may/13/njtransit-sandy/>

Blake, Eric, Todd Kimberlain, Robert Berg, John Cangialosi and John Beven, "Tropical Cyclone Report: Hurricane Sandy (AL182012) 22-29 October 2012," National Hurricane Center, 12 February 2013.

Blue Ribbon Commission, "Recommendations for Ensuring a Strong Transportation Network for the 21st Century," Report to Governor James McGreevy and the NJ Legislature, November 2003. <http://www.state.nj.us/transportation/refdata/blueribbonexecsummary.pdf>

Burgo, Kim, Senior Director, Disaster Services, Catholic Charities, presentation in Sayreville, NJ, January 16, 2013.

Clark, Matt, Administrator, Monmouth County Board of Taxation, "Dealing with the Loss of Ratables and Tax Assessing Issues Related to Damaged Homes and their Impact on the Municipal Budget," NJ League of Municipalities, January 23, 2013.

Craven, Laura, "FEMA rebuilding specialists on hand at home improvement stores," Star-ledger, January 21, 2013, accessed 8/29/13.
http://www.nj.com/news/index.ssf/2013/01/fema_rebuilding_specialists_on.html

D'Amico, Jessica, "Middlesex County Muddles through Sandy's Mayhem," Sentinel, November 7, 2012, accessed 8/29/13. http://em.gmnnews.com/news/2012-11-07/Front_Page/Middlesex_County_muddles_through_Sandys_mayhem.html

DOE Situation Reports, October 30 through November 12, 2012.

Enterprise Community Partners, "Measuring the Response to Hurricane Sandy: FEMA Assistance Analysis for New Jersey and New York," Enterprise Resource Database, 2013.
<http://www.practitionerresources.org/showdoc.html?id=67899>

FEMA IA registrant data - obtained via an Open Public Records Act request to NJDCA by Fair Share Housing Center as of 2/15/13, obtained 2/25/13.

FEMA Sandy (@FEMASandy), "8.5 million cubic yards of mixed debris which includes 2.5 million cubic yards of sand & silt deposited on the road & waterways.," May 1, 2013, 6:11 AM - 1 May 13. Tweet.

FEMA, "Federal Cost-Share For Sandy Cleanup, Rebuilding Projects In New Jersey Increased to 90 Percent," Press Release Number: 4086-177, June 26, 2013. <http://www.fema.gov/news-release/2013/06/26/federal-cost-share-sandy-cleanup-rebuilding-projects-new-jersey-increased-90>

FEMA, "6 months Report: Superstorm Sandy from Pre-Disaster to Recover," April 25, 2013. <http://www.fema.gov/disaster/4086/updates/6-months-report-superstorm-sandy-pre-disaster-recovery>

FEMA, "Public Assistance – Reimbursement To Municipalities & PNP's," FEMA.gov. http://www.nj.gov/dca/divisions/dlgs/hottopics/hottopics_docs/Public_Assistance_Reimbursement.pdf

FEMA, "When Disaster Strikes, Volunteer Efforts Are Crucial." FEMA.gov, News release, August 23, 2013. Accessed 8/26/13.

FEMA, "Assistance to Individuals and Households Fact Sheet," FEMA.gov, accessed 8/26/13. <http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/recovery-directorate/assistance-individuals-and>

FEMA, New Jersey Recovery from Hurricane Sandy: By The Numbers, February 26, 2013. <http://www.fema.gov/news-release/2013/02/22/new-jersey-recovery-hurricane-sandy-numbers>

FEMA, Preparedness in America: Research Insights to Increase Individual, Organizational, and Community Action, September 2013.

FEMA.gov, CERT, 2013. Accessed 8/30/13. <http://www.fema.gov/community-emergency-response-teams>

First Energy, "Jersey Central Power & Light Submits Rate Filing For Hurricane Sandy Restoration Costs," February 22, 2013. Accessed 10/3/13. https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/jersey-central-power--light-submits-rate-filing-for-hurricane-s.html

Friedman, Matt, "Power companies failed to communicate after Sandy, N.J. utility officials say," nj.com, December 6, 2012. Accessed 1/20/13. www.nj.com/politics/index.ssf/2012/12/bpu_utilities_failed_to_comm.html

Hartford, "The Hartford 2013 Small Business Pulse: Storm Sandy," January 3, 2013-February 13, 2013. <http://www.thehartford.com/sites/thehartford/files/sandy-infographic.pdf>

Hearne, Tim, CEO, United Way of Monmouth County, Interview July 10, 2013.

Hennelly, Bob, "NJ's Sandy Power Complaint Tally In," WNYC, December 4, 2012. Accessed 1/20/13. <http://www.wnyc.org/articles/new-jersey-news/2012/dec/04/sandy-power-complaint-tally/>

Hoopes Halpin, Stephanie, ALICE (Asset-Limited, Income-Constrained, Employed): A Study of Financial Hardship in New Jersey, United Way of Northern New Jersey, 2012. http://www.unitedwaynnj.org/documents/UWNNJ_ALICE%20Report_FINAL2012.pdf

Housing and Community Development of New Jersey (HCDNJ), New Jersey Future and Fair Share Housing Center, open letter to Secretary Shaun Donovan, U.S. Department of Housing and Urban Development, April 4, 2013. <http://www.hcdnnj.org/assets/documents/sandy%20action%20plan%20letter%20to%20donovan.pdf>

Hurricane Sandy New Jersey Relief Fund, Impact Report, August 12, 2013. Accessed 9/2/13. <http://sandynjrelieffund.org/go.cfm?do=Press.View&prid=68>

Insurance Journal, "FEMA Data Suggests Some Insurers Handling NFIP Claims Faster Than Others," February 17, 2013. <http://www.insurancejournal.com/news/east/2013/02/17/281517.htm>

Insurance Research Council, "Recession Marked by Bump in Uninsured Motorists," News Release, April 21, 2011. http://www.insurance-research.org/sites/default/files/downloads/IRCUM2011_042111.pdf

Joslyn, Heather, "A Month After Sandy, Charities Have Raised Over \$244-Million," The Chronicle of Philanthropy, November 30, 2012. Accessed 9/2/13. <http://philanthropy.com/blogs/2012sandy/2012/11/30/a-month-after-sandy-charities-have-raised-over-244-million/>

Kaufman, Sarah, Carson Qing, Nolan Levenson and Melinda Hanson, Transportation During and After Hurricane Sandy, Rudin Center for Transportation, NYU Wagner Graduate School of Public Service, November 2012. <http://wagner.nyu.edu/files/rudincenter/sandytransportation.pdf>

Keen, Clifford, Utility Department Superintendent, of Ocean, Ocean County, "Sandy's Impact on Water & Wastewater Infrastructure," Annual Public Works Continuing Education Conference, Atlantic City, March 20, 2013.

Kim, Susan, "Facts About FEMA – And How UMCOR Fits In," United Methodist Committee on Relief, June 2013, accessed 08/27/13. <http://www.umcor.org/UMCOR/Resources/News-Stories/2013/June/0621-Facts-About-FEMA>

Kousky, Carolyn and Erwann Michel-Kerjan, "Hurricane Sandy, Storm Surge, and the National Flood Insurance Program: A Primer on New York and New Jersey," Wharton Risk Center Issue Brief series, Resources for the Future, November 2012. <http://www.rff.org/RFF/Documents/RFF-IB-12-08.pdf>

Kov, Daniel J., "NJ to tear down Cumberland homes ruined by Sandy, *Daily Journal*, May 16, 2013, accessed, 8/29/13. <http://www.thedailyjournal.com/article/20130516/NEWS01/305160024/NJ-tear-down-Cumberland-homes-ruined-by-Sandy>

Leamy, Theresa, Senior Vice President, Resource Development, United Way of Northern New Jersey, Interview July 1, 2013 and follow-up e-mails.

Mansfield, Matthew, and William Linzey, "Hurricane Sandy Multi-State Outage & Restoration Report," Public Service Commission of Maryland, Case 9308, February 1, 2013. [http://www.naseo.org/Data/Sites/1/documents/committees/energysecurity/documents/md-sandy-multi-state-outage-report-\(february2013\).pdf](http://www.naseo.org/Data/Sites/1/documents/committees/energysecurity/documents/md-sandy-multi-state-outage-report-(february2013).pdf)

McMahon, Stephen, MSW, President, McMahon Solutions, Interview July 10, 2013.

Morris County local child care centers, e-mail correspondence, August 24-28, 2013.

National Flood Insurance Program (NFIP), "Policies in Force by Occupancy Type," FEMA, July 2013. <http://www.fema.gov/flood-insurance-statistics-current-month/policies-force-occupancy-type>

National Flood Insurance Program (NFIP), "NFIP Statistics," FloodSmart.gov, February 14, 2013. http://www.floodsmart.gov/floodsmart/pages/media_resources/stats.jsp

National Insurance Crime Bureau, "Sandy Damaged Vehicles Surpasses 250,000," February 21, 2013. <https://www.nicb.org/newsroom/news-releases/sandy-damaged-vehicles-surpass-250000>

New Jersey Recovery Fund, <http://www.grdodge.org/about-us/new-jersey-recovery-fund/>
NJ 2-1-1, Hurricane Sandy Calls, May 2013.

NJ Board of Public Utilities, "Hurricane Sandy Emergency Information." accessed 11/15/12.
<http://www.state.nj.us/bpu/home/hurricane.html>

NJ Department of Banking and Insurance (DOBI), "Residential Mortgage Foreclosure Reports," 2013. https://www4.state.nj.us/DOBI_MRT4CLSR/ForeclosureReports

NJ Division of Banking and Insurance (DOBI), data call as of 05/03/2013.

NJ Department of Community Affairs (NJDCA), Community Development Block Grant Disaster Recovery Action Plan, April 29, 2013. <http://www.state.nj.us/dca/announcements/pdf/CDBG-DisasterRecoveryActionPlan.pdf>

NJ Department of Education, county and district offices of the superintendent, e-mail and phone, 9/21/13-9/28/13.

NJ Department of Human Services, "Disaster SNAP Information," nj.gov, accessed 8/28/13.

NJ Division of Banking and Insurance, data call as of 05/03/2013.

NJ Economic Development Authority, calls to the state's emergency hotline from gas station managers for assistance with power or gas delivery, March 2013.

NJ Office of the Governor, "Christie Administration Releases Total Hurricane Sandy Damage Assessment of \$36.9 Billion," Press Release, November 28, 2012.
<http://www.nj.gov/governor/news/news/552012/approved/20121128e.html>

NJ Office of the Governor, "Christie Administration Announces More Than \$51 Million In FEMA Grants For Waterway Debris Removal Throughout New Jersey," June 17, 2013.
<http://www.nj.gov/governor/news/news/552013/approved/20130617a.html>

NJ Office of the State Comptroller, Sandy Federal Funds Tracker, 2013.
<http://nj.gov/comptroller/sandytransparency/funds/>

NJ Transit, "Super Storm Sandy FTA Grant Reimbursement for the Week Ending 9/14/2013," accessed 10/1/13.
<http://superstormsandyrecovery.com/img/documents/Sandy%20Matrix%2009142013.pdf>

Nurin, Tara, "Union Beach Residents Face Limited Options After Sandy," NJ Spotlight, March 2013, accessed 8/29/13. <http://www.njspotlight.com/stories/13/03/13/union-beach-residents-weigh-limited-options-after-sandy/>

O'Brien, Kennedy, Mayor of Sayreville, comments at public meeting in Sayreville, NJ, January 16, 2013.

O'Neill, Erin, "Long-term recovery groups gear up to plug funding gaps for Sandy victims," The Star-Ledger, The Star-Ledger, June 30, 2013. Accessed 9/4/13.
http://www.nj.com/monmouth/index.ssf/2013/06/sandy_long_term_recovery_group_fund.html

Paul, Jeff, Director of the Morris County Office of Emergency Management, January 25, 2012.

Pham, Brian, Director of Operations, Break A Difference, Interview July 10, 2013.

Pinto, Frank, Director, Morris County Department of Human Services, Interview January 9, 2013.

Preston, Leonard, New Jersey State Data Center, New Jersey Department of Labor & Workforce Development, e-mail correspondence, July 1, 2013.

Procida, Lee, "Tax Assessor Set Aside \$4.3 billion in Property Value Lost in Sandy," Press of Atlantic City, July 7, 2013. Accessed 8/28/13. http://www.pressofatlanticcity.com/mobi/storm/tax-assessor-set-aside-billion-in-property-value-lost-in/article_d5406f38-e677-11e2-b330-0019bb2963f4.html

PSEG, "PSEG Estimates the Utility's Cost of Superstorm Sandy Restoration," December 4, 2012. Accessed 10/3/13. <http://www.pseg.com/info/media/newsreleases/2012/2012-12-04.jsp#.UIRIW9rD99A>

Razzoli, Michael, Director, Department of Public Works, Jersey City, Interview at the Annual Public Works Continuing Education Conference, Atlantic City, March 20, 2013.

Red Cross National Shelter System, NJ Reported Shelter Data, May 2013.

Reiman, Mayor Daniel J., "2013 State of the Address," Carteret, March 6, 2013. http://www.ci.carteret.nj.us/filestorage/252/571/4246/SOTB_2013.pdf

Robin Hood Foundation, "Robin Hood Surpasses \$62 Million in Hurricane Sandy Relief Grants; 93% of Relief Fund Now Allocated, March 19, 2013. Accessed 9/3/13. <http://www.robinhood.org/news/robin-hood-surpasses-62-million-hurricane-sandy-relief-grants-93-relief-fund-now-allocated#sthash.064bHWTC.dpuf>

Ross, Tracey, A Disaster in the Making Addressing the Vulnerability of Low-Income Communities to Extreme Weather," Center for American Progress, August 2013. <http://www.americanprogress.org/wp-content/uploads/2013/08/lowincomeresilience-2.pdf>

Rouse, Karen, "Feds reimburse \$5M to NJ for Sandy debris removal, The Record, nj.com, June 19, 2013. http://www.northjersey.com/news/Feds_reimburse_5M_to_NJ_for_Sandy_debris_removal.html#sthash.tenrtfco.dpuf

Rutgers School of Continuing Studies, New Jersey District Data Book, 2010.

Schneider, Greg, Director of Public Works, Parsippany-Troy Hills, Interview December 20, 2012.

Settles, Tim, Regional Director, Disaster Services, American Red Cross, South Jersey Region, Telephone interview, January 7, 2013.

Small Business Administration, Business Physical Disaster Loans, 2013. Accessed 9/2/13. <http://www.sba.gov/content/physical-disaster-loans>

Small Business Administration, NJ County Report, as of July 2013, received via e-mail from SBA Office of Disaster Assistance, August 21, 2013.

Spoto, MaryAnn, "U.S. HUD Secretary tours Sandy-hit towns with Christie, vows to finish recovery job," The Star Ledger, August 20, 2013. Accessed 8/21/13. http://www.nj.com/politics/index.ssf/2013/08/hurricane_sandy_recovery_update_chris_christie_u_s_hud_secretary.html

Star-Ledger, " Seaside Heights has credit rating downgraded, making post-Sandy borrowing more costly," nj.com, December 19, 2012. Accessed 8/28/13. http://www.nj.com/news/index.ssf/2012/12/seaside_heights_has_credit_rat.html

Star-Ledger, "Hurricane Sandy Deals Big Blow to N.J. towns' Property Tax Rolls," nj.com, March 31, 2013, accessed 8/28/13. http://www.nj.com/politics/index.ssf/2013/03/hurricane_sandy_deals_blow_to.html

State Budget Crisis Task Force, Report of the State Budget Crisis Task Force: New Jersey Report, September 2012.

State of New Jersey, power company power restoration estimates, 'Spotlight' page.
<http://www.state.nj.us/nj/home/features/spotlight/> This data has been taken down. A sample of the estimates:
http://www.state.nj.us/nj/home/features/spotlight/20121107_JCPL_Town_Estimates.pdf

Strickland, Anais, "Update: Total Raised for Superstorm Sandy Relief Now Tops \$92.3-Million," The Chronicle of Philanthropy, November 5, 2012. Accessed 9/2/13.
<http://philanthropy.com/blogs/2012sandy/2012/11/05/update-total-raised-for-superstorm-sandy-relief-now-tops-91-8-million/>

Sullivan, Patrick, "Sandy Donations Lagging Far Behind Smaller Storms," The Non-Profit Times, December 10, 2012. Accessed 9/04/13. <http://www.thenonproftimes.com/news-articles/sandy-donations-lagging-far-behind-smaller-storms/>

Times-Picayune Staff, "Hurricane Katrina pushed landfill business into overdrive," Times-Picayune, March 20, 2011, accessed 10/3/13.

Tovo, Robert, Administrator, Mountain Lakes NJ, Interview January 7, 2013.

Town-by-town Map of Superstorm Sandy damage levels in New Jersey, The Record, April 2, 2013. http://www.northjersey.com/news/Town-by-town_map_of_superstorm_Sandy_damage_levels_in_New_Jersey.html#sthash.7JdG5a64.dpuf

Transportation for America, "The Fix We're In For: The State of Our Nation's Bridges 2013," accessed 10/8/13. <http://t4america.org/docs/bridgereport2013/2013BridgeReport.pdf>

U.S. Bureau of Labor Statistics, 2013.

U.S. Department of Labor, Unemployment Insurance Weekly Claims Data, 2011 and 2012.

Vargas, Carlos, NJ Department of Human Services, telephone interview, October 8, 2013.