FINAL PROJECT REPORT: ***A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey***

Completed for: The New Jersey Coastal Zone Management Program; New Jersey Department of Environmental Protection

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The views expressed in this report are the authors' own and do not reflect the official policies or positions of the interview participants, the New Jersey Department of Environmental Protection (NJDEP) Coastal Management Program, the participants in the Project Working Group, or Rutgers University.

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I. Report purpose and outline

While all people living in the United States are affected by climate change, some communities and some populations are more vulnerable to changing climate conditions than others. Extensive research here in the United States and across the world points to populations of concern including those that are low-income, communities of color, immigrant populations, people with limited English proficiency, Indigenous people, older and younger adults, people with disabilities and compromised health and mental health conditions, and others.

The New Jersey Department of Environmental Protection Coastal Management Program received a Project of Special Merit (PSM) grant from the National Oceanic and Atmospheric Administration (NOAA) as part of NOAA's Coastal Hazards & Cumulative and Secondary Impacts Integrated Strategy: Resilient and Sustainable Coastal Communities. The Project of Special Merit, *A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey,* was designed as a collaborative effort among the New Jersey Department of Environmental Protection and two programs within Rutgers, The State University of New Jersey: the Environmental Analysis and Communications Group at the Edward J. Bloustein School of Planning and Public Policy and the Jacques Cousteau National Estuarine Research Reserve which is part of the New Jersey Agricultural Experiment Station. Several programs at the New Jersey Department of Environmental Protection were involved in the project, including:

- The ***Bureau of Climate Resilience Planning*** (BCRP) which was formed in May 2019 in response to the need to have an office focused on supporting responding to climate change and adaptation planning needs within the state. As part of the Coastal Management Program, BCRP leads several resilience planning initiatives within the coastal area and served as lead partner in overseeing the *A Seat at the Table* project;
- The ***Office of Policy and Coastal Management*** (PCM) which resides within the Land Use Management Program at DEP. PCM is one of the lead offices in implementing the state's coastal management program. Specifically, PCM develops regulations for the coastal area, freshwater wetlands, and flood hazard areas, provides leadership in coordinating coastal management activities across federal, state, and local entities, among its other responsibilities. PCM is the lead office in developing and reporting on the state's 309 strategy; and
- The ***Office of Environmental Justice*** (OEJ) which is charged with incorporating environmental justice considerations into the actions of all state agencies. The OEJ aims to guide the agency's program areas and state agencies in working to achieve environmental justice, empower residents who are often outside of the decision-making process of government, and address environmental concerns to improve the quality of life in New Jersey's overburdened communities. Among its responsibilities, the OEJ administers the New Jersey Department of Environmental Protection's Environmental Justice Advisory Council (EJAC) and leads implementation of the 2018 Executive Order 23 that directs state agencies to incorporate consideration of environmental justice into decision-making.

The project objectives were to:

- Update and enhance access to data that can be used by practitioners to identify socially vulnerable populations as part of coastal community climate resilience planning;
- Develop guidance in the form of a web-based training curriculum to inform and support practitioners' efforts to engage socially vulnerable populations as part of coastal community climate resilience planning;
- Offer options for changes in coastal management policies that will support engagement of socially vulnerable populations in coastal climate resilience planning.

Expected outcomes of the project included:

- Increased understanding of the characteristics of social vulnerability, how it is manifested in New Jersey, and the needs and challenges of socially vulnerable populations;
- Improved access to data and decision-making tools through refined assessment protocols and guidance;
- Increased capacity among practitioners and vulnerable communities to plan for and mitigate the risk posed from coastal hazards through innovative trainings; and
- More inclusive decision-making and coastal management policies through increased participation from communities and organizations not previously engaged with the Coastal Management Program.

The purpose of this report is to:

- Summarize approach, outcomes and deliverables of this project;
- Highlight current evidence regarding impacts of changing climate-related coastal hazards on socially vulnerable populations;
- Identify opportunities to address needs of socially vulnerable populations as part of coastal community climate resilience planning;
- Outline possible options for coastal management policy that may enhance efforts to address needs of socially vulnerable populations as part of coastal community resilience efforts.

This report is organized with a distinct chapter dedicated to each of the four purposes outlined above followed by a bibliography and appendices.

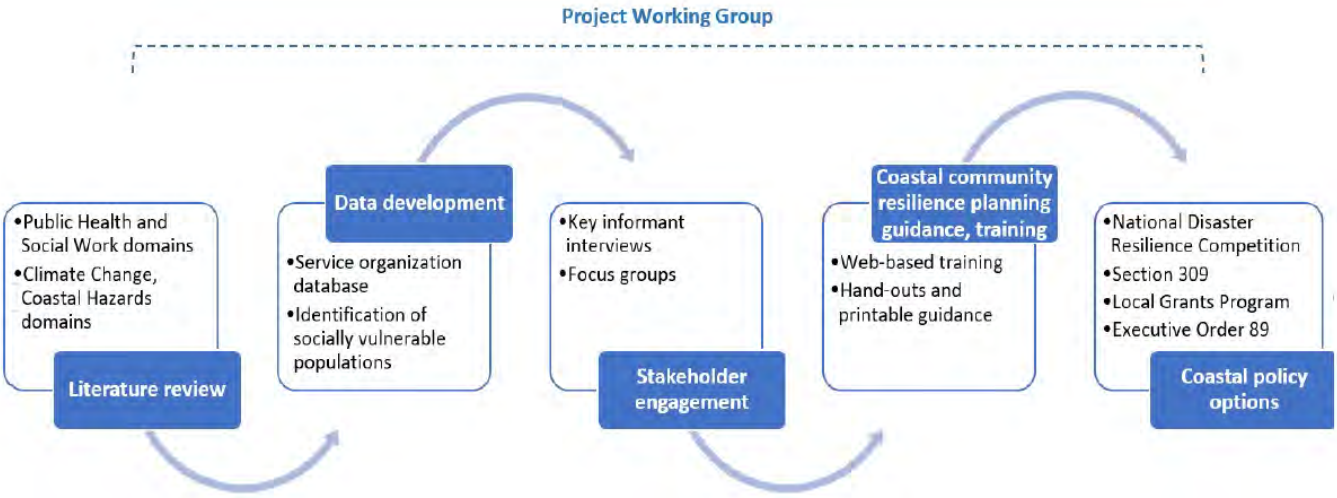
II. Project approach, outcomes and deliverables

This project involved several tasks that "scaffolded" on top of each other (Figure 1). All tasks were informed by participants of a Project Working Group that included representatives of nongovernmental organizations, social service agencies, local governments, and community-based organizations.

Tasks

a. Literature Review
b. Data Development
c. Stakeholder Engagement
d. Development of Coastal Community Resilience Planning Guidance and Training
e. Development of Coastal Policy Options

Figure 1



a. *Literature Review*

At the onset of the project, a general literature review was conducted with a focus on academic literature associated with climate change and planning practices. The Literature Review, included in this report as ***Appendix a.***, was intended to inform subsequent tasks of the project and design of project deliverables. A draft of the Literature Review was reviewed by NJDEP and the Project Working Group prior to finalization. Additional review of literature associated with effective resilience planning strategies was conducted to inform development of the web-based training. All literature and sources reviewed through this task are included in the bibliography contained in this report.

In addition to the general project Literature Review, a team from the Rutgers School of Social Work led by Professor Patricia Findley reviewed public health and social work literature to identify synergies between concepts associated with resilience in the public health and social work disciplines with

concepts in climate change and planning disciplines. Dr. Findley and her team found that the notion of resilience is often considered an important part of how one navigates global social problems, yet there is a lack of consistency and agreement in the literature as to how to operationalize the concept. Without specifying what resilience is, the concept becomes poorly understood and inaccurately applied in practice. The aim of her ongoing work is to define resilience in a way that meaningfully intersects resilience concepts from a climate change perspective with how resilience is also applied to other global social problems. In this way, the theoretical concept of resilience needs to incorporate concepts including cultural acceptability and, in turn has meaning for policy, planning, and intervention. The role of adverse childhood events (ACEs) and the social determinants of health are considered in the definition by Dr. Findley's research team. These concepts present opportunities for applied ways in which resilience planning efforts can more systematically incorporate efforts to address social systems along with environmental, economic and other critical community drivers. Dr. Findley and her team applied their insights into contributing to the development of the project's web-based training and policy recommendations.

Currently, Dr. Findley is directing the development of an abstract for a book chapter proposal that will include a systematic review of the literature to explore resilience more deeply. Plans also include a qualitative analysis of the "listening" transcripts from the Rutgers Team as part of the overall project including reflections as to application of various aspects of resilience to community-based resilience planning efforts with a focus on addressing needs of socially vulnerable populations. From that work Findley hopes to identify other variables that contribute to resilience specifically from reactions to climate change, an identified gap in current published literature.

b. *Data Development*

A specific objective of the project was to increase the availability of data to enhance practitioners' ability to identify socially vulnerable populations as part of resilience planning. This objective was achieved through two data efforts.

- The first was the development of a searchable database of organizations, included in this report as ***Appendix b***, that provide services to socially vulnerable populations with the intent of making it easier for resilience planners to find organizations that might serve, represent and support socially vulnerable populations in their vicinity.
- The second was the identification and development of additional sets of data regarding socially vulnerable populations to complement existing access of the United States Centers for Disease Control and Prevention's Social Vulnerability Index (SVI)[1] through the Rutgers University-hosted web-based data visualization and mapping tool, NJFloodmapper. Adding enhanced social vulnerability data to NJFloodmapper provides an important set of tools to practitioners because it allows for those data to be overlaid with other critical data regarding existing and projected coastal hazards such as projected sea level rise and flooding. As part of this effort, the Rutgers team researched sources of authoritative data regarding socially vulnerable populations not otherwise included in the CDC SVI and consulted with the Project Working Group to identify priorities for data that would assist practitioners with enhanced ability to identify socially vulnerable populations. As a result of this research and deliberation with the Project Working

[1] https://svi.cdc.gov/

Group, the following additional data layers have been published through map services and added to NJFloodmapper so that users can access the data in addition to coastal hazards, climate change and other data sets:

- **Municipal Revitalization Index** - Managed by the state Department of Community Affairs, the *Municipal Revitalization Index (MRI)* serves as the State's official measure and ranking of municipal distress which is defined as: "a multi-dimensional municipal condition linked to fiscal, economic, housing, and labor market weakness in conjunction with a resident population that is generally impoverished and in need of social assistance." The MRI is used to distribute certain "need based" funds and is formulated based on a ranking of the state's municipalities according to the following eight separate indicators:
    - Average Annual Population Change;
    - Children on Temporary Assistance for Needy Families (TANF) per 1,000 Persons;
    - Unemployment Rate;
    - Equalized 3-Year Effective Tax Rate;
    - Equalized Valuation Per Capita;
    - Per Capita Income;
    - Substandard Housing Percentage; and
    - Pre-1960 Housing Percentage
- **Asset Limited, Income Constrained, Employed** - ALICE, an acronym for Asset Limited, Income Constrained, Employed , represents the growing number of individuals and families who are working, but are unable to afford the basic necessities of housing, child care, food, transportation, energy, and health care. Each ALICE county report uses standardized measures to quantify the cost of a basic household budget in each county in each state, and to show how many households are struggling to afford basic household necessities. Managed by the nonprofit organization, United Way of Northern New Jersey, the ALICE report complements other indicators such as the official poverty level and applies four measures using official and public data:
    - Household Survival Budget - a minimal estimate of the total cost of household essentials equal to 10 percent of the household budget.
    - ALICE Threshold - the minimum income level necessary for survival for a household, adjusted for household size and composition for each county.
    - ALICE Income Assessment – a measurement of how much income is needed to reach the threshold, actual income, levels of assistance provided to meet basic needs and unfilled gaps.
    - ALICE Housing Stock Assessment - the number of housing units in a county that ALICE and poverty-level households can afford compared with the demand for affordable units.

  ALICE data are updated on a biennial basis. The most recent 2019 methodology for the ALICE indicators can be found at: https://www.unitedforalice.org/methodology.
- **NJCounts Point-in-Time** - The Federal Department of Housing and Urban Development (HUD) requires each state conduct an assessment during the last 10 days of January each year to identify individuals residing in emergency shelters, transitional housing programs, safe havens and living on the streets or other locations not fit for dwelling. In New Jersey,

the annual program, NJCounts, is the annual Point-in-Time Count coordinated for submittal to HUD by the New Jersey Housing and Mortgage Finance Agency.

- **Veterans** – The U.S. Census Bureau, American Community Survey maintains data regarding demographic, social and economic data on veterans.
- **Housing Stock Age** – Maintained by the United States Census Bureau, American Community Survey, the Housing Stock Age reflects the number of housing units built in the municipality prior to 1970. Older homes may represent an aging infrastructure that may be more vulnerable and less resilient to changing climate conditions.

Another significant data concern associated with this project was the Rutgers Team's concern about the ease-of-use of an indexed dataset as a tool in coastal community resilience planning, namely the Centers for Disease Control SVI index. The Rutgers Team's concern was that, in many cases, coastal community resilience planners would want to have access to the core data associated with an index, rather than the index itself, and also that the index can be difficult to communicate. Increasingly, the Rutgers Team has heard from local resilience planners that the more that data can be automated, the more helpful it is in the resilience planning process. As a result, the Rutgers Team stretched the scope of its effort to also develop automated *"municipal snapshots"* as a function of the NJFloodmapper tool. The vulnerable populations *municipal snapshots* provide users with automated access to the non-indexed data associated with the 15 indicators used in the CDC SVI index overlaid with climate data. The Rutgers Team is further working to expand its *municipal snapshots* effort to include other vulnerable population data, such as the data used in the ALICE database. *Municipal snapshots* are available on a variety of topic areas and the Rutgers Team continues to develop them on new topics; development of the vulnerable population snapshots was a priority to support completion of this project. An example of a draft vulnerable population municipal snapshot for Atlantic City is included as ***Appendix f.***

c. *Stakeholder Engagement*

A discrete task of this project was to engage key informants and to conduct focus groups to hear directly from leaders that work closely with socially vulnerable populations as well as populations and residents. A separate report was prepared summarizing the outcomes of the focus groups and key informant interviews at the completion of the stakeholder engagement task and is attached as ***Appendix c.*** [2]

- With regard to key informants, a draft list of invited key informants was shared with the Project Working Group which offered additional suggestions. The Project Working Group also advised the Rutgers Team on topics to be covered in both the key informant interviews and the focus groups. Twenty key informant interviews were conducted by telephone and in person and in accordance with Rutgers University Institutional Review Board approval. Most key informant interviewees were in leadership positions at statewide, county, or local nonprofit and government

[2]Jeanne Herb, K. Lowrie, L. Auermuller, P. Findley. A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey. Stakeholder Engagement Summary. Submitted to the New Jersey Department of Environmental Protection Bureau of Climate Resilience Planning. October 15, 2019. Rutgers, The State University of New Jersey. New Brunswick, NJ.

organizations that serve, as all or part of their mission, vulnerable populations such as the elderly, mentally ill, low-income families, or immigrants. Questions asked were in three main areas: impacts of changing climate on vulnerable populations and proposed solutions to mitigate impacts; strategies for engagement of organizations and populations in resilience planning; and information, data sources, and needs.

- With regard to focus groups, Rutgers issued a Request for Qualifications to six established, non-profit organizations in New Jersey that have a history of working with socially vulnerable populations. All six organizations were invited to submit a statement of qualifications using a questionnaire designed by Rutgers and approved by NJDEP. Criteria for selection of the organizations to host the focus groups were included in the NOAA-PSM work plan and included as part of the Request for Qualifications. Four organizations submitted statements of qualifications and all four were provided awards to host focus groups: Coopers Ferry Partnership, Camden; Ironbound Community Corporation, Newark; New Jersey Voluntary Organizations after Disasters, statewide; and the Jewish Renaissance Foundation, Perth Amboy. Each focus group lasted approximately 1.5 hours and included a mix of defined and open-ended questions.

The stakeholder engagement final report was prepared by the Rutgers Team based on observations and insights gained from both the key informant interviews and focus groups. The Project Working Group was briefed on the Rutgers team's initial insights from the key informant interviews and focus groups prior to report preparation. The Project Working Group and the staff at the organization that hosted each of the four focus groups reviewed a draft of the stakeholder engagement report and revisions were made to respond to comments received.

d. *Coastal Resilience Planning Guidance and Training*

All of the prior tasks contributed to development of guidance on strategies to engage socially vulnerable populations as part of coastal community resilience planning. This guidance was integrated with other information and guidance as part of a web-based training that is designed for community-based climate resilience planners. The training, designed to be housed on the NJDEP Coastal Management Program website, is approximately 1.5 hours in length.

The web-based training is focused on two basic concepts: (a) enhancing efforts to proactively involve socially vulnerable populations in resilience planning efforts; and (b) assessing outcomes of resilience actions on socially vulnerable populations and communities, including on pre-existing social, physical and economic challenges that socially vulnerable populations face in the community that may be exacerbated by coastal climate conditions. The training contains the following key concepts and four units:

- **Key Concepts**
  - Resilience is a community's ability to "bounce forward"
  - Some people are more vulnerable to climate risks than others
  - Resilience planning is different than emergency management planning
  - Including socially vulnerable people in resilience planning produces more effective outcomes

- Resilience planning strengthens communities
- Equality, equity, diversity and inclusion are at the foundation of whole community resilience planning

➢ **Planning for the Whole Community**
- The Whole Community Approach
- Opportunities to Address Resilience in the Resilient NJ planning framework

➢ **Identifying Socially Vulnerable Populations**
- What does identifying socially vulnerable populations mean?
- Tools for identifying socially vulnerable populations in your community

➢ **Engaging Socially Vulnerable Populations**
- Socially vulnerable populations may face challenges that prevent them from participating in resilience planning processes
- Elements of a participatory process designed to engage socially vulnerable populations
- Assessing impact of resilience actions on socially vulnerable populations

The web-based training includes several printable hand-outs designed to support coastal community resilience planning teams ongoing efforts. These can be found in ***Appendix d***:

✓ Six Key Concepts
✓ How Does Resilience Planning Differ from Emergency Management Planning?
✓ Whole Community Resilience Planning: A Checklist for Planners
✓ Getting Started on a Checklist of Pre-existing Community Challenges to Socially Vulnerable Populations
✓ Examples of indicators of a climate resilient community
✓ Participatory Processes: A Checklist for Resilience Planners
✓ Assessing Your Plan's Impact on Socially Vulnerable Populations

Development of the content of the web-based training was informed directly by the earlier tasks in this project as well as by consultation with the Project Working Group.

To further the delivery of content provided in the training materials, the Getting to Resilience (GTR) website has been updated with themes from the developed training. GTR is an online municipal self-assessment tool that is designed to assist coastal municipalities in resilience planning efforts by linking planning, hazard mitigation and coastal climate adaptation efforts. GTR links hazard mitigation planning with coastal resilience planning and FEMA's Community Rating System planning efforts (http://www.prepareyourcommunitynj.org/) Updates to the GTR online protocols include updated GTR questions and hyperlinks to PDF's of training materials and resources. Concepts that were updated include those outlined in Figure 2. The updated GTR package is included in ***Appendix e***.

Figure 2

GTR Question Updated	How it was Updated
Has your community used maps to compare vulnerabilities in relationship to risks? • Populations, e.g. elderly, children, poor, disabled, linguistically isolated, people of color	Hyperlink to NJFloodMapper Social Vulnerability data sets
Does the community have a Program for Public Information (PPI) that is responsible for outreach materials? • Has there been an effort to identify vulnerable populations? • Are outreach materials in Spanish as well as English (and other languages as needed)?	PDF training file handout titled, "Participatory Processes: A Checklist for Resilience Planners" was embedded as a link.
Are subdivision regulations used to restrict the subdivision of land within or adjacent to high-hazard areas? • Consequences on socially vulnerable populations (elderly, linguistically isolated, etc.)?	Hyperlink to NJFloodMapper Social Vulnerability data sets PDF training file handouts were embedded as links. • Getting Started on a Checklist of Pre-existing Community Challenges to Socially Vulnerable Populations • Assessing Your Plan's Impact on Socially Vulnerable Populations
Has the municipality's Master Plan been updated in the last 10 years? • Did the preparation of the plan involve a broad base of the community? (e.g. public officials, civic organizations, businesses, and citizens)	PDF training file handouts were embedded as links. • Assessing Your Plan's Impact on Socially Vulnerable Populations • Participatory Processes: A Checklist for Resilience Planners
Does the community have an emergency operations plan? • Are vulnerable communities identified? • Are retirement communities identified? • Are linguistically isolated populations identified?	Hyperlink to NJFloodMapper Social Vulnerability data sets PDF training file handouts were embedded as links. • Getting Started on a Checklist of Pre-existing Community Challenges to Socially Vulnerable Populations • Assessing Your Plan's Impact on Socially Vulnerable Populations
Does the community have a designated storm shelter either in or outside its municipal boundaries? • Are shelters equipped for special needs, pets, etc.? • Does the shelter capacity adequately service the community population, including seasonal tourists?	Hyperlink to NJFloodMapper Social Vulnerability data sets
Does the plan identify local and state evacuation assistance programs for the following special needs: • Hospitals • Nursing Homes • Prisons • Residents without Personal Transportation • Elderly • Disabled • Race • Linguistically isolated	PDF training file handouts were embedded as links. • Getting Started on a Checklist of Pre-existing Community Challenges to Socially Vulnerable Populations • Assessing Your Plan's Impact on Socially Vulnerable Populations

e. *Coastal Policy Options*

A final project outcome is the identification of options for New Jersey Coastal Management policies and programs designed to enhance efforts to address social vulnerability as part of coastal resilience efforts. Section V. of this report serves as the project deliverable which outlines possible options policies and programs that can be considered for incorporation into the New Jersey Coastal Management Program for purposes of enhancing efforts to address social vulnerability. These options are offered as considerations by the authors based on insights gained during the course of this project and discussions with the Project Working Group.

During the course of this project, the Rutgers team members have had the opportunity to present initial findings of this project in several different venues, including:

- American Planning Association's International Division's World Town Planning Day Online Conference, November 8, 2019: *Equity, Diversity, and Inclusion in Addressing Climate Change* - https://www.planning.org/international/worldtown/;
- New Jersey Chapter of the American Planning Association's Annual Conference, January 23, 2020: *Social Vulnerability and Climate Change: Challenges and Opportunities* - https://njplanningconference.org/;
- NOAA Social Coast Forum, February 3, 2020: *Developing Equitable Coastal Policies* - https://coast.noaa.gov/digitalcoast/contributing-partners/news/social-coast-forum-2020.html
- American Shoreline Podcast, Coastal News Today, *Effective Coastal Management Takes Us All* - https://www.coastalnewstoday.com/podcasts/jeanne-herb-executive-director-environmental-analysis-communications-group-rutgers-university

III. Current evidence regarding impacts of changing climate conditions on socially vulnerable populations

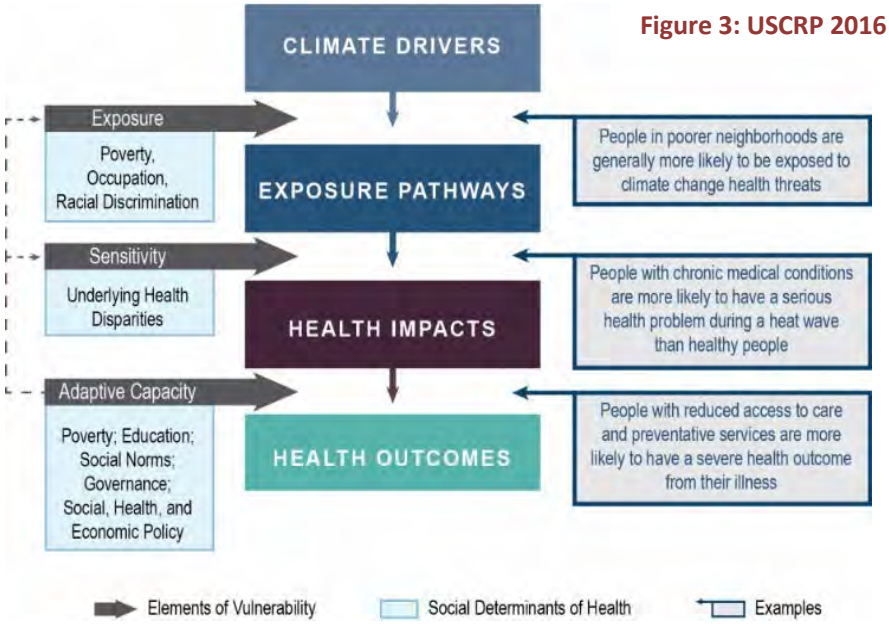


Figure 3: USCRP 2016

While all people living in the United States are affected by climate change, some communities and some populations are more vulnerable to changing climate conditions than others. The United States Global Change Research Program Climate and Health Assessment find that vulnerability to climate change varies across time and location, across communities, and among individuals within communities. Populations of concern include those with low income, communities of color, immigrant groups (including those with limited English proficiency), Indigenous peoples, children and pregnant women, older adults, vulnerable occupational groups, persons with disabilities, and persons with preexisting or chronic medical conditions. Some groups face a number of stressors related to both climate and non-climate factors. For example, people living in impoverished urban or isolated rural areas, floodplains, coastlines, and other at-risk locations are more vulnerable not only to extreme weather and persistent climate change but also to social and economic stressors. Many of these stressors can occur simultaneously or consecutively. Over time, this "accumulation" of multiple, complex stressors is expected to become more evident as climate impacts interact with stressors associated with existing mental and physical health conditions and with other socioeconomic and demographic factors" (Figure 3).[3]

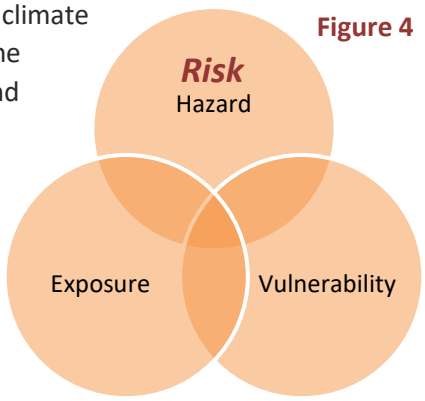


Figure 4

The ability of people and communities to cope with risks from disasters and climate events varies on three factors (Figure 4): the nature of the hazard, such as the magnitude of the flood event; and exposure to the hazard, such as length and frequency of exposure. The third factor that determines risk is the inherent vulnerability of a population or community. Some people are more vulnerable to climate risks due to social factors such as age, race, socioeconomic status, existing health conditions, exposure to other hazards, English language proficiency, and access to transportation.

By way of example, a person who has the ability to telecommute during a coastal flood event and who lives in an elevated home with a well-stocked

[3]USGCRP, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, Eds. U.S. Global Change Research Program, Washington, DC, 312 pp. http://dx.doi.org/10.7930/J0R49NQX

refrigerator and a generator is likely to be less vulnerable to a coastal flooding risk than a person who speaks no English, who lives in a rented basement apartment in a low-lying area with no generator, has a limited food supply, no car and who works an hourly wage job and, as a result, does not get paid if they cannot make it to work because of flood conditions.

Volume II of the Fourth National Climate Assessment, released in 2018, concludes that existing societal inequalities and stressors already faced by certain populations and communities will be greatly exacerbated by climate change. Such inequities may include unequal access to social, community based, and economic conditions that contribute to health and well-being, disproportionate exposure to environmental hazards, and social isolation. The assessment calls for governments to involve populations most affected by climate change into development of policy solutions.[4]

Research points to historic under investment and under representation of certain communities and populations based on factors including race and income that increase their vulnerability to changing climate conditions. Research also points to the intersection of these stressors with other social, economic, environmental, and community factors that influence health inequities.[5]

These messages are underscored by the American Public Health Association that calls climate change and health inequities the "defining public health issues of our time" and that "they are inextricably interconnected." APHA points to the following three connections:

- *Climate change disproportionately impacts the health of low-income communities and communities of color. The same physical, social, economic, and services environments that are associated with poor health outcomes for low-income communities and communities of color also increase exposure and vulnerability to the health impacts of climate change. People in low-income communities and communities of color generally experience greater burdens from preexisting health conditions which increase susceptibility to climate-related health threats. These communities are often historically disenfranchised, lacking the political and economic power and voice to ensure that decision makers take their perspectives, needs, and ideas fully into account. This lack of power contributes to health inequities and constrains the ability of low-income communities and communities of color from building climate resilience and to contributing fully to climate change solutions.*
- *Climate change and health inequities share the same root causes. The same systems (e.g. transportation, food and agriculture, energy) that are major sources of climate pollution also shape the living conditions that comprise the social determinants of health. These systems are shaped by current and historical forces that include structural racism and the persistent lack of social, political, and economic power of low-income communities and communities of color.*
- *Addressing climate change and health inequities requires transformational change in our systems and communities. Many climate solutions offer tremendous health benefits and opportunities to promote greater equity, which are vital to increasing climate resilience. But to*

[4]USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

[5] Brulle, Robert & Pellow, David. (2006). Environmental Justice: Human Health and Environmental Inequalities. Annual review of public health. 27. 103-24. 10.1146/annurev.publhealth.27.021405.102124.

assure that all Americans have opportunities for health requires that we preserve a healthy planet. We cannot have healthy people without healthy places, and we cannot have healthy places without a healthy planet.[6]

Race and Climate Change

The disproportionate impact that climate change has on some populations, such as older residents, children, people with disabilities and compromised health may be more easily understood by the general public. Research in the United States and globally also points to the disproportionate impact that changing climate conditions have on people of color for a variety of reasons as outlined in the Action Toolkit published by the National Association for the Advancement of Colored People (NAACP), "In the Eye of the Storm." Factors leading to disproportionate impact of climate change on people of color include, but are not limited to, historic discriminatory housing, environmental and investment public policies leading to:

- Segregation that cluster people of color in neighborhoods with more pollution, older infrastructure, and greater exposure to climate hazards;
- Lower income status and less economic mobility resulting in lower rates of home ownership, poorer quality of housing construction, and less ability to relocate to safer locations;
- Reduced involvement in civic practices, losing the ability to control present and future outcomes;
- Emergency planning strategies that result in power disconnections, evacuation practices, and temporary sheltering provisions that may exacerbate conditions for people who are subject to discrimination and prejudice;
- Private investment that dislocates traditional low-income residents from a neighborhood driving residents of color to less socially cohesive communities; and
- Less access to quality and affordable healthcare which is critical to ensure long-term health and well-being that is essential for a person to withstand the adverse impact of a climate event, such as increases in respiratory and cardiovascular disease as a result of changes in ground level ozone due to increases in temperatures.

New Jersey officials and public health experts point to similar factors as contributing to higher proportion of COVID-19 deaths among African Americans in New Jersey, where 21.3% of COVID-19 deaths involve African American patients although they make up just 14% of the state's population. In an April 14, 2020 NJ.com article, Governor Phil Murphy was quoted as saying, "On race, the number that jumps out for me continues to be the African American number. It's still about 50% more than the representation of the general population."

For several decades, the University of South Carolina Hazards and Vulnerability Research Institute has synthesized research regarding social vulnerability to natural hazards to form the Social Vulnerability Index (SoVI®) that is designed to measure the social vulnerability of U.S. counties to environmental hazards. The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties using data from 2010-2014.[7,8]

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[6] Climate Change, Health and Equity: A Guide for Local Health Departments. American Public Health Association. 2018. Available at: https://www.apha.org/-/media/files/pdf/topics/climate/climate_health_equity.ashx?la=en&hash=14D2F64530F1505EAE7AB16A9F9827250EAD6C79

[7] Susan Cutter. The Geography of Social Vulnerability: Race, Class, and Catastrophe. Social Science Research Council: Understanding Katrina; Perspectives from the Social Sciences. Social Science Research Council. June 11, 2006. Available at: http://understandingkatrina.ssrc.org/Cutter/

[8] Cutter, S.L.; B.J. Boruff; W.L. Shirley. 2003. Social Vulnerability to Environmental Hazards. Social Science Quarterly 84(2):242–261.

Informed by national research regarding social vulnerability and wellbeing as the index built by the University of South Carolina, the U.S. Centers for Disease Control and Prevention has developed a Social Vulnerability Index (SVI) that uses updated data and is currently used in many states to guide resilience planning efforts. The CDC defines social vulnerability as a "community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as toxic chemical spills." CDC considers factors that contribute to social vulnerability to include:

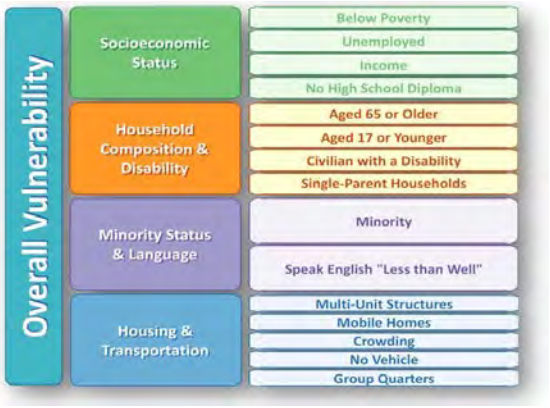


Figure 5: CDC SVI

- Socioeconomic status – including employment, income, housing status, education level, health;
- Age – the old and young are especially vulnerable to changing climate conditions;
- Gender – Gender itself is not a characteristic of social vulnerability but, rather, gender inequalities in society can point to social vulnerabilities. During a climate event, females might be more vulnerable because of differences in employment, lower income, and family responsibilities;
- Race and ethnicity - Social and economic marginalization, societal underinvestment, racism and other factors contribute to the vulnerability of these groups;
- English language proficiency – People who have limited English ability may have difficulty understanding direction during a climate-related event; and
- Medical issues and disability – This category may include people with a physical, cognitive, physical, or sensory impairment, people with behavioral or mental health issues, people who are dependent on electric power to operate medical equipment, people with chronic medical conditions (e.g. asthma).[9]

CDC's SVI uses 15 U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster. These variables are organized into 4 themes (Figure 5):

- Socioeconomic Status - income, poverty, employment, and education variables;
- Household composition/disability – Age 65 and older, age 17 and younger, older than age 5 with a disability, single parent households;[10]
- Minority status & language – minority status, English proficiency;
- Housing & transportation – multi-unit structures, mobile homes, crowding, no vehicle ownership, group quarters.

[9]Centers for Disease Control and Prevention (CDC). Planning for an Emergency: Strategies for Identifying and Engaging At-Risk Groups. A guidance document for Emergency Managers: First edition. Atlanta (GA): CDC; 2015. Available at: https://svi.cdc.gov/Documents/Publications/SVI_Community_Materials/atriskguidance.pdf

[10] Flanagan, Barry E.; Gregory, Edward W.; Hallisey, Elaine J.; Heitgerd, Janet L.; and Lewis, Brian (2011) "A Social Vulnerability Index for Disaster Management," Journal of Homeland Security and Emergency Management: Vol. 8: Iss. 1, Article 3.

IV. Opportunities to Address Needs of Socially Vulnerable Populations in Coastal Climate Resilience Planning

> *"If you want people to bounce back from a storm, make sure they have the resources they need to live a happy and healthy life **now** and then they can take care of themselves if there's a storm event!"*
> Key Informant

An overarching conceptual outcome of this project - resulting from the research, stakeholder engagement, and insights from the Project Working Group – is that, when designed with the intention of delivering outcomes to socially vulnerable and underrepresented populations, coastal resilience planning has the opportunity to increase overall community resilience by addressing the underlying social, economic and physical challenges faced by socially vulnerable populations. In doing so, coastal community resilience planning has the potential to *"bounce forward"* (improve) conditions. People and communities can be healthier, greener, cleaner, more equitable and more prosperous…and more resilient.

A second concept that emerged from the project is that enhancing efforts to engage socially vulnerable populations as part of coastal community resilience planning is insufficient to ensure that resilience planning fully addresses the needs of socially vulnerable populations and that "adding seats to the table" needs to be complemented with efforts to assess impacts of resilience strategies on socially vulnerable strategies. Such impact assessment efforts would be intended to examine how socially vulnerable populations will likely be affected by a proposed resilience action or decision. In doing so, the assessment can be a vital strategy to systematically ensure that the needs of socially vulnerable populations are considered upfront and throughout the resilience planning process.

As part of the stakeholder engagement effort for this project, the Rutgers team heard the following key messages:

- ***For socially vulnerable populations, underlying societal inequities and challenges create the biggest hurdles to achieving resilience.*** This observation was shared for all types of socially vulnerable populations including people with disabilities and mental health needs, low income and environmental justice residents, and senior citizens, among others. Perhaps the most consistent message heard from key informants and focus group participants is the extent to which socially vulnerable populations are already living under highly stressed conditions that are exacerbated by changing climate conditions. The Rutgers Team heard that, for socially vulnerable households, an emergency can be created by less extreme conditions given the pre-existing state of stress. Overall, the input received through the stakeholder process was that resilience processes need to focus on addressing the factors that increase social vulnerability so that residents can be better equipped to prepare for changing climate conditions.
- ***For socially vulnerable populations, resilience is a factor of individuals AND whole communities. In other words, an individual may be somewhat resilient but the condition and level of cohesion of their community may make them less resilient or not resilient at all.*** During focus groups in urban communities, participants pointed to examples such as the built environment, community safety, availability of parks and open

spaces, and infrastructure contributing to their inability to adapt to and recover from a climatic event. Other stakeholders pointed to the level of social cohesion in a community, the transparency and effectiveness of information sharing within a community, and the availability of community-based social services as contributors to whole community resilience.

- ***Most of the stakeholders engaged for this report conveyed a perception that government resources and funds to support resilience and recovery disproportionately benefit communities that are more resourced, meaning they have the capacity to apply for state and federal grants***. For example, organizations that serve socially vulnerable populations after disasters indicate that, while their organization is not necessarily mission-focused on resilience and recovery, it had no choice but to serve the needs of socially vulnerable populations after storm events. These organizations, as well as organizations represented by focus group hosts and key informants, indicate that they are typically operating on organizational budgetary "margins" and are then even more pressed when their organizations are called into service during a climate event. Many indicate that they do not feel consulted in upfront design and implementation of resilience and recovery policies and programs. Many indicate that they simply do not have the capacity to apply for available grant programs.
- ***A resounding message heard from key informants and focus group participants alike is the need for proactive, participatory processes to inform climate resilience planning with specific provisions to engage socially vulnerable populations.*** Key informants and focus group participants indicated that when stakeholders that are or represent socially vulnerable populations are engaged in resilience planning, new issues will be introduced to the process such as affordable housing, transportation mobility, public health and community safety. Stakeholders indicated that new processes will be needed to ensure the participation of socially vulnerable populations including convenient meeting times and locations, cultural competency, family support services, home visits, partnerships with trusted local sources, and compensation. When key informant interviewees and focus group participants were asked who they trust, often the answer was a local organization that is embedded in the community. Focus group participants also emphasized the need for residents themselves to inform community decision-making regarding resilience-related planning and decision-making, citing that residents know best what actions will be most effective in their own community.
- ***In general, key informant interviewees and focus group participants identify an important role for government to play, especially with regard to ensuring that socially vulnerable communities and populations receive the resources and capacity needed to address underlying conditions that may be exacerbated by climate conditions, and prepare for and recover from climatic events.*** However, focus group participants and key informant interviewees were clear to emphasize that the role of government must be in partnership with organizations, leaders and residents of socially vulnerable communities and populations that may not traditionally have been involved in resilience planning.

Input from this project's stakeholder engagement effort complemented research project findings regarding the concept that community resilience planning provides several important opportunities for socially vulnerable and historically underrepresented populations, including:

- Providing a forum for concerns to be raised by residents and community leaders and to build commitment among government agencies, non-profits, businesses, and the public to advance equity goals in resilience planning;
- Creating a common fact base that educates residents, stakeholders and officials about the vulnerability of disadvantaged populations;
- Enhancing options for reducing the vulnerability of socially vulnerable and underrepresented populations by combining the best available formal scientific and technical knowledge with informal knowledge of local people who know more about dangers of their particular situation; and
- Coordinating strategies that reduce vulnerability of socially vulnerable populations with other community programs aimed at economic development, environmental quality, health, housing, and infrastructure investments.

Research finds that community recovery and pre-disaster planning is more effective when all people (and not just a powerful few) have a voice. Because socially vulnerable populations have historically been underrepresented in community decision-making, ensuring their involvement and their capacity to be involved is critical to ensure development of effective resilience and recovery plans. Stakeholders and research alike point to the need to proactively reach out to socially vulnerable and underrepresented populations to effectively engage them as part of climate resilience planning and not expect them to participate in traditional stakeholder engagement processes.

Similarly, the Rutgers Team heard from stakeholders that resilience planning offers opportunity to address all aspects of the community and, in doing so, can provide a vehicle to address pre-existing social, physical, and economic challenges that socially vulnerable populations may face in a community that are exacerbated by changing coastal climate conditions. This concept is also echoed by input from the Project Working Group, the Literature Review and the analysis conducted by the members of the Rutgers School of Social Work team who focused on examining the connections between concepts of resilience in the climate change and planning disciplines with concepts in public health and social work disciplines. For these reasons, framing coastal community resilience planning efforts in a "whole community" lens appears to offer opportunity to create the conditions in which democratic processes and civic engagement can flourish to ensure that visions for a resilient future for the community reflect many perspectives, including those of socially vulnerable populations. Fundamental objectives of whole community resilience planning that offer opportunities to expand the ability to address the needs of socially vulnerable populations includes the following characteristics that are woven into the web-based training developed for this project:

- *Highly participatory* and grounded in the concept that integrating all voices in a community, especially those most vulnerable, into the planning process leads to stronger and more effective outcomes;
- *Multi-sectoral* and explores underlying causes to hazards and vulnerabilities. While a hazard mitigation plan may address a community's exposure to a specific hazard, resilience

strategies consider long-term underlying factors that contributes to increased vulnerability such as housing conditions, unemployment, poor infrastructure, etc.

- *Futuristic* in that it considers long term changes in environmental conditions including science-informed projections for changing climate conditions that may be as far out as 2050 and 2100.
- *Aspirational* in that it seeks to restore the community to a state of self-sufficiency and at least the same level of community integrity and social function including the use of strategies that produce multiple community benefits, such as natural infrastructure.
- *Adaptable* in that resilience planning takes into consideration and accommodates uncertainties of future conditions.

V. Options for New Jersey Coastal Management Policy to Enhance efforts to Address Needs of Socially Vulnerable Populations

This section of the report outlines options that can be considered by the New Jersey Coastal Management Program for changes to its policies and programs to enhance its efforts to address the needs of socially vulnerable populations as part of resilience planning. These options focus on two areas:

- Changing policies and systems to ensure that socially vulnerable populations are proactively engaged as part of state and local coastal resilience programs, planning and policy development and to ensure that socially vulnerable populations have the full capacity that they need to meaningfully participate in such efforts; and
- Ensuring engagement is complemented by policies that assess the extent to which state and local resilience programs, plans and policies positively and/or negatively affect socially vulnerable populations. This second area of emphasis is focused on developing and applying tools that can gauge the extent to which resilience planning efforts contribute to the stated goal of "bouncing forward." Doing so involves complementing traditional resilience indicators with other measures that value the extent to which pre-existing social, economic, physical and other conditions that are challenges to socially vulnerable populations, and are exacerbated by changing climate conditions, are addressed through resilience efforts.

Additionally, the options outlined below are focused on the following specific programmatic areas of the state Coastal Management Program which the New Jersey Department of Environmental Protection indicates are the most relevant for integration of social vulnerability provisions:

1. **Resilient NJ Planning Program** – The Resilient NJ program provides funding and technical assistance to multi-municipal regions within New Jersey's nine Most Impacted and Distressed counties affected by Superstorm Sandy to undertake a comprehensive planning process. This program assists municipalities with efforts to identify and address vulnerabilities to increased coastal and riverine flood risk and other climate stressors. The program is supported under the auspices of the U.S. Housing and Urban Development National Disaster Resilience Competition. https://www.nj.gov/dep/bcrp/resilientnj/index.html
2. **Resilience-related updates to New Jersey's Coastal Management Regulations** N.J.A.C. 7.7 – The New Jersey Coastal Management Program (https://www.state.nj.us/dep/cmp/) is currently undergoing an update to its current Section 309 Assessment and Strategy (https://www.state.nj.us/dep/cmp/docs/new-309-strategy-assessment-%202016-2020.pdf). Governor Murphy's Executive Order 100 directs the New Jersey Department of Environmental Protection to incorporate resilience into "regulatory and permitting programs, including but not limited to, land use permitting, water supply, stormwater and wastewater permitting and planning, air quality, and solid waste and site remediation permitting." (https://nj.gov/infobank/eo/056murphy/pdf/EO-100.pdf)
3. **Coastal resilience-related considerations associated with the operations of the State Planning Commission** - Executive Order 89 directs the State Planning Commission to establish resilience criteria for municipal qualification for CAFRA center designation and plan endorsement approval pursuant to Governor Murphy's Executive Order 89 (https://nj.gov/infobank/eo/056murphy/pdf/EO-89.pdf). This provision directs the Commission

to "incorporate climate change considerations, such as increasing temperatures, rising sea levels, increased flooding, and increased vulnerability to droughts and forest fires, as a mandatory requirement for State Development and Redevelopment Plan endorsement of the development and redevelopment plans of local units of government. The State Planning Commission shall, consistent with the Administrative Procedure Act and as necessary or appropriate, amend its regulations to incorporate these climate change considerations."

4. **Development of a NJDEP grant program** – NJDEP anticipates the establishment of a grant program to local entities to support local resilience planning using coastal management funds as planned by NJDEP. The NJDEP Coastal Management Program is currently planning a grant program to support coastal community resilience planning at the local level.
5. **Development of a Coastal Resilience Plan as part of a Statewide Climate Change Resilience Strategy –** Pursuant to Executive Order 89, the state Department of Environmental Protection is directed to develop a statewide resilience plan that includes a Coastal Resilience Plan that recommends a specific long-term strategy for climate change resilience and adaptation in the coastal areas of the State and shall include, at minimum:
    - "An assessment of the vulnerabilities of communities located within the coastal areas to climate change effects such as rising sea levels, increased flooding, and tidal and storm surge flooding anticipated by the year 2050, including physical, economic, and social vulnerabilities.
    - A description of the investments that the State, along with the federal government, local governments, and other organizations, have already made or committed to make in building the resilience of coastal communities, including hard and nature-based resistance structures, planning guidance and assistance, and other resilience and adaptation measures;
    - Recommended methodologies for decision-making for further investment of State or federal funds in constructing additional hard or nature-based resilience structures to prevent or mitigate impacts of climate change, or in adopting other resilience or adaptation strategies;
    - Recommendations for further actions to be taken by the State to assist coastal communities in planning for, mitigating, and adapting to the anticipated impacts of climate change; and
    - Recommendations for financing strategies to fund the recommended resilience and adaptation measures."

Policy options for consideration by the New Jersey Coastal Management Program (CMP):

As discussed earlier in this report, two overarching concepts that emerge from this project are that:

- When designed with the intention of delivering outcomes to socially vulnerable and underrepresented populations, coastal resilience planning has the opportunity to increase overall community resilience by addressing the underlying social, economic and physical challenges faced by socially vulnerable populations. In doing so, coastal community resilience planning has the potential to *"bounce forward"* (improve) conditions; and
- "Adding seats to the table" is not enough to ensure that coastal resilience planning results in "bouncing forward" community conditions. Participatory processes need to be complemented with efforts to assess impacts (positive and negative) of resilience strategies on socially vulnerable

populations so that the needs of socially vulnerable populations are considered upfront and throughout the resilience planning process.

As such, an overarching policy option would be to reflect these concepts in definitions and guidance associated with the CMP's coastal resilience efforts to ensure consistent application of the concepts throughout program development.

Additionally, more specific policy options for consideration of the Coastal Management Program (CMP) include the following:

- **Policy area**: ***Establishment of state Coastal Management Program incentives to promote local and regional governments resilience planning.***
  - *Description:* The focus in this section are for cases where the CMP provides incentives that are specific to local and regional government entities (e.g. counties, municipalities, regional planning entities) to conduct coastal community climate resilience planning. A later ***Policy Area*** of this report outlines other options for a grant program that may include entities in addition to local and regional governments. Incentives may come in the form of grants, loans, technical assistance, regulatory incentives, and other mechanisms. Examples may include: the current Resilient NJ program and/or its expansion, any form of a coastal community local government entity grant program, CMP "awards" programs, CMP select training or leadership programs, establishment of incentives to implement Executive Order 89 provisions regarding State Planning Commission Plan Endorsement, etc.
  - *Options:*
    - Where CMP incentives are being provided for local and regional coastal community governments to undertake resilience planning, there appears to be opportunity for the CMP to ensure that minimum actions are met that provide base support for socially vulnerable populations as a condition for receipt of CMP incentives. To determine what "minimum actions" should be tied to receipt of incentives for CMP incentives, the Coastal Management Program is advised to consult its counterparts in other state agencies to identify a specific set of clear elements that a local or regional government must meet that the CMP determines would indicate that the local entity provides base support for socially vulnerable populations. For example, after consultation with the appropriate agency, the CMP may decide that it significantly benefits resilience of socially vulnerable populations to condition availability of CMP resilience incentives on a local government's compliance with its affordable housing obligations.
    - The CMP could earmark a minimum portion of any available program incentives (financial or otherwise) be allocated to benefit socially vulnerable populations (and/or the organizations that support socially vulnerable populations). Such minimum earmark could be structured differently based on the nature of the incentive: for example, in the case of a local government grant program, a portion of funds could be dedicated to local government resilience planning efforts specifically associated with socially vulnerable populations.
    - Where the CMP is directing incentives to local or regional government entities for coastal community resilience planning, incentives can be contingent on the governments' demonstrated meaningful involvement of socially vulnerable populations. It is advised that

this involvement extend to include capacity building of organizations that serve, represent, and are trusted local partners of socially vulnerable populations in the form of financial support. The CMP is advised to ensure that such efforts represent the diversity of socially vulnerable populations in the community. In other words, inclusion of a single entity representing one socially vulnerable population at the expense of others is discouraged.

- Government recipients of CMP incentives could be required to take advantage of the data developed as part of this project for coastal community resilience planning available on the web-based data visualization and mapping platform, NJADAPT: New Jersey Floodmapper. Initially limited to hosting the Centers for Disease Control SVI index, this project, as well as other Rutgers University resources, provided the capacity to allow the Rutgers Team, with input from the Project Working Group, to expand access to also include the following datasets: Municipal Revitalization Index; Asset Limited, Income Constrained, Employed (ALICE); Veterans; Housing Stock Age; and NJCounts Point-in-Time Homelessness.
  As a result, these data are now available to coastal communities to use in conjunction with other data on NJADAPT: NJFloodmapper such as data about flood hazards, future sea level rise projections, critical facilities, natural resources, etc. As discussed earlier in this report, another significant data concern associated with this project was the Rutgers Team's concern about the ease-of-use of an indexed dataset as a tool in coastal community resilience planning, namely the CDC SVI index. To address this concern, the Rutgers Team develop automated *"municipal snapshots"* of vulnerable populations for each of the 15 indicators of the CDC SVI index. Municipal snapshots are available on a variety of topic areas and the Rutgers Team continues to develop them on new topics; development of the vulnerable populations suite of snapshots was a priority to support completion of this project. By way of example, a portion of the Atlantic City municipal snapshot is provided in Figure 6 and the complete Atlantic city snapshot is included as an example in ***Appendix f.*** Requiring recipients of CMP incentives to integrate use of the data now available as a result of this project as part of coastal community resilience planning provides two benefits: easy integration of social vulnerability data into the resilience planning process and ready access to high quality data.

Socioeconomic Status

Variable	Population	% of Total Population	2 ft. Exposed	7 ft. Exposed
Below Proverty	14,385	37.49%	568	12,434
Unemployed	29,879	77.87%	1,179	25,827
No High School Diploma	6,759	17.61%	267	5,842

Average Household Income: $19,924

Figure 6

- Local and regional government recipients of CMP incentives could be expected to conduct outreach campaigns to identify vulnerable populations and individuals, and have them sign up for the "Register Ready" database.[11] In fact, Sustainable Jersey™ worked with the state Office of Emergency Management to develop an action specific to municipalities undertaking such campaigns.
  See: https://www.sustainablejersey.com/actions/#open/action/540

[11] https://www13.state.nj.us/SpecialNeeds/Signin?ReturnUrl=%2fSpecialNeeds%2f

- Local government recipients of CMP incentives could be required to demonstrate a plan for equity, diversity and inclusion as part of its resilience planning process (e.g. barrier free meetings, distribution of information, etc.). Government recipients of CMP incentives can be expected to participate in the web-based training developed for this project to encourage greater understanding of key concepts, such as appreciating the practical difference between inviting socially vulnerable populations to participate in resilience planning efforts than taking measures to ensure that those populations are able to meaningfully participate in process. Examples of some approaches are included in Unit 4 of the web-based training developed for this project.
- In addition to, or instead of, the previously listed option, local government recipients of CMP incentives could be required to undertake five tasks that are introduced as part of the web-based training developed for this project. Those five tasks (see Figure 7) are designed to enhance the resilience planning process by seamlessly integrating consideration of socially vulnerable populations directly into the resilience planning processes.

Figure 7

Social Vulnerability Tasks Introduced in Web-based Training to Integrate into Climate Resilience Planning

1. Initial Development of a community *Social Vulnerability Profile.* Additionally, recipients of incentives from the Coastal Management Program could be expected to reflect this Profile as an exposure profile in the municipal or county Hazard Mitigation Plan.
2. Inventory of pre-existing social, economic and physical conditions in the community that are challenges to socially vulnerable populations that may be exacerbated by changing coastal climate conditions.
3. Written plan for engaging socially vulnerable populations.
4. Written checklist that can be used by the Resilience Planning Team to assess the extent to which the vision, scenarios and actions being considered in the resilience strategies:
   - Incorporate provisions to address the needs of socially vulnerable populations;
   - Impact (positively or negatively) socially vulnerable populations;
   - Impact (positively or negatively) the pre-existing social, economic and physical challenges facing socially vulnerable populations in the community.
5. For each hazard, identify increased risks faced by socially vulnerable populations as a feature in the Resilience Vulnerability Assessment.

The authors note the efforts underway in New Jersey to develop guidance and best practices for identifying social vulnerabilities in a community, including pre-existing social, physical and economic challenges as well as demographic status. There appear to be opportunities for state agencies and non-profit organizations to collaborate so that local governments could do this type of analysis once to serve multiple purposes. Sustainable Jersey™ has expressed interest in collaborating in such an effort for dissemination as one of the program's municipal best practices.

❖ **Policy area:** ***Enhance opportunities to address needs of socially vulnerable populations as part of New Jersey's participation in the Coastal Management Program 309 review process.***

- *Description:* Under Section 309 of the Federal Coastal Zone Management Act, participating state and territory Coastal Management Programs review their programs every five years to identify

priority needs and areas for improvement. The programs work with NOAA to develop multi-year improvement strategies that focus on one or more priorities based on goals that are identified as the result of a stakeholder-driven process. The programs focus on nine areas: wetlands, coastal hazards, public access to coastal resources, marine debris, cumulative and secondary impacts to coastal resources, special area management plans, ocean resources, energy and government facility siting, and aquaculture. The focus for this ***Policy Area*** is on opportunities to address social vulnerability associated with the resilience aspects (coastal hazards) of the Section 309 program review. The CMP indicates that, while it completed its draft 309 Assessment and Strategy for the 2021-2025 enhancement cycle and submitted it to NOAA on April 27. 2020, it expects to be able to employ some of the options identified in this report as part of its efforts to pursue additional NOAA Projects of Special Merit under the upcoming assessment and strategy cycle and in developing grant tasks under the identified strategies.

- *Options:*
  - To enhance efforts to address needs of socially vulnerable populations as part of the Section 309 review process, the CMP could consider efforts such as:
    - Proactively seeking out and meeting with organizations and state agencies that represent and serve socially vulnerable populations to gain their input;
    - Hosting a forum to specifically seek input on the issue of equitable compensation and other forms of assistance that may be needed to support socially vulnerable populations that may need to relocate from areas affected by changing coastal climate hazards, including people who rent their primary homes;
    - Engaging experts, community leaders and other state agencies in dialogue to inform the 309 process to assess the extent to which coastal program policies can protect affordable housing and other housing types that support the needs of socially vulnerable populations;
    - Establishing a "Vulnerable Populations Policy Advisory Committee" to provide ongoing input to the coastal program with regard to resilience and issues which is a concept that the Coastal Management Program indicates appears to be one that could provide ongoing input into the coastal program with regard to resilience issues as well as serve as a valuable resource for the program's rulemaking efforts with respect to its enforceable policies.
    - Execution of such a committee is as important as its establishment. The CMP is advised to ensure that adequate capacity is provided to ensure that input from the Committee is regarded, that members have the opportunity to meaningfully participate and that a diversity of voices from socially vulnerable populations are included;
    - Assessing the extent to which socially vulnerable populations in coastal communities are decreasingly gaining equitable access to enjoyment of natural coastal resources given loss of public trust resources now and into the future given changing climate conditions;
    - Assessing the status of affordable housing commitments in coastal municipalities as well as the extent to which those commitments are in areas that are subject to future flood hazards given changing climate conditions.

- **Policy area:** ***Coordinate delivery of the state Coastal Management Program more closely with other programs designed to address the needs of socially vulnerable populations.***
  - *Description:* For local organizations that serve, engage and represent socially vulnerable populations, the CMP is not a familiar entity. However, given its critically important role with regard to coastal community hazards and resilience planning, the CMP has the opportunity to play a critically important role in addressing the needs of socially vulnerable populations associated with coastal community climate resilience. Given the research evidence and stakeholder input received as a result of this project, it is clear that enhancing the resilience of socially vulnerable populations involves addressing the underlying social, physical and economic challenges that socially vulnerable populations face in their coastal communities before those challenges are exacerbated by changing coastal climate conditions. Such an approach is not one that can be undertaken by the CMP individually; it can only be undertaken in partnership through cross-sector collaboration with communities and other agencies, some of whom may have closer relationships with socially vulnerable populations and the organizations that represent, engage and support them.
  - *Options:*
    - The CMP could coordinate its coastal resilience program offerings more closely with other state agencies that collaborate more routinely with socially vulnerable populations and the trusted organizations that serve, engage and represent them, such as the state Departments of Health, Human Services and Community Affairs. In general, the core concept raised throughout this project is that whole community coastal resilience planning practices that are inclusive of socially vulnerable populations and that include strategies to assess impacts of resilience actions on socially vulnerable populations will yield outcomes that affect other aspects of planning and decision-making in the community whether that means health, emergency management, open space, housing, social services, transportation, master planning, economic opportunities, etc. In advancing inclusive whole community coastal resilience planning, the CMP has the opportunity to support efforts within coastal communities to connect the outcomes of coastal climate resilience planning with these other programs. For example, offerings of local government and non-profit grant programs, assessment of impacts of coastal climate hazards on housing, nutrition and health, and identification of areas of high hazard may all benefit from a coordinated approach with agencies that work with counterparts at the local level. The state Department of Health has identified resilience as one of three overarching themes for its Healthy New Jersey 2030 Strategic Planning effort and the Division of Disability Services in the state Department of Human Services has already begun working with the CMP to explore ways to expand opportunities for people with disabilities to enjoy access to coastal resources. Collaborating with other agencies to identify state and local stakeholders that engage, represent and serve socially vulnerable populations to welcome their involvement in state and local coastal management and coastal resilience planning can offer long-term benefits. The other benefit of a coordinated approach is that the CMP can serve as a point of entry into multiple programs at the New Jersey Department of Environmental Protection for other state and local agencies, as well as socially vulnerable coastal community organizations, on these complex issues;

- The state CMP could explore establishment of a standing contract for translation services not just for its own program materials, but also to be used by grantees that receive incentives or funds to conduct local or regional coastal community resilience planning. The CMP could explore similar shared services that may be needed for other socially vulnerable populations such as support for auditory and visual services, etc.;
- The state CMP could also explore use of funds to support inclusive engagement of socially vulnerable populations as part of coastal community resilience planning (e.g. babysitting, transportation services, translation services, etc.). Consultation with other state and local agencies, community-based organizations that serve, represent and engage socially vulnerable populations can assist in identifying specific provisions and conditions that may ensure that meetings and other engagement opportunities are designed to address the needs of socially vulnerable populations. Examples may include providing transportation services for residents to attend meetings who may not have access to vehicles, offering babysitting services to ensure participation by single parents or other caregivers, providing real-time translation services, scheduling meetings in locations and at times of the day that meet the needs of socially vulnerable populations. Other examples are available in guides, some of which are listed in the sidebar. There are likely challenges that the CMP may face with regard to use of program funds for these purposes. Challenges may be associated with authorized use of state and federal monies for certain uses, competing priorities for dwindling program resources, and efficient use of program funds.;
- While the CMP is not an emergency management agency, the Rutgers Team received considerable input during its stakeholder engagement efforts about the need for greater coordination between the concept of whole community resilience planning and emergency management and/or hazard mitigation planning. In fact, in the three urban focus groups hosted for this project, participating residents remarked that they had no idea that an emergency management plan was in place for their community. Three examples were raised that point to opportunities for: (a) greater coordination between coastal community resilience planning and local emergency management and/or hazard planning; and (b) collaboration between community-based organizations[12] and federal, state and local agencies responsible for resilience and

Planning Accessible Meetings and Events: A Toolkit. American Bar Association. Available at: https://www.uwyo.edu/union/reservations/accessible_meetings_toolkit.authcheckdam.pdf

Accessible Information Exchange: Meeting on a Level Playing Field. U.S. Department of Justice Civil Rights Division. Available at: https://www.ada.gov/business/accessiblemtg.pdf

Inclusive Planning Processes: Quick Notes. American Planning Association. Available at: https://planning.org/publications/document/9186035/

Planning for Equity Policy Guide. American Planning Association. 2019. Available at: https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/Planning-for-Equity-Policy-Guide-rev.pdf

Racial Equity Toolkit: A Guide to Operationalize Equity. Local and Regional Government Alliance on Race and Equity. 2016. Available at: https://racialequityalliance.org/wp-content/uploads/2015/10/GARE-Racial_Equity_Toolkit.pdf

[12] For the purposes of this report, the authors use the term "community-based organizations" to refer to the concept of organizations that are locally established and well-respected by residents in the community, specifically with a focus on serving, engaging and/or representing one or more type of socially vulnerable populations. The

emergency management planning. The authors note that, in these examples, the expectation is that capacity is expanded within community-based organizations in the form of grants and other resources, which is the subject of the subsequent ***Policy Area*** of this report.

- Several organizations noted that coastal community resilience planning efforts start immediately after coastal hazard events and that organizations that represent, support and engage socially vulnerable populations are often limited in their capacity to be meaningfully engaged in coastal community resilience planning efforts, especially in the short term. During "blue skies" times, the CMP could work with other agencies to identify trusted organizations that support, engage and represent socially vulnerable populations in coastal communities and pre-authorize fiscal arrangements to ensure their participation in coastal community resilience planning;
- A concern heard by residents in urban communities related to the extent to which environmental pollution, releases and discharges may occur during climate events such as the result of contaminated runoff from stormwater, overflows of combined sewer systems, failed treatment systems if power outages occur during extreme weather events, and other conditions. It would appear that coastal resilience planning in these highly urbanized, current and former industrialized communities can be an opportunity to establish systems to address these significant community challenges. Examples suggested using community resilience planning to institute effective communication systems between community-based and other organizations that serve local socially vulnerable populations and local, state and federal agencies that are responsible for on-site environmental monitoring and to develop community-based participatory processes associated with environmental monitoring in urbanized coastal communities;
- Several ideas were suggested as part of focus groups including establishment of single point of contacts within state and local government agencies for easy access by community leaders during climate events, and collaborative programs in which community-based organizations are provided resources to monitor health and welfare of socially vulnerable populations during climate events and to serve as two-way sources of information on between state and local agencies and socially vulnerable populations.

o Pursuant to Executive Order 100, the New Jersey Department of Environmental Protection is directed to "Integrate climate change considerations, such as sea level rise, into its regulatory and permitting programs, including but not limited to, land use permitting, water supply, stormwater and wastewater permitting and planning, air quality, and solid waste and site remediation permitting." The state CMP can coordinate with other state agencies

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authors acknowledge that the profile of community-based organizations varies from community-to-community and that, depending on the nature of the community, multiple community-based organizations may serve the needs of the population. In New Jersey, examples of community-based organizations include non-profit organizations that sponsor family services, community projects, health services, school-based and other educational programs; faith-based organizations, Community Organizations After Disaster, community action agencies, organizations that provide sheltering, and food and nutrition programs, support with financial stability and other services, and that may focus on increasing access to conditions that improve overall community conditions, among other missions.

that work closely with socially vulnerable populations and the trusted organizations that serve, represent and engage socially vulnerable populations to understand the extent to which any regulations under development pursuant to Executive Order 100 will create undue hardship to socially vulnerable populations and, if so, what regulatory and other actions can be taken to mitigate such hardships. Additionally, development of the regulations could prospectively assess the extent and ways in which the rules may (positively or negatively) affect socially vulnerable populations and, in the event such assessments identify negative impacts on socially vulnerable populations, efforts could be made to mitigate such conditions in the rules to ensure positive outcomes for socially vulnerable populations.

- **Policy area:** ***The state Coastal Management Program incorporates provisions that are specifically intended to address the needs of socially vulnerable populations as part of a grant program to local jurisdictions.***
  - *Description:* As part of this project, the state CMP explained its intent to develop and implement a grant program to local jurisdictions to support local coastal community resilience planning. Additionally, at a May 7, 2020 public briefing on its development of a Coastal Resilience Plan pursuant to Executive Order 89, the CMP indicated that, as part of its overall development of its resilience planning program, it is considering establishment of a grant program to local entities. Details of such a local grant program have yet to be determined. For purposes of this ***Policy Area***, options are suggested that would include allowing eligibility to include community-based non-profit organizations. The authors offer an observation based on strong cautions received from several key informants interviewed from this project, namely, that involvement of one population that is socially vulnerable in coastal resilience planning efforts is not necessarily representative of the perspectives of other populations.
  - *Options:*
    - The CMP could allow some portion of local grants to be dispersed to community-based non-profit organizations for purposes of coastal community resilience planning, including at the neighborhood level where non-profit organizations demonstrate their role as a trusted organization that supports, engages and/or represents socially vulnerable populations. While there are many types of roles that community-based organizations can play in leading and/or participating in coastal community resilience planning, two examples of community-led efforts that could lend themselves to informing coastal resilience planning models include the Emergency Community Hub Program in Seattle[13]and some of the experiences from the Climate Resilience and Urban Opportunity program funded by the Kresge Foundation;[14]
    - By expanding a local grant program to non-profit entities, the CMP may need to allow for greater flexibility in program design and for integration with other efforts of the participating non-profit organizations. For example, non-profit participants may be able to integrate coastal resilience efforts into more comprehensive community-based initiatives about advancing health equity in their community rather than having coastal resilience be a "standalone" initiative;

[13] http://seattleemergencyhubs.org/about-us/mission/
[14] https://kresge.org/content/climate-resilience-and-urban-opportunity-0

- Another option could be for the CMP to collaborate with other agencies to proactively provide capacity building assistance to organizations that represent, engage and support socially vulnerable populations during "blue skies" time to assist with grant application and management efforts to increase the likelihood that these organizations can demonstrate eligibility to meet grant requirements. During this project, the authors heard a perception among key informants and focus group participants that climate resilience and recovery funds are directed to communities that already have capacity. The authors take care to note that these are reported perceptions and this project does not include a research component to assess whether there is any evidence to support such perceptions. However, one observation on the part of the authors is that non-profit organizations that engage, support and serve socially vulnerable populations are likely to have less capacity to undertake the effort needed to apply for state and federal grants and, as such, if the intended goal is to direct grants to such organizations, capacity building efforts appear needed;
- By expanding the program to non-profit entities, the CMP has the opportunity to promote development of innovative community-based cross-sector partnerships that set priorities for inclusion of socially vulnerable populations and, as such, is advised to work with other state agencies (such as the Department of Human Services, Department of Community Affairs, and Department of Health) in "getting the word out" to a variety of community-based organizations about potential grant funds to promote inclusive collaborative efforts;
- The CMP could identify a single point of contact within its program for non-profit community-based grantees whose job it is to help negotiate various offices and programs at NJDEP, across other state agencies and vertically at other levels of government to benefit socially vulnerable populations.

❖ **Policy area:** ***As part of the Coastal Resilience Plan pursuant to Executive Order 89, the Coastal Management Program could assess where socially vulnerable populations face pre-existing social, economic and physical conditions that can be exacerbated by changing coastal climate conditions.***

- *Description*: Executive Order 89 requires that the New Jersey Department of Environmental Protection develop a statewide climate resilience plan and that the statewide plan include a coastal resilience plan that recommends a specific long-term strategy for climate change resilience and adaptation in the coastal areas of the State. The CMP could incorporate some of the data developed as part of this project into the statewide Climate Resilience Plan to communicate the nature of social vulnerability in New Jersey's coastal communities. For example, based on the most recent research on sea-level rise in New Jersey conducted by Rutgers University, sea-level rose 1.5 feet along the New Jersey coast from 1911 to 2019, compared to a 0.6 feet total change in the global mean sea-level. New Jersey coastal areas are likely to experience sea-level rise of 0.5 to 1.1 feet between the years 2000 and 2030, and 0.9 to 2.1 feet between 2000 and 2050. Likewise, the number of days that New Jersey residents have experienced high-tide flood events in the absence of a storm has increased. For example, between 2007-2016, there was an average of 8 high-tide flood events in Atlantic City.[15]

[15] Kopp, R.E., C. Andrews, A. Broccoli, A. Garner, D. Kreeger, R. Leichenko, N. Lin, C. Little, J.A. Miller, J.K. Miller, K.G. Miller, R. Moss, P. Orton, A. Parris, D. Robinson, W. Sweet, J. Walker, C.P. Weaver, K. White, M. Campo, M.

Flood events[16] can occur from surge created by a coastal storm (such as a hurricane or nor'easter) or from high tide each day as sea levels rise. For example, a 2-foot flood event along the New Jersey coast today can occur because of a coastal storm. By 2050, the same 2-foot flood event may happen during daily high tide alone because of sea-level rise. While flood events resulting from daily tides will result in permanent inundation (i.e. the water will not recede), coastal storm induced flood events last only for the duration of a storm. For example, a 7-foot flood event along the New Jersey coast would become more likely in the future from a combination of coastal storm surge (hurricane or nor'easter) and an increased baseline of sea-level.

Figure 8 includes information for 9 of the 15 indicators of social vulnerability from the Centers for Disease Control SVI Index regarding three SVI themes: socioeconomic status, household composition and minority status. Based on Rutgers' analysis for this project, 231 and 243 of New Jersey's 565 municipalities would have some population exposure to 2-foot and 7-foot flood events, respectively.[17] For each of the 9 CDC SVI indicators, Figure 8 shows the percent of the population for each category for the municipalities that would be exposed during 2-foot and 7-foot flood events taken from the data developed for this project available on New Jersey Floodmapper.[18]

Figure 8

Social Vulnerability Theme	Social Vulnerability Category	Percent of category within municipalities exposed to 2 ft Flood Event	Percent of category within municipalities exposed to 7 ft Flood Event
Socioeconomic Status	Below Poverty	1.01%	16.47%
	Unemployed	.99%	14.1%
	Low Income	2.92%	26.64%
	No High School Diploma	.99%	15.26%
Household Composition	Age 65 or Older	1.11%	14.73%
	Age 17 or Younger	.93%	12.94%
	Persons with a Disability	1.04%	15%
Minority Status	Minority	.84%	14.51%
	Limited English	.9%	14.92%

- *Options:*
  - The CMP could use the statewide Coastal Resilience Plan as an opportunity to take advantage of data collected as part of this project and made available on NJFloodmapper to

Kaplan, J. Herb, and L. Auermuller. New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science and Technical Advisory Panel. Rutgers, The State University of New Jersey. Prepared for the New Jersey Department of Environmental Protection. Trenton, New Jersey.

[16] Flood events referenced in this document as examples reflect 'total water level' heights above 2000 Mean Higher High Water, consistent with the sea-level baseline datum. See Kopp et al., 2019.

[17] Municipalities were determined to have exposure to 2-feet and 7-feet flood events if any portion of their urban land use/land cover (2015) was overlapped by the specified total water level. The percent of the urban land use/land cover that was covered within the municipality was applied to the population category total to determine the percent impacted.

[18] https://www.njfloodmapper.org/

develop, apply and demonstrate an approach for identifying socially vulnerable populations and overlaid with other factors that can be important for resilience planning. Examples discussed by the Project Working Group include:

  - Assessment of socially vulnerable populations in relationship to natural infrastructure to potentially set priorities for grants to enhance access to green spaces;
  - Assessment of socially vulnerable populations in relationship to disproportionate environmental burden to potentially set priorities for NJDEP permitting, compliance, technical assistance and other actions;
  - Assessment of socially vulnerable populations in relationship to priority health disparity areas to maximize coordinated delivery of services.

- The outcome of these analyses could be identification of policy priorities to address pre-existing social, economic and physical challenges faced by socially vulnerable populations that can be exacerbated by changing coastal climate conditions. This outcome could lead to collaborative multi-sectoral efforts with other state and local agencies, as well as partnerships with communities and others;
- For socially vulnerable populations, underlying societal inequities and challenges create the biggest hurdles to achieving resilience. The 2019 Executive Order 89 establishment of an Interagency Council on Climate Resilience provides an opportunity for cross-sector agency collaboration to address the underlying inequities associated with the objectives of the Coastal Resilience Plan to be issued in September 2020 pursuant to the Executive Order. Making efforts to address the physical, social and economic challenges facing socially vulnerable populations that are exacerbated by changing climate conditions a coordinated priority of interagency council agencies could, by aligning agency policies, significantly contribute to resilience in the coastal region.
- Developing guidance to accompany its analytical approach can facilitate the replicability of the CMP's approach by local and regional entities as part of their resilience planning, including as part of programs associated state grant and incentive programs.

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VII. Appendices

a. Literature Review
b. Service Organization Database
c. Stakeholder Engagement Report
d. Web-based Training Hand-outs
e. GTR Website Updates
f. Atlantic City Municipal Snapshot Draft Example

Appendix a

Literature Review

Literature Review for NJDEP/Rutgers

"A Seat at the Table" Project

21 February 2019

Prepared for: New Jersey Department of Environmental Protection

Prepared By: The Environmental Analysis and Communications Group at Rutgers University, The State University of New Jersey

M. Mysliwiec, J. Herb, and S. Malone. "Literature Review for NJDEP/Rutgers "A Seat at the Table" project". *Environmental Analysis and Communications Group at Rutgers University*, New Brunswick, NJ:2019.

Executive Summary

Socially vulnerable populations have been identified as a key target for engagement by the New Jersey Department of Environmental Protection, especially in the process of coastal hazards planning. Such engagement is not unseen and it is useful to examine established best practices from across the country. In doing so, key "take home" points were identified. Engagement, specifically of populations who face barriers to active participation in community-wide planning, revolves around the capability to successfully execute and consider the following points:

- Work with local sources who are trusted by the target population
- Build relationships with communities from the very beginning
- Craft a message that resonates with and is specific to the population
- Make engagement meaningful and worthwhile to the population

These ideas are explored below.

Introduction

The following is a literature review for a project examining how to best integrate the needs and challenges of under-represented and socially vulnerable populations into coastal hazards planning in New Jersey. The literature review studied both academic papers, after-action reports, and reported best practices related to specific projects targeting community engagement. While much of the reviewed literature concerned community engagement as related to adaptation and resilience, a number of these materials focused on research and projects that are not directly associated with coastal hazards or climate change. However, every document studied did concentrate on how to best involve the under-resourced populations which the project outcome hoped to address.

Literature Review

Three key themes seemed to emerge out of literature on best practices in the engagement of socially vulnerable populations: how to best reach the under-represented community; how to best craft messages and narratives; and how to make engagement meaningful for the community.

Reaching the under-represented community

In a paper about participatory planning during the Four Shelter Project in Canada's Durham region targeting particularly vulnerable populations of abused women of color, aboriginal women, female immigrants, and women with disabilities, Rahder (1999) noted that successful outreach and engagement typically takes project coordinators longer than anticipated. Especially within populations like those discussed by Rahder, there may be a distrust of local and state authorities which leads to the failure of common engagement methods like posters and flyers advertising meetings. The Institute of Local Government (2015b) thus emphasizes the importance of "both organizational and personal" relationship-building prior to the launch of a new partnership or project, a process that will likely require a significant time commitment. Initiatives like the Four Shelter Project and the Cortez, Colorado, Community Heart & Soul project (whose mission statement was to include the voices of those communities not usually involved in community planning) found that personal contacts and informal networking were the most important tools towards engaging and being representative (Orton Family Foundation 2015a). Project coordinators should build this social network prior to any attempts at wider community engagement.

Local organizations embedded in the community are excellent initial contacts that already have a finger on the community's pulse (Orton Family Foundation 2015b). Building the relationship with such organizations allows project coordinators to learn about community issues, demographics, barriers to participation, what has worked in the past and what has not, and where the community receives its news, information that is vital when choosing the most effective way to reach under-resourced populations. Entities worth building relationships with include clergy, religious centers, community centers, non-governmental organizations including those not directly working on environmental matters, local chapters of national groups like the NAACP, social justice groups, community advisory boards, small business boards, schools and PTAs, and homeowners' associations (Orton Family Foundation 2015a; Orton Family Foundation 2015b; The Kresge Foundation 2018).

However, it is vital not to treat partners as "suppliers" and instead work together to mutually define concerns; a partnership should be a two-way street that is mutually beneficial (Institute for Local Government 2015b). The most equitable processes are those which allow participants to engage as whole beings and not be defined simply by their positions, expertise, and connections (Island Press and The Kresge Foundation 2016). Moser, Coffee, and Seville (2017) underline that under-resourced populations most benefit when social and economic equity is at the heart of adaptation. The organizations that have a long presence in their communities understand this and are more likely to be strong, supportive partners if they believe project coordinators are also committed to the issues that matter to the community. Partnerships based on respect (which includes simple actions like observing the rules of the organization and community first, staying in touch, saying thank you, and being available to community members), mutual goals, and those that have clearly outlined and formalized responsibilities and metrics are the relationships that will be most effective towards engaging the socially vulnerable populations targeted (Movement Strategy Center 2015).

Once personal contacts and partnerships have been established, project coordinators will have a better understanding of how to reach and engage under-resourced populations, as well as the ability to enlist local partners in spreading the word. Enlisting local partners can be the most effective, as these are leaders that local community members already trust and thus they legitimize the project through their endorsement. There is a vast array of other methods and it is imperative to choose the ones most appropriate for the community in question. For example, the Cortez, Colorado, Community Heart & Soul project sought to engage under-represented Native Americans and learned (after reaching out to community leaders and after testing theories) that the most effective way to reach this community was door-to-door, with mailed invitations, Native American radio, and at meetings with tribal members. However, to engage with the local Hispanic community, coordinators chose to reach out to priests, co-sponsored the town's first-ever celebration of Mexico's independence from Spain, held other culturally

relevant activities, and had only plainclothes police officers as a gesture of trust after learning of community members' fear towards police (Orton Family Foundation 2015a).

Other successful ideas on reaching the wider community include:

• Ethnic media in the form of press releases, announcements, zines, short form media, profiles of local leaders, op-eds, etc. • Libraries • ESL or job training classes • High schools • Health care professionals • Easy-to-navigate websites • Mailings • Notes included in utility bills • Bingo nights • In-home gatherings • Mobile home communities • Social media • Homeless shelters • LGBTQ communities • Food banks	• "Micro-media" like neighborhood newsletters • Flyers or canvassing at frequented spots like a corner market, laundromat, coffee shop, or bar. One organization successfully received feedback on community strengths and weaknesses by printing questions on coasters at a local bar. • Latching onto existing events and tabling at festivals • Doing presentations at meetings of already established organizations • Labor associations • Senior housing • Sporting events • Teen centers • Military communities

Sources: (Orton Family Foundation 2015a; Institute for Local Government 2015a; The Kresge Foundation 2018; Rahder 1999; Baptista 2008)

The use of art and music in the form of murals, performances, and community art projects was another theme due to their importance in many cultures; it also allows for a more holistic approach to sharing perspectives and is more relatable than long reports and figures (Puget Sound Sage 2016). All these attempts at community engagement should be translated into the community's language.

Getting individual members of the under-resourced population to meetings and events also depends on the accessibility of these events. The Institute for Local Government (2015a) suggests being cautious of assumptions and generalizations and instead asking what works best. The timing of the event is vital; partners can help note community holidays, events, work schedules, and even something like hunting season which could prevent attendance. There is also a need for project coordinators to be flexible and go to the community rather than ask them to meet in an unfamiliar place. The meeting should be in a

well-trusted building that is physically accessible for those who are disabled and with good acoustics (Baja 2018). As in the Four Shelter Project, the lack of child care or transportation (or the lack of money for these things) can be a barrier and create a "sense of exclusion"; coordinators can counter this by advertising child care and transportation services from trusted services in the community (Rahder 1999). Making the meeting culturally accessible is also important. Nearly every piece of gray literature reviewed suggested advertising and providing translators and translated materials if this fits the community's needs. Academically, Healey (1992) further supports these actions by noting that true "planning for public spaces" needs the "acknowledgment and celebration of differences"; this could be as simple as providing food that is culturally appropriate.

Messaging and Narrative

The next theme that was common in literature on successful engagement of socially vulnerable populations was the careful consideration of the message and narrative being broadcasted to the populations. To truly engage the population, Carolyn Lukensmeyer of the National Institute on Civil Discourse emphasized the need to tailor the message so that it resonates with the community in terms of word choice, images, medium, spokesperson, and language; one size does not fit all (Orton Family Foundation 2012). When forming the message and narrative, it is vital to be sensitive to the specific wording according to your audience. Cultural sensitivity regarding religion, race, political leanings, education, and other demographics can be what motivates a group or individual to engage with the project or not. For instance, the Movement Strategy Center's (2015) Pathways to Resilience initiative (an effort to produce a vision of climate resilience based on the experiences of vulnerable populations) paid special attention to the words they chose even when they were in the beginning stages of contacting potential local partners; when communicating with certain faith-based institutions, coordinators spoke about "stewardship" if this fell in line with institutional values. In other situations, sensitivity may mean

avoiding difficult-to-understand technical language or choosing the right messenger to reach out to the under-resourced community (Island Press and The Kresge Foundation 2016).

Relationship-building, discussed in the previous section of this literature review, is a key method of learning what each unique community values and thus shaping the project narrative around these values and increasing the likelihood of meaningful community engagement (Movement Strategy Center 2015). For example, two environmental sustainability campaigns, the Environmental Health Coalition in Northern California and the Clean Up, Green Up (CUGU) campaign in Los Angeles, both found that it is important to directly ask the community what they need rather than simply telling them what the project will do (Kersten et al. 2012).

Meaningful community engagement may also require linking climate resilience and mitigation planning to other movements present in the community (Movement Strategy Center 2015). Some initiatives found that truly engaging communities necessitated the difficult action of addressing past exclusion and historic burdens (Island Press and The Kresge Foundation 2016). Environmental and coastal hazards issues do not exist in a vacuum and there is a need to connect these issues to the ones participants care about and build on beloved community themes. For example, the Got Green climate resilience project in Puget Sound only found success when they grounded climate realities in the experiences of the local low-income population they were attempting to engage. Climate change seemed like a distant threat to locals when the community was struggling to meet basic needs, and science-based talk which emphasized data and foreign symbols like melting ice caps created "dissonance with everyday concerns that undermine [the community's] participation" (Puget Sound Sage 2016). To counter this, Got Green coordinators turned to storytelling to make the narrative more personal. Using local voices and strategic rebroadcasting of the stories helped connect environmental issues to experiences members of the community can understand and empathize with, leading to a greater chance of further community engagement.

When crafting a message to the under-resourced population, the authors of the "Bounce Forward" document, which summarizes key knowledge about resilience from experts across the U.S., also recommend building a narrative which includes both urgency and efficacy (Island Press and The Kresge Foundation 2016). A message underlining urgency without equal or greater emphasis on efficacy causes people to retreat, tune out, or lose hope, decreasing the amount of community engagement and belief in the proposed project or meetings. Recognizing and celebrating the community will elicit a better response (Institute for Local Government 2015a). Coordinators should highlight the fact that the community is already resilient and has the existing strengths, assets, and know-how to accomplish a goal should the community work together. Sharing and celebrating success stories from other similar communities is another method of emphasizing efficacy and thus gathering support and engagement (Island Press and The Kresge Foundation 2016). Another simple change that highlights efficacy is building the narrative around the "future we [the community] want" rather than the risks of climate change or coastal hazards (Moser et al. 2017). This would also shift the focus to outcomes rather than process and help define a purpose for the project, hopefully eliminating the feelings of some participants who see community engagement as "an infinite road map with no destination."

Making Community Engagement Meaningful

For worthwhile community engagement and to better ensure socially vulnerable populations want to participate in the project, there must be a clear commitment from project coordinators to make community engagement meaningful rather than artificial and simply a formality. Locals are unlikely to show up if they do not believe they can really make an impact or that their concerns are not being considered and addressed. Borrowing a quote from Carolyn Lukensmeyer of the National Institute on Civil Discourse: "The bottom line is: you don't even begin the engagement process unless you know there will be a real outcome that is tangible in their lives and you know what the outcome will be. When engagement processes fail, it's because the work was not done at the front end to make sure that

people know they will be listened to and they will truly be influencing decisions" (Orton Family Foundation 2012).

There are many ways to make sure people know they will be listened to and influence decisions. Perhaps the most important takeaway from the Four Shelter Project was the participants' declaration that they did not want to engage and have the result simply be a report on the bookshelf; they wanted to be part of the action. While Rahder (1999) notes that changing service systems and institutions is "slow and arduous work", the effect on individuals themselves can be more immediately effective. Thus, participants in the Project were taught the leadership and advocacy skills needed to challenge the system and address problems themselves as well; specific skills taught were how to chair a meeting, be assertive, and seek knowledge about regulations and mandates. The goal became empowering the participants rather than just listening to them. Reardon (1994) and Susskind (1995) call this "empowerment planning" which "raises awareness of systemic and structural problems". Though it was unplanned, Four Shelter Project coordinators began to relinquish control of the process. Still, it was important for coordinators to be involved to care for logistics, assuring participants that they can speak or ask questions or stay silent if they so choose, and collecting materials.

Building agency was a trend across climate resilience-related projects as well; in some cases participants were empowered via education on the "rules of the game", other initiatives created in-project leadership roles for locals or opportunities for youth to get involved, and some, like Got Green in Puget Sound, implemented Community-Based Participatory Research and participatory budgeting in which residents themselves have control over purse strings to a certain extent and thus can further integrate their own values into decision-making (Baptista 2008; Gonzalez 2017; Moser et al. 2017; Puget Sound Sage 2016).

To make community engagement meaningful, the Environmental Health Coalition also notes that there must be a clear commitment to responsiveness from project coordinators (Kersten et al. 2012). Under-resourced populations do not want to feel as if they are being used by organizations and a way to display commitment to the target population is constant and clear communication and responsiveness in the form of action. Hershey (2005) urges the persistent use of a public feedback loop where feedback from the community is used and/or addressed after being received. Invest in two-way communication and explain decisions and next steps clearly in the appropriate language if need be (Institute for Local Government 2015b). Often, this will mean serious consideration of a distribution plan to ensure the community has access to decision details and any documents that may concern them (Hershey 2005). Accessible records and frequent communication also indicate transparency, which is especially important in socially vulnerable communities that have past stigmas and a distrust of authorities and out-of-town organizations.

Socially vulnerable populations are often skeptical of organizations that arrive in town for a single project and depart after its completion and thus may choose not to engage if they believe a project is singularly focused. Thus, working for lasting change means project coordinators cannot afford to be siloed and ignore other issues the population has indicated they are concerned with (Kersten et al. 2012). Instead, coordinators are more likely to gain support for their project if they support the community. This means being an advocate for the community and talking to decisionmakers on their behalf. It also can mean investing in existing institutions, be they local organizations or people themselves in the form of aforementioned skill- and capacity-building (Gonzalez 2017). Furthermore, action should be taken throughout the engagement process and not only as an end result. For example, the City of South Gate, California, hoped to rebound from a major corruption scandal by building public engagement and transparency in the community (Institute for Local Government 2015c). Coordinators found that responding to “small” complaints, which may be very common within communities that have

not participated in the community engagement process at length in the past, was an excellent way to show accountability, acceptance of local priorities and needs, and build trust in the initiative and the institution of government. This approach is also useful in climate- and resilience-related projects; the National Association of Climate Resilience Planners promotes identifying opportunities for small wins as a best practice in community engagement (Gonzalez 2017). Small successes (which should be publicized) can build momentum and support for the project as vulnerable populations realize they are being listened to and supported. The Institute for Local Government (2015a) sees acting on small complaints as a way of building on previous interactions with the community, but other government entities' work with the community must be considered and influence the actions being taken.

The meetings and events themselves should make it clear to participants that they are part of the process of making community engagement meaningful. Active participation is key. Participating is more compelling than just "being informed"; in each opportunity to connect with people, there should be time for feedback or an activity (Orton Family Foundation 2015b). Some ideas of active participation which the Institute for Local Government (2015a) and other initiatives promote include workshops, more engaging meetings due to breakout groups or discussions, walking tours, local advisory groups, community boards, or mediated dialogues (Baptista 2008). In South Gate, CA, community meetings were made more engaging and "fun" through games and raffles (Institute for Local Government 2015c). Whatever the method of creating more engaging events, thought should be given to cultural sensitivities and relevance. Art and music are also excellent ways of making community engagement more appealing to under-resourced populations. Local arts and culture groups can help identify key moments where culturally relevant art forms can facilitate authentic participation from locals which normally may not be interested in the community engagement process (Gonzalez 2017). Ideas range from enlisting local high school media classes to make a video to interactive public art to simple markers and paper at meetings.

Conclusion

Best practices in engaging socially vulnerable populations revolve around how to best spread a message to communities that may have barriers to participation, how to craft a message and narrative that resonates and motivates the target population, and how to create a community engagement process that participants consider meaningful and worthwhile participating in. Many different ideas for effective community engagement were discussed in the after-action reports, academic papers, and toolkits studied in this literature review, and it is clear that each project had to craft its own unique plan for engagement in each unique community. Moving forward, efforts to engage under-resourced populations will require a commitment to understand the needs and values of the community; without such a commitment, efforts will likely fall short.

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Appendix b

Draft Service Organization
Database

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Mission	Target Population
New Jersey Citizen Action	NJCA is a statewide grassroots organization that fights for social, racial and economic justice. We combine on the ground organizing, legislative advocacy, and electoral campaigns to win progressive policy and political victories that make a difference in people's lives.	low-and moderate-income individuals across New Jersey
New Jersey Voluntary Organizations After Disasters	A coalition of organizations that contribute to developing and sustaining community resiliency throughout the disaster cycle – facilitates and fosters cooperation, communication, coordination and collaboration among members and partners to improve preparedness, resilience, response and recovery resulting in more effective outcomes.	people and communities affected by disasters
Housing and Community Development Network of New Jersey	The Network works with our members and others statewide to develop the resources and policies needed to ensure that the housing and community development sector continues to expand and thrive, providing families with opportunity and helping to revitalize communities. As part of its education and advocacy mission, the Network works to uncover and analyze barriers to community development, educate members and the public about critical public policy issues, and develop positive policy alternatives.	
Institute for Social Justice	The Institute's dynamic and independent advocacy is aimed at toppling load-bearing walls of structural inequality to create just, vibrant, and healthy urban communities. We employ a broad range of advocacy tools to advance our ambitious urban agenda, including research, analysis and writing, public education, grassroots organizing, communications, the development of pilot programs, legislative strategies, and litigation.	Urban residents

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Mission	Target Population
Anti-Poverty Network of New Jersey	The Anti-Poverty Network is an education and advocacy organization that draws together diverse partners in the effort to prevent, reduce and end poverty in New Jersey. Our mission is to fight poverty in NJ by educating the community, empowering partners, and advocating for solutions.	New Jersey communities that are suffering from poverty
Greenfaith	GreenFaith is an interfaith coalition for the environment that works with houses of worship, religious schools, and people of all faiths to help them become better environmental stewards.	Religious institutions
New Jersey Environmental Justice Alliance	The New Jersey Environmental Justice Alliance (NJEJA) is a statewide alliance of organizations and individuals focused on environmental justice issues. In addition to addressing statewide issues, the organization also works on local concerns in north, central, and south Jersey.	North, central and south jersey
New Jersey Association of County and City Health Officials	The New Jersey Association of City and County Health Officials advances the art and science of public health, and ensures conditions that promote health, prevent disease and protect the health of the state's population through leadership, advocacy, collaboration and the assurance of workforce competencies.	State-wide
New Jersey Public Health Association	To strengthen, advocate and advance public health in New Jersey.	State-wide
New Jersey Working Families Alliance	Working Families is a growing progressive political organization that fights for an economy that works for all of us, and a democracy in which every voice matters.	Working families

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Mission	Target Population
New Jersey Society for Public Health Education	The purpose of this chapter is to promote, encourage, and contribute to the advancement of the health of all people through education by encouraging study, improving practices, and elevating standards in the field of public health education. NJ SOPHE provides an opportunity for its members to foster and improve health education principles throughout New Jersey.	Health educators
Sustainable New Jersey	Sustainable Jersey is a nonprofit organization that provides tools, training and financial incentives to support communities as they pursue sustainability programs. By supporting community efforts to reduce waste, cut greenhouse gas emissions, and improve environmental equity, Sustainable Jersey is empowering communities to build a better world for future generations.	
Latino Action Network	The Latino Action Network [LAN] is a grassroots organization composed of individuals and organizations committed to engaging in collective action at the local, state and national levels in order to advance the equitable inclusion of the diverse Latino communities in all aspects of United States society.	Latino communities nationally

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Mission	Target Population
Wind of the Spirit	Organize and train the community for social change. Help immigrants and non-immigrants so that they can meet and enrich each other. Educate members of the immigrant community about their rights and responsibilities. Promote activities to celebrate the cultural diversity of the Community in New Jersey. Advocate for human rights and dignity of all people regardless of immigration status. Establish a deeper understanding of global conditions that relate to immigration. Work together in solidarity for a world of justice and peace.	
Advocates for Children of New Jersey	To identify children's needs through research, policy and legal analysis, to raise awareness of those needs through strategic communications, and to work with elected officials and other decision-makers to enact effective responses.	Children
Make the Road New Jersey		Immigrant and working class communities in New Jersey

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Geographic Scope	Contact First Name	Contact Last Name	Contact Title	Phone
New Jersey Citizen Action	statewide	Dena	Mottola	Associate Director	973-273-0315 ext. 120
New Jersey Voluntary Organizations After Disasters	statewide	Keith	Adams	Executive Director	
Housing and Community Development Network of New Jersey	statewide	Staci	Berger	President	
Institute for Social Justice	statewide	Ryan	Haygood	President	973-624-9400 ext.23

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Geographic Scope	Contact First Name	Contact Last Name	Contact Title	Phone
Anti-Poverty Network of New Jersey	statewide	Renee	Wolf Koubiadis	Executive Director	
Greenfaith	statewide/international	Reverand Fletcher	Harper		732-565-7740
New Jersey Environmental Justice Alliance	statewide	Laureen	Boles	State Director	
New Jersey Association of County and City Health Officials	statewide	Kevin	Summer		
New Jersey Public Health Association	statewide	Paschal	Nwako	President	
New Jersey Working Families Alliance	statewide	Analilia	Mejia	Director	718-222-3796

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Geographic Scope	Contact First Name	Contact Last Name	Contact Title	Phone
New Jersey Society for Public Health Education	statewide	Robin	Vlamis		
Sustainable New Jersey	statewide	Randall	Soloman	Executive Director	
Latino Action Network	national	Christian	Estevez	President	973-418-7012

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Geographic Scope	Contact First Name	Contact Last Name	Contact Title	Phone
Wind of the Spirit	regional (North and Central NJ)				
Advocates for Children of New Jersey	statewide	Cecilia	Zalkind		
Make the Road New Jersey	statewide				908-768-4991

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Contact email	Organization Website
New Jersey Citizen Action	dena@njcitizenaction.org	https://njcitizenaction.org/
New Jersey Voluntary Organizations After Disasters	kadams@njvoad.org	http://www.njvoad.org/
Housing and Community Development Network of New Jersey		https://www.hcdnnj.org/
Institute for Social Justice	rhaygood.njisj.org	http://www.njisj.org/

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Contact email	Organization Website
Anti-Poverty Network of New Jersey	renee@antipovertynetwork.org	http://www.antipovertynetwork.org/
Greenfaith	info@greenfaith.org	https://greenfaith.org/
New Jersey Environmental Justice Alliance	director@njeja.org	http://njeja.org/
New Jersey Association of County and City Health Officials		http://njaccho.org/
New Jersey Public Health Association	newjerseypha@gmail.com	http://njpha.org/
New Jersey Working Families Alliance		http://workingfamilies.org/states/new-jersey/

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Contact email	Organization Website
New Jersey Society for Public Health Education	info@njsophe.org	https://njsophe.org/
Sustainable New Jersey	Info@sustainablejersey.com.	http://www.sustainablejersey.com/
Latino Action Network	esteveznj@gmail.com	http://latinoaction.blogspot.com/

Potential PWG Participants
DRAFT - December 5, 2018

Organization	Contact email	Organization Website
Wind of the Spirit	office@windofthespirit.net	http://www.windofthespirit.net/
Advocates for Children of New Jersey	advocates@acnj.org.	https://acnj.org/
Make the Road New Jersey		https://www.maketheroadnj.org/

Appendix c

Stakeholder Engagement Report

A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey

Stakeholder Engagement Summary

Submitted to the New Jersey Department of Environmental Protection Bureau of Climate Resilience
October 15, 2019

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Executive Summary

While all people living in the United States are affected by climate change, some communities and some populations are more vulnerable to changing climate conditions than others. Extensive research here in the United States and across the world points to populations of concern including those that are low-income, some communities of color, immigrant populations, people with limited English proficiency, Indigenous people, older and younger adults, people with disabilities and compromised health and mental health conditions, and others.

Rutgers University is working in partnership with the New Jersey Department of Environmental Protection (NJDEP) Bureau of Climate Resilience Planning on the NOAA Project of Special Merit (PSM) project, *A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey.* The project objectives are to:

- Update and enhance access to data that can be used by practitioners to identify socially vulnerable populations as part of community climate resilience planning;
- Develop guidance in the form of training curriculum and outreach materials to inform and support practitioners' efforts to engage socially vulnerable populations as part of community climate resilience planning;
- Offer recommendations for changes in coastal management and other policies that will support engagement of socially vulnerable populations in coastal climate resilience planning.

One project task is to conduct interviews with a set of key informants who are knowledgeable about the needs and challenges of socially vulnerable populations in New Jersey to inform overall project outcomes and outputs; and to conduct focus groups with socially vulnerable populations and/or organizations that serve socially vulnerable populations. As part of this task, the Rutgers team conducted more than 20 key informants and four focus group, three of which were with residents in Camden, Newark and Perth Amboy and one of which was with voluntary organizations that are active after disasters. This report summarizes the outcomes of those stakeholder engagement efforts.

Key messages

The Rutgers team heard five overarching, consistent messages from both the key informant interviews and the four focus groups:

1. For socially vulnerable populations, underlying societal inequities and challenges create the biggest hurdles to achieving resilience. This observation was shared for all types of socially vulnerable populations including people with disabilities and mental health needs, low income and Environmental Justice residents, senior citizens, among others. Perhaps the most consistent message heard from key informants and focus group participants is the extent to which socially vulnerable populations are already living under highly stressed conditions that are exacerbated by changing climate conditions. The Rutgers Team heard that the conditions that cause an emergent condition for a socially vulnerable household are much more sensitive for the population. Overall, the input received through the stakeholder process was that resilience processes need to focus on addressing the factors that increase social vulnerability so that residents can be better equipped to prepare for changing climate conditions.

2. For socially vulnerable populations, resilience is a factor of individuals AND whole communities. In other words, an individual may be somewhat resilient but the condition and level of cohesion of their community may make them less resilient or not resilient at all. During focus groups in urban communities, participants pointed to examples such as the built environment, community safety, availability of parks and open spaces, and infrastructure contributing to their inability to adapt to and recover from a climatic event. Other stakeholders pointed to the level of social cohesion in a community, the transparency and effectiveness of information sharing within a community, and the availability of community-based social services as contributors to resilience.
3. Most of the stakeholders engaged for this report conveyed a perception that government resources and funds to support resilience and recovery disproportionately benefit communities that are more resourced, meaning they have the capacity to apply for state and federal grants. For example, organizations that serve socially vulnerable populations after disasters indicate that, while their organization is not necessarily mission-focused on resilience and recovery, it had no choice but to serve the needs of socially vulnerable populations after storm events. These organizations, as well as organizations represented by focus group hosts and key informants, indicate that they are typically operating on organizational budgetary "margins" and are then even more pressed when their organizations are called into service during a climate event. Many indicate that they do not feel consulted in upfront design and implementation of resilience and recovery policies and programs.
4. A resounding message heard from key informants and focus group participants alike is the need for participatory processes to inform climate resilience planning with specific provisions to engage socially vulnerable populations. Key informants and focus group participants indicated that when stakeholders that are or represent socially vulnerable populations are engaged in resilience planning, new issues will be introduced to the process such as affordable housing, transportation mobility, public health and community safety. Stakeholders indicated that new processes will be needed to ensure the participation of socially vulnerable populations including convenient meeting times and locations, cultural competency, family support services, home visits, partnerships with trusted local sources, and compensation. When key informant interviewees and focus group participants were asked who they trust, often the answer was a local organization that is embedded in the community. Focus group participants also emphasized the need for residents themselves to inform community decision-making regarding resilience-related planning and decision-making, citing that residents best know what actions will be most effective in their own community.
5. In general, key informant interviewees and focus group participants identify an important role for government to play, especially with regard to ensuring that socially vulnerable communities and populations receive the resources and capacity needed to address underlying conditions that may be exacerbated by climate conditions, and prepare for and recover from climatic events. However, focus group participants and key informant interviewees were clear to emphasize that the role of government must be in partnership with organizations, leaders and residents of socially vulnerable communities and populations that may not traditionally have been involved in resilience planning.

This report also includes more in-depth discussion on specific input received from stakeholders regarding actions for state and local agencies as well as specific insights from the focus groups and key informant interviews. In general, an overarching message heard by the Rutgers team is that, to address needs of socially vulnerable populations, resilience planning needs to take a multi-sector approach that is sufficiently broad to address underlying challenges that are exacerbated by climate conditions.

Background

Rutgers University is working in partnership with the New Jersey Department of Environmental Project (NJDEP) Bureau of Climate Resilience Planning on a NOAA Project of Special Merit (PSM) project titled, *A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey.* The objectives of the project are to:

- Update and enhance access to data that can be used by practitioners to identify socially vulnerable populations as part of community climate resilience planning;
- Develop guidance in the form of training curriculum and outreach materials to inform and support practitioners' efforts to engage socially vulnerable populations as part of community climate resilience planning;
- Offer recommendations for changes in coastal management and other policies that will support engagement of socially vulnerable populations in coastal climate resilience planning.

A task the PSM project is focused on stakeholder engagement and is intended to engage socially vulnerable populations and key informants knowledgeable about the needs and challenges of socially vulnerable populations to inform overall project outcomes and outputs. The Rutgers team led the performance of key informant interviews with 22 knowledgeable individuals and 4 focus groups through partnerships with organizations that are mission-focused on working with socially vulnerable populations. This report summarizes the outcomes of stakeholder engagement efforts. All efforts associated with this task were conducted in consultation with the NJDEP Bureau of Climate Resilience Planning and the Office of Environmental Justice.

Social Vulnerability

While all people living in the United States are affected by climate change, some communities and some populations are more vulnerable to changing climate conditions than others. The United States Global Change Research Program Climate and Health Assessment find that "vulnerability to climate change varies across time and location, across communities, and among individuals within communities. Populations of concern include those with low income, some communities of color, immigrant groups (including those with limited English proficiency), Indigenous peoples, children and pregnant women, older adults, vulnerable occupational groups, persons with disabilities, and persons with preexisting or chronic medical

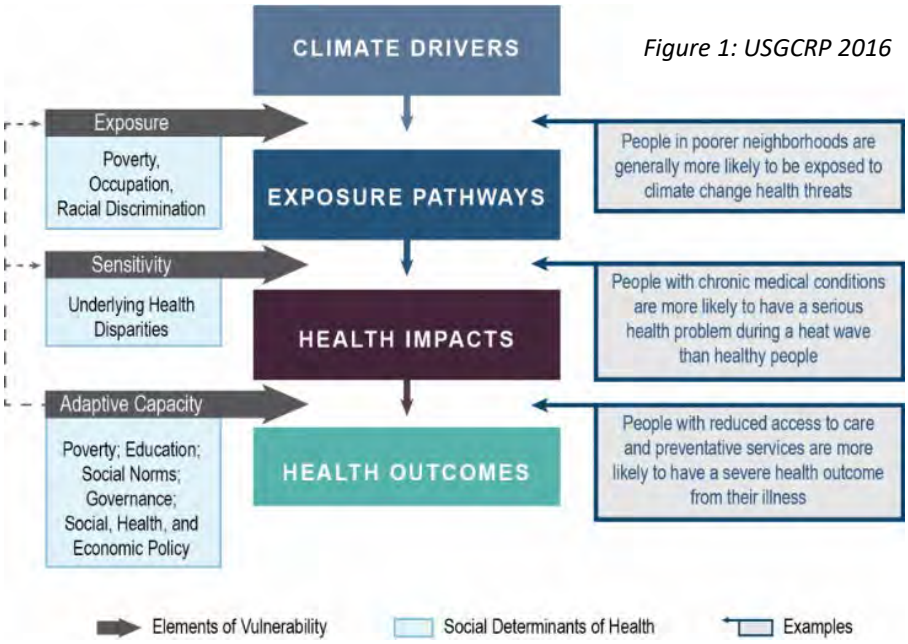


Figure 1: USGCRP 2016

conditions. Some groups face a number of stressors related to both climate and non-climate factors. For example, people living in impoverished urban or isolated rural areas, floodplains, coastlines, and other at-risk locations are more vulnerable not only to extreme weather and persistent climate change but also to social and economic stressors. Many of these stressors can occur simultaneously or consecutively. Over time, this "accumulation" of multiple, complex stressors is expected to become more evident as climate impacts interact with stressors associated with existing mental and physical health conditions and with other socioeconomic and demographic factors" (see figure 1).[1]

Volume II of the Fourth National Climate Assessment, released in 2018, concludes that existing societal inequalities and stressors already faced by certain populations and communities will be greatly exacerbated by climate change. Such inequities may include unequal access to social, community-based, and economic conditions that contribute to health and well-being, disproportionate exposure to environmental hazards, and social isolation. The assessment calls for governments to involve populations most affected by climate change into development of policy solutions.[2]

Research points to historic under investment and under representation of certain communities and populations based on factors including race and income that increase their vulnerability to changing climate conditions.[3] Research also points to the intersection of these stressors with other social, economic, environmental, and community factors that influence health inequities.[4]

These messages are underscored by the American Public Health Association that calls climate change and health inequities the "defining public health issues of our time" and that "they are inextricably interconnected." APHA points to the following three connections:

1. *Climate change disproportionately impacts the health of low-income communities and communities of color. The same physical, social, economic, and services environments that are associated with poor health outcomes for low-income communities and communities of color also increase exposure and vulnerability to the health impacts of climate change. People in low-income communities and communities of color generally experience greater burdens from preexisting health conditions which increase susceptibility to climate-related health threats. These communities are often historically disenfranchised, lacking the political and economic power and voice to ensure that decision makers take their perspectives, needs, and ideas fully into account. This lack of power contributes to health inequities and constrains the ability of low-income communities and communities of color from building climate resilience and to contributing fully to climate change solutions.*

[1] USGCRP, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, Eds. U.S. Global Change Research Program, Washington, DC, 312 pp. http://dx.doi.org/10.7930/J0R49NQX

[2] USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

[3] Susan Cutter. The Geography of Social Vulnerability: Race, Class, and Catastrophe. Social Science Research Council: Understanding Katrina; Perspectives from the Social Sciences. Social Science Research Council. June 11, 2006. Available at: http://understandingkatrina.ssrc.org/Cutter/

[4] Brulle, Robert & Pellow, David. (2006). Environmental Justice: Human Health and Environmental Inequalities. Annual review of public health. 27. 103-24. 10.1146/annurev.publhealth.27.021405.102124.

2. *Climate change and health inequities share the same root causes. The same systems (e.g. transportation, food and agriculture, energy) that are major sources of climate pollution also shape the living conditions that comprise the social determinants of health. These systems are shaped by current and historical forces that include structural racism and the persistent lack of social, political, and economic power of low-income communities and communities of color.*
3. *Addressing climate change and health inequities requires transformational change in our systems and communities. Many climate solutions offer tremendous health benefits and opportunities to promote greater equity, which are vital to increasing climate resilience. But to assure that all Americans have opportunities for health requires that we preserve a healthy planet. We cannot have healthy people without healthy places, and we cannot have healthy places without a healthy planet.*[5]

For several decades, the University of South Carolina Hazards and Vulnerability Research Institute has synthesized research regarding social vulnerability to natural hazards to form the Social Vulnerability Index (SoVI®) that is designed to measure the social vulnerability of U.S. counties to environmental hazards. The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties using data from 2010-2014.[6]

Informed by national research regarding social vulnerability and well as the index built by the University of South Carolina, the U.S. Centers for Disease Control and Prevention has developed a Social Vulnerability Index (SVI) that uses updated data and is currently used in many states to guide resilience planning efforts. The CDC defines social vulnerability as a "community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as toxic chemical spills." CDC considers factors that contribute to social vulnerability to include:

- Socioeconomic status – including employment, income, housing status, education level, health;
- Age – the old and young are especially vulnerable to changing climate conditions;
- Gender – Gender itself is not a characteristic of social vulnerability but, rather, gender inequalities in society can point to social vulnerabilities. During a climate event, females might be more vulnerable because of differences in employment, lower income, and family responsibilities;
- Race and ethnicity - Social and economic marginalization, societal underinvestment, racism and other factors contribute to the vulnerability of these groups;
- English language proficiency – People who have limited English ability may have difficulty understanding direction during a climate-related event; and
- Medical issues and disability – This category may include people with a physical, cognitive, physical, or sensory impairment, people with behavioral or mental health issues, people who

[5] Climate Change, Health and Equity: A Guide for Local Health Departments. American Public Health Association. 2018. Available at: https://www.apha.org/-/media/files/pdf/topics/climate/climate_health_equity.ashx?la=en&hash=14D2F64530F1505EAE7AB16A9F9827250EAD6C79

[6] Cutter, S.L.; B.J. Boruff; W.L. Shirley. 2003. Social Vulnerability to Environmental Hazards. Social Science Quarterly 84(2):242–261.

dependent on electric power to operate medical equipment, people with chronic medical conditions (e.g. asthma).[7]

CDC's SVI uses 15 U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster. These variables are organized into 4 themes:

- Socioeconomic Status - income, poverty, employment, and education variables;
- Minority status & language – minority status, English proficiency;
- Housing & transportation – multi-unit structures, mobile homes, crowding, no vehicle ownership, group quarters;
- Household composition/disability – Age 65 and older, age 17 and younger, older than age 5 with a disability, single parent households[8]

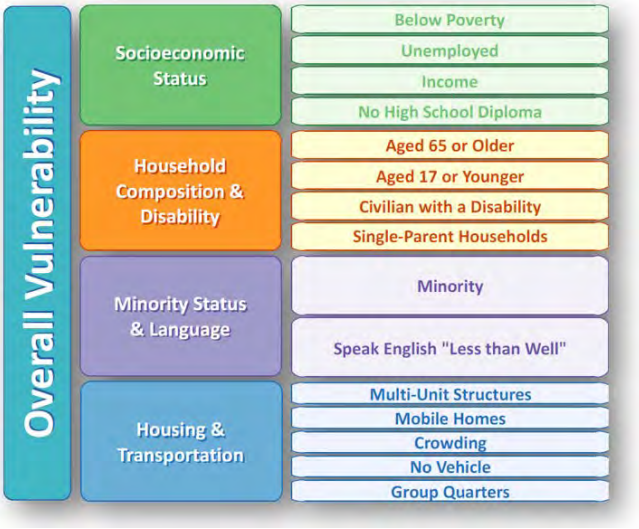


Figure 2: CDC SVI

For the purpose of this Project of Special Merit and in consultation with is Project Working Group, NJDEP has adopted a more expansive understanding of social vulnerability from three perspectives:

- Definition of resilience –
    - CDC: The focus of CDC's definition of social vulnerability is on a community's capacity to *prepare for and respond to the stress of hazardous events.*
    - FEMA: The Federal Emergency Management Agency (FEMA) refers to building a culture of preparedness in which "every segment of our society, from individual to government, industry to philanthropy, must be encouraged and empowered with the information it needs *to prepare for the inevitable impacts of future disasters*."[9]
    - NOAA: The National Oceanic and Atmospheric Administration (NOAA) defines coastal resilience as the ability of a community to 'bounce back' after hazardous events such as hurricanes, coastal storms, and flooding – rather than simply reacting to impacts."[10] The NJDEP perspective on social vulnerability is that the most effective way to ensure that socially vulnerable communities and populations can "bounce back" and thrive after climate-related events is through the systematic advancement of equitable policies, investments, coordination of programs, infrastructure improvements and

[7] Centers for Disease Control and Prevention (CDC). Planning for an Emergency: Strategies for Identifying and Engaging At-Risk Groups. A guidance document for Emergency Managers: First edition. Atlanta (GA): CDC; 2015. Available at: https://svi.cdc.gov/Documents/Publications/SVI_Community_Materials/atriskguidance.pdf

[8] Flanagan, Barry E.; Gregory, Edward W.; Hallisey, Elaine J.; Heitgerd, Janet L.; and Lewis, Brian (2011) "A Social Vulnerability Index for Disaster Management," Journal of Homeland Security and Emergency Management: Vol. 8: Iss. 1, Article 3.

[9] https://www.fema.gov/strategic-plan

[10] https://oceanservice.noaa.gov/facts/resilience.html

other systems that inherently improve the socioeconomic and environmental conditions of socially vulnerable communities;

- Data sets – The NJDEP intends to complement use of the SVI index with other datasets that represent other factors of social vulnerability. As part of this project, the Rutgers team is exploring other authoritative data sets that may be used for identification of socially vulnerable populations including data regarding veterans, asset limited and income restrained employed residents, residents in communities with disproportionate environmental burden and others. Additionally, the NJDEP and Rutgers are exploring complementing use of the SVI index with individual indicators because both have heard that general users are often confused when using multiple indices;
- Engagement – The CDC SVI has a focus on preparing communities to prepare to environmental hazards. A strong focus of the NJDEP Project for Special Merit is on continuous engagement of socially vulnerable populations as part of overall resilience planning that is not necessarily tied to disaster-related events. The NJDEP approach is a more holistic community-based planning approach that is led by the community which may have ties to community design, health, transportation, energy and other types of local planning.

Approach

Task 4 of this project involved the following strategies:

Consultation with Project Working Group

The Rutgers Team and NJDEP consulted with the Project Working Group (PWG) on the design of the key informant interviews and focus groups. A draft list of invited key informants was shared with the PWG, who offered additional suggestions. The Rutgers Team also discussed the nature of the topics to be covered in both the key informant interviews and the focus groups with the PWG and added names to the interviewee invitee list based on input from the PWG. A draft overview of observations and insights gained from the key informant interviews and focus groups was presented to the PWG via webinar in June 2019 to inform organization of this report. A draft of this report was shared with the PWG and was the subject of a discussion of the PWG at its September 2019 meeting. This report was revised based on input of the PWG.

Key Informant Interviews

In consultation with the NJDEP, the Rutgers team developed a list of potential key informant interviewees. Two members of the Rutgers Team led interviews with key informants: Dr. Karen Lowrie and Jeanne Herb. The interview protocol was approved by the Rutgers Institutional Review Board. All interviewees were provided informed consent with the interviewers stressing that the interviews were not for attribution. The Rutgers Team sent an email to all potential interviewees with an invitation to participate in a key informant interview with a choice of telephone or in-person interview. Twenty interviews took place by telephone; two interviews took place in person at the request of the interviewee. The interview protocol was based, in part, on discussion with the PWG, as well as insights provided via the project literature review. A total of 20 individuals were interviewed by phone and in person, most in leadership positions at statewide, county, or local nonprofit and government organizations that serve, as all or part of their mission, vulnerable populations such as the elderly,

mentally ill, low-income families, or immigrants. The questions were in three main areas: impacts of changing climate on vulnerable populations and proposed solutions to mitigate impacts; strategies for engagement of organizations and populations in resilience planning; and information, data sources, and needs. A list of interviewees is included in Appendix A along with the interview protocol. Each interview included the Rutgers interviewer taking notes which were then compiled into a complete set of notes that were shared with the NJDEP Project Manager.

Focus Groups

Originally, NJDEP and the Rutgers Team intended to provide $5,000 subawards to three organizations to facilitate and host focus groups. As per the NOAA-PSM workplan, Rutgers issued a Request for Qualifications to six established, non-profit organizations in New Jersey that have a history of working with socially vulnerable populations. All six organizations were invited to submit a statement of qualifications using a questionnaire designed by Rutgers and approved by NJDEP. Criteria for selection of the organizations to host the focus groups were included in the NOAA-PSM work plan and included as part of the Request for Qualifications. All subawards were processed following Rutgers financial procedures. Four organizations submitted statements of qualifications: Coopers Ferry Partnership, Ironbound Community Corporation, New Jersey Voluntary Organizations after Disasters, and the Jewish Renaissance Foundation. All four organizations met the selection criteria. Given the anticipated diversity of input that would be received from the four different focus groups, the Rutgers Team and NJDEP agreed to undertake some revision to the budget to allow the project to include focus groups with all four organizations.

The four focus groups took place on-site at each of the hosting organizations in July 2019:

- Jewish Renaissance Foundation – Perth Amboy, Middlesex County
- NJVOAD – Offices of Catholic Charities; Cape May, Cape May County
- Ironbound Community Corporation – Newark, Essex County
- Coopers Ferry Partnership – Camden, Camden County

Each focus group lasted approximately 1.5 hours. A total of 39 residents participated in the four focus groups. Each participating resident received a $40 incentive. Each resident received and signed an Institutional Review Board-approved informed consent including a clarification that the focus groups were not for individual attribution. One of the focus groups necessitated translation to Spanish, which was provided by the host organization. Each of the four host organizations were required to: secure a location for the focus group, recruit participants per criteria provided by the Rutgers team, manage focus group logistics, participate in the focus group without a personal incentive, and provide refreshments for participants. Two representatives of the Rutgers Team led three of the focus groups and one representative of the Rutgers team led the NJVOAD focus group. At least one representative of NJDEP observed each focus group and took notes of the discussion. Notes from NJDEP observers and Rutgers Team leaders where combined to inform collective observations and insights. The focus group protocol was based on focus group best practices, such as use of defined and open-ended questions, and included questions that were informed by discussions with the PWG as well as the project literature review. The focus group interview protocol is included in Appendix B.

Report Preparation

This report was prepared by the Rutgers Team based on observations and insights gained from both the key informant interviews and focus groups. Notes prepared by the Rutgers team leading interviews with key informant interviews were reviewed along with notes from Rutgers team focus group leaders and NJDEP focus group observers. The Rutgers Team held a dedicated team meeting to review all notes to prepare a cohesive summary of insights based on both the key informants and focus groups. A summary of those insights and observations were provided to the PWG on a June 2019 webinar to receive feedback on the organizational approach to inform preparation of this report. In addition to having a draft of this report reviewed and discussed by the PWG at its September 2019 meeting, each of the focus group host organizations reviewed a draft of this report. Changes were made to this report to reflect input from the PWG including the following:

- Providing a greater emphasis on the input received from focus group residents in addition to key informants;
- Emphasizing the key message that, for socially vulnerable populations, the goal is or should be "bouncing forward" to improved conditions rather than "bouncing back" to previous living conditions;
- Providing an early section in the report that gives context for the nature of social vulnerability, including the populations and communities that are most vulnerable to changing climate conditions and the causes for those vulnerabilities.

Minor comments were received and incorporated into the report from the focus group host organizations. In general, the focus group host organizations felt that the review draft of this report accurately represented the discussions at the focus groups.

Key Messages

In general, the Rutgers team heard very consistent messages from both the key informant interviews and the focus groups. These messages are also generally consistent with the literature review conducted for this project as well as research that has been conducted nationally.

> *"We are a bit more prepared for the next storm, but not by a whole lot!"*
> Key informant interviewee

Overarching Messages

The Rutgers team heard five overarching, consistent messages from both key informant interviews and focus groups, including:

1. **Underlying societal challenges** - For socially vulnerable populations, underlying social inequities create the biggest challenge to achieving resilience. Perhaps the most consistent message heard from key informants and focus group participants is the extent to which socially vulnerable populations are already living under highly stressed conditions that are exacerbated by changing climate conditions. The Rutgers Team heard that the conditions that cause an emergent condition for a socially vulnerable household is much more sensitive for the population. Key informants and focus group participants also discussed how climatic events might have consequences that cause a cascading spiral of impacts, thus exacerbating a person's ability to recover to the previous state of "normal." Social conditions that were

> *"Many of these people are 'living on the edge' already, so it doesn't take much to go <u>over</u> the edge!"*
> Key informant interviewee

routinely identified as those that significantly affect the ability of a population to prepare for and/or recover from a climatic event include:

- Economic status, meaning having access to financial resources to be able to live in conditions that allow a base level of resilience so that an individual and/or family can easily adopt to climate events. An example is an individual who works an hourly wage job that is not paid if a climatic event prevents them from getting to work;
- Underlying health disparities and conditions – Participants pointed to examples of health disparities that are likely to worsen for socially vulnerable populations during climatic events. An example are households without the ability to afford air conditioners that may contribute to respiratory impacts during high heat events. Mental health is included among the health concerns identified by key informants. The Rutgers Team heard that underlying health conditions that are exacerbated by climate conditions includes pre-existing mental health conditions including dependence on alcohol and drugs. The Rutgers team heard that climatic events can build upon existing stressors that coincide with mental health conditions, forcing greater social isolation and disrupting stable conditions that might trigger mental health emergencies. Other practical measures were also discussed such as the fact that high temperatures can affect the function of mental health drugs, that in high temperatures people may not hydrate properly causing mental health distress, and that access to prescription medications may be limited during climatic events.
- Access to transportation, affordable & quality housing, safe and clean communities, educational attainment; and
- Immigration status – The Rutgers team heard frequently about distrust of government on the part of immigrant communities that preclude their use of social services. One key informant talked about immigrant families eating spoiled food after Hurricane Sandy because they were too fearful to go to the local food pantry.

2. **People <u>and</u> community** - For socially vulnerable populations, resilience is a factor of individuals AND whole communities. In other words, an individual may be somewhat resilient but the condition and level of cohesion of their community may make them less resilient or not resilient at all. During focus groups in urban communities, participants pointed to examples such as the built environment and infrastructure contributing to their inability to adapt to and recover from a climatic event. Examples include:

> *"Recovery depends on how capable or strong you were to start with!"*
> Key informant interviewee

   - Multiple sources of pollution that affect physical and mental health challenges that may be exacerbated during climatic events such as through combined sewer overflows, stormwater pollutant runoff;
   - Overall poor infrastructure, such as inadequate road conditions, that can cause severe distress during flood events affecting ability to evacuate, etc.
   - Extent to which a community has parks and "green" infrastructure to not only mitigate flooding and heat island effect but so also contribute to community vibrancy;
   - Extent to which a community has systems and structures to promote community cohesion, information sharing, and educational opportunities – all factors that

interviewees and focus group participants pointed to as critical elements of enhancing resilience.

3. **Resource inequity** – The perception of many of the key informants interviewed and participants in focus groups is that government resources to support resilience appear directed to communities and individuals that have the capacity to receive and apply for those resources. Regardless of whether this perception is true or not, key informant and focus group participants believe that government resilience and recovery monies disproportionately benefit communities that are more resourced, meaning they have the capacity to apply for state and federal grants. Organizational key informant interviewees indicate that their organization is not necessarily mission-focused on resilience and recovery but, following climatic events, had no choice but to serve the needs of socially vulnerable populations. They indicated that they "filled gaps" in current systems to address the needs of socially vulnerable populations during climatic events but that they have still not been provided with the capacity needed to continue in such roles, including applying for state and federal resilience grant monies to support their efforts. This comment was heard from organizations that serve a variety of populations: immigrant populations, people with mental health needs, people who are low-income or poor, etc. In general, the overarching message heard by the Rutgers team is that these providers are often operating on organizational budgetary "margins" which are then even more pressed when their organizations are called into service during a climate event. Many of these organizations also point to their experience that they are called into service during or after a climate event but that they are often not consulted in upfront design and implementation of policies and programs. Finally, they also indicate that, if their expertise is sought for planning new programs and policies, it is critical that they be given resources to participate given their limited basic operational capacity.

> *If you want people to bounce back from a storm, make sure they have the resources they need to live a happy and healthy life now and then they can take care of themselves if there's a storm event!"*
>
> Key informant interviewee

4. **Building trust and capacity –** A resounding message heard from key informants and focus group participants alike is the need for upfront, barrier-free participatory processes to inform climate resilience planning. A second message is the need for resilience planning to not only focus on efforts to mitigate impacts of climatic events but to also address the underlying social inequities that are the cause of social vulnerability. Several pointed to adage "an ounce of prevention is worth a pound of cure," meaning that a focus of state resilience efforts should be on addressing causes of social vulnerability so that people can be self-resilient during climatic events. In general, one clear message from the key informant interviews and focus groups was that planning for climate change should not be framed as a stand-alone, separate challenge facing a socially vulnerable community but, rather, a condition that exacerbates current community challenges that are often the result of social inequities.

Underlying these messages is the concept of trust. When key informant interviewees and focus group participants were asked who they trust, often the answer was a local organization that is embedded in the community. Focus group participants also emphasized the need for residents

themselves to inform community decision-making regarding resilience-related planning and decision-making, citing that residents best know what actions will be most effective in their own community. In two of the focus groups, held in urban communities, residents were surprised to learn that cities and counties adopt hazard mitigation plans because they indicated that they neither know about the plans nor were consulted in plan development.

Input received from the key informant interviews and focus groups indicate support for resilience planning efforts that:

- Create new models of citizen engagement in which socially vulnerable populations, who may not typically be engaged in formal planning processes, are sought out to inform ongoing efforts. Such efforts not only include community leaders in policy and program design but also involve residents in decisions about their own communities. On a related note, several key informants pointed to the need for financial support to advance community-based resilience processes;
- Promote processes in which a commitment to social equity is apparent which may require more holistic resilience planning that, for example, involve organizations and agencies involved in broader social equity issues such as public health, affordable housing, community-based transportation mobility, workforce development, open space, and the integration of planning for those issues with provision of social and health services; and
- Build capacity within communities so that community-based organizations and residents can ensure that:
    - resources are equitably directed to the residents and neighborhoods that need them the most;
    - outreach is conducted to socially vulnerable populations in ways that is culturally competent and sensitive to individual populations' needs and challenges;
    - specific needs of individual socially vulnerable populations can be tailored – for example, the Rutgers team head that the needs of people with mental health conditions may best be addressed through personal home visits while immigrant populations' needs may best be addressed through local trusted organizations;
    - focus on information coming from local sources is critically important for populations with mental health conditions to ensure trust and minimization of anxieties during climatic events;
    - solutions correspond to the needs of the most vulnerable populations in a community;
    - residents are educated about strategies to be most resilient from trusted sources but during "blue skies" as well as climatic events;
    - services can be provided locally by organizations most trusted by residents;

> *"The most important thing to make people able to withstand storms is to give them a solid education so they can take care of themselves."*
>
> Key informant interviewee

- resilience strategies become sustainably integrated into a community's systems, culture and operations, rather than it being viewed as a standalone government requirement with no connectedness to the overall fabric of a community; and
- strategies are adopted that can deliver broader social equity co-benefits to residents such as improved health and access to workforce development opportunities.

5. **Role of government** - In general, key informant interviewees and focus group participants identify an important role for government to play, especially with regard to ensuring that socially vulnerable communities and populations receive the resources and capacity needed to: address underlying conditions that may be exacerbated by climate conditions, and prepare for and recover from climatic events. However, focus group participants and key informant interviewees were clear to emphasize that the role of government must be in partnership with organizations, leaders and residents of socially vulnerable communities and populations that may not traditionally have been involved in resilience planning. In general, an overarching message heard by the Rutgers team is that, to address needs of socially vulnerable populations, resilience planning needs to take a multi-sector approach that is sufficiently broad to address underlying challenges that are exacerbated by climate conditions.

Specific messages - Key informant interviews

Below is a summary of specific insights gleaned by the Rutgers team as a result of the interviews with key informants:

- **Impacts of climate change on vulnerable populations** - Vulnerable populations have less income and resource capacity, so dealing with climate-related hazards affects them disproportionately. Interviewees stressed that traumas related to weather hazards are worse because they build upon existing stresses. Specific impacts for vulnerable populations were detailed as:
  - *Trauma of repeated flooding*: People get traumatized by repeated flooding, now occurring more routinely, with severe problems from Nor-easters. Repetition of the events compounds the ability to recover between events. Plus, there is now a constant fear of heavy rains. It takes a lot of work to clean out, dry out, repaint, etc. It is like an "assault on the family." Dealing with recovery and recovery programs is very stressful. These traumas can exacerbate pre-existing behavioral health conditions. For example, it can enhance the effects of any problem they had – alcohol, drugs, etc. It also forces people to become more socially isolated.
  - *Impact on low-income populations:* Lower income and poor families are more likely to be in housing that is in locations that are more vulnerable to flooding, and in houses that are in poor condition and already less healthy. These populations are already relatively unhealthy and dealing with lots of health challenges. Lower income individuals are outside a lot (waiting for transit, manual labor jobs, walking, etc.) in neighborhoods that may not have much shade. They have fewer resources to allow them to be well-prepared, to evacuate, or to recover (e.g. replacing belongings, accessing food, etc.). Many low-income individuals own homes that they inherited. They are "just barely

getting by" before the storm, but emotionally connected to their homes. They cannot sell homes because they cannot afford to purchase another home. Excessive heat and cold are hard for people on limited income. Because of high utility bills, they may not turn on A/C or heat to keep bills down, and then suffer health effects.

- *Impact on homelessness:* Homeless populations suffer as they congregate in vulnerable areas. It can be hard to find sheltering space.
- *Impact on renters:* Renters have less capacity to repair and remediate their homes, or to recover damages. "Renters were on the street after Sandy. If it was not bad water damage, it was severe mold. It was cheaper for the landlord to lock the house up than fix it."
- *Impact on immigrants*: Many immigrant families, if required to evacuate, have no place to go. Some people with families in Puerto Rico have lost everything there also and have had family from Puerto Rico come to live with them in New Jersey adding to daily stress. If they are limited English proficient, they may struggle with understanding information about hazards and response and may be taken advantage of by certain contractors. Fear of undocumented status means that populations do not speak up and, instead, just "take it."
- *Impact on elderly/people with disabilities:* The elderly are very vulnerable to heat island effects, are often in older homes that are not energy efficient, and may not have adequate heat or A/C. Seniors are also often taken advantage of by contractors. Many seniors strive to age in place. They also have more difficulty evacuating due to isolation and mobility issues. Some seniors need power for medications, oxygen, etc., so suffer disproportionately when power is out. Some need to make "hard choices" between food, utility bills and medical supplies. Many key informants stressed that a "cookie cutter" approach cannot be taken to addressing the needs of people with disabilities because the diversity of people with disabilities (developmental disabilities, autism, physical disabilities, etc.) are inherently different and necessitate tailored management).
- *Impact on urban communities:* Key informants pointed to additional challenges faced by lower income residents in urban communities including typically older, deteriorating infrastructure and housing, urban heat island effect, and polluting industries. A related concern was about developing strategies and policies that mitigate displacement of existing residents when costs to increase resilience and fix aging infrastructure drives up property values of urban neighborhoods.
- *Condition of neighborhoods*: The physical infrastructure is already bad in many lower-income neighborhoods with large vulnerable populations. Repeated rain and heat both make these conditions worse. Climate change can make leaky roofs more of a problem and make it more difficult to make homes lead-safe. There are already also fewer health providers in their neighborhoods.

- **Top priorities for improvement in resiliency of vulnerable populations –** The Rutgers team asked interviewees for the top priorities that would go the farthest to build resiliency. The items that emerged were increased income, more education/awareness, improvements in transportation and built infrastructure, housing and neighborhood conditions, interpretive

services, and more coordinated planning for service delivery. Specifically, this is what was heard:

- *Financial resources:* Income is a constant stress, so increased income, above all, would help vulnerable populations to be better able to deal with problems. Stable employment options that include insurance would help populations to be healthier.
- *Education:* There is a need to raise awareness about preparation activities and how to tap into resources. People should know more about local conditions and information. People do not know how to access the services that are available to them.
- *Transportation improvements*: Many poorer people have vehicles in poor condition and are not as able or prepared to move. Many also rely on buses to get to shelters. There should more affordable and accessible transportation options
- *Interpretive services*: Information needs to be available in multiple languages. Local officials or social services may not know who lives in their communities or how to communicate with them. Recognize that some populations (seniors) are isolated or may limit their social interaction to one local organization. Critically important to work with trusted local sources. What those sources are will vary for different populations: for seniors, it may be a senior center; for others, it may be a church; for others, it may be a community center; for immigrant populations, it may be something entirely different.
- *Safe, affordable housing:* This could include inclusion of more options for people to downsize to smaller residences to reduce costs, keeping utility and cost of living down, and options like "community land trust" to allow people to stay in homes.
- *Healthier and more resilient neighborhoods*: Roads should be repaired to handle/mitigate flooding, and better flood management practices should be utilized to keep neighborhoods safe. Urban greening and tree canopy installed in the city neighborhoods to mitigate heat island effect.
- *Better local planning:* Municipalities need to look at meeting needs of all populations in their master planning. For example, they need a coordinated plan for evacuation or shelter and informing people where to go, to reduce anxieties. A disaster planning group made up of faith-based communities, schools, social service agencies and emergency managers, should develop a coordinated plan for delivering services when disasters occur. The Rutgers team heard about the need for considering the diverse needs of multiple populations as part of community planning including overall community design, resilience planning, and emergency planning. Planning for one type of population is not adequate: planners need to consider all different age groups, all different income levels, all different levels of physical and mental capacity, all cultures and languages.
- *Improved communication during events:* Several key informants called for local community-based "hubs" in familiar community-based organizations where residents can gather during climate events where residents can get information and feel safe and that such hubs can be developed with community leaders. Many key informants pointed to the value of public libraries as critically important resources to socially vulnerable populations that can serve as important and trusted hubs of information during "blue skies" times as well as during climate events, especially for residents that have limited access to electronic sources of information. Making more information

about services, what to do during a climate event, etc. through libraries would be helpful. Several participants in focus groups identified libraries as places where they go to keep cool during high heat days.

- **Ongoing efforts** – To build resilience in socially vulnerable populations, many non-profit social service agencies provide support for New Jersey's vulnerable populations in various ways. Many help to coordinate services in times of emergency, and as part of their day-to-day missions, operate numerous programs and services that help to improve lives and build capacities for lower-income, elderly, disabled, immigrant, homeless or other populations in need. Several key informants pointed to a need for greater coordination of various social services that are related to providing support to socially vulnerable populations both to increase their overall ability to be resilience as well as to respond during a climate event. Some of things these agencies reported doing related to building resilience to climate hazards are:
    - *Post-storm and crisis support*: Many agencies helped distribute supplies to families, obtain emergency services, and then to obtain the resources needed to safely return to their homes after Sandy. During storms, vulnerable families rely on local agencies to sometimes "man" temporary resource centers and run shuttles, and to relay information about where help is available. Some agencies have provided disaster-related crisis counseling. Through VOAD and COAD efforts, some multi-agency relationships have emerged to serve communities. Several key informants pointed to NJ 211 as a tool with tremendous untapped potential. It has multi-language ability, but is primarily used by English-speakers.
    - *Consumer protection*: It is important to recognize that vulnerable populations are the ones that are most preyed upon after climate events by dishonest contractors. There is an important role for government to play in identifying what are legitimate services and contractors.
    - *Outreach and education:* Many agencies engage in outreach to raise awareness about issues and challenges and build capacity of families to withstand emergencies. Information can get to vulnerable populations through unexpected sources: families in Middlesex County relied on the Nurse Family Partnership program to get information about where social services and other help was available during several storms. Thinking about programs such as that and other similar programs such as weatherization programs, where there is direct support for low income homeowners is important.
    - *Transportation services:* Some agencies have organized bus and shuttle systems that can operate during emergencies.
    - *Improving housing conditions:* There are organizations that are helping to weatherize and retrofit homes to make them more energy-efficient and healthy.
    - *Urban greening:* Some organizations are actively greening cities, including ripping out concrete and doing tree planting.

- *Emergency preparedness:* Organizations have been involved in training residents to serve as block captains during emergencies, and to work with their towns to ensure that emergency plans include services for vulnerable populations. One group created a "Disaster Preparedness and Response" guide. A voluntary program called "register ready" helps towns to know where people are who need services, or where they are during evacuations.

> *"Emergency planning needs to be done from a 'social services perspective.'"*
> Key informant interviewee

- *Local emergency planning councils:* These can include Health Department and Emergency Management coordinators, along with key nonprofit agencies from communities that meet regularly to review emergency plans. (Note: These differ across counties and municipalities. Some of these are more effective than others in addressing needs of vulnerable populations.)
- *VOAD and COAD:* While they work on the state's emergency management plan and on resilience planning, interviewees felt that there was still not much planning occurring at municipal level.
- *Flooding assistance*: Some of the NJ community service agencies help neighborhoods to plan for flooding and have incorporated climate change impacts into neighborhood plans. Some educate families about healthy homes but addressing climate impacts is usually more on the periphery.

- **Capacity needs** - Organizations report that they could do more to build resiliency and to engage in climate resiliency planning with more resources, and most want to do more, but key needs mentioned were better information about all service agencies shared among agencies, generally more coordination and connections, and increased capacities or resources to help population with complicated challenges. Supportive resources that are specifically tied to climate resiliency and emergency planning work would help agencies to become more involved, including:
  - *Improved information resources:* Organizations want to know about any other groups that are serving people at risk. There could be a directory of "key organizations" that are working with vulnerable populations and organized by geography and type of population.

> *"(Our agency) doesn't get funding to do crisis work but we do it anyhow because it's the right thing to do. Nothing has changed in terms of preparedness for the next storm."*
> Key informant interviewee

  - *Increased ability to help with housing*: Agencies could do more to help people with repetitive flood loss houses if they had the resources and capacity to help them to either raze or remediate them and make them more able to withstand the next storm.
  - *More connectedness and coordination:* Civic associations are important, but do not have enough resources to prepare localized plans. High-level plans do not work unless they can get to the house level. There is a need for the larger, stronger community organizations to work with civic groups to get to the "last mile." There could be better planning for who is designated to lead in various areas like collection of food, clothing, etc. in time of emergency.

- *Specific funding for climate resilience work*: Most of the interviewees from social services agencies are willing to engage more in emergency preparedness and resilience planning work with families they serve, but they need specific resources and capacity to make it part of their agenda. Most Community Development Corporations are not working directly on environmental issues and have other missions but must deal with the impacts on the populations they serve. Funding that supports staff time would help them to have capacity to participate on a steady basis in disaster and resilience planning.

- **Role of municipalities -** Interviewees felt strongly that New Jersey municipalities and cities need to do more to support and coordinate with local agencies that are already serving vulnerable populations. They could serve as the "point" in providing consistent information and communication. Typical municipal functions like improving physical infrastructure that would build more resilience were also mentioned. Specially, these ideas were heard:
  - *Enhance infrastructure:* Interviewees mentioned that towns could do more to install parks and urban greening. They should also fix roads that make travel during heavy storms difficult, and deal with backed up storm sewers that dump garbage and contaminated water into some neighborhoods during storms.
  - *Improve existing community centers*: Work with local agencies to retrofit community centers to serve as disaster centers (equip with generators, etc.). Other neutral places like libraries should be prepared to serve as emergency centers, cooling or warming centers.
  - *Support a well-coordinated emergency service and planning system*: Local service providers already know their communities and their needs. Municipalities should help to build and support an organized network of what already exists, including trusted local social service agencies together with hospitals, OEM, etc. Set up "one-stop shops" for disaster response and recovery. Having a locally-based Head of Social Services at each city would help. Larger cities could appoint and support a "resiliency coordinator" in each ward or area.
  - *Communication and information*: Interviewees told us that they look to towns to communicate from the top-down. In other words, Mayors need to let people know what they need to do by helping to compile and distribute information, and to "connect the dots" between agencies. To help disadvantaged populations, government needs to set up a point person that people can go for help. That point person may not be a government person but another organization that people trust and will not fear.
  - *Support self-sufficiency:* Local government needs to make sure that people have the resources they need to take care of themselves. Some of the biggest problems that people face with climate change is that their whole community is not prepared. They need "concrete" services like helping with food access, fixing houses, finding transportation options, getting medical care, etc. Municipalities could use *additional* CSBG funds to help income-eligible families to be ready for emergencies.

> *"The challenge is that NJ has "so many players" and so many jurisdictions, and counties have different strengths. Some are good and some are not so good. We need to figure out in each place whether towns and/or counties will have roles."*
>
> Key informant interviewee

- *Community education:* Municipalities could educate residents about storm hazards and preparedness actions. Towns could also educate planning and zoning board members about climate as a health issue, planning for vulnerable populations, sustainability and about the importance of taking action to build resilience. Towns could also do more community education about hazardous areas and educating about evacuation.

- **Role of the State** - Interviewees would like to see the state set up the structure for climate preparedness and provide more supportive resources to implement resiliency actions. Interviewees indicate that the state should show leadership from the top-down, and then empower local communities to act. Some specific strategies emerged from dialogues regarding new or better-structured programs and policies that the state could pursue. The Rutgers team heard these ideas and themes:
  - *Adopt policies that mitigate climate change*: The state needs a policy agenda that will work to *stop climate change*.
  - *Build Environmental Justice into policy-making*: People of color and poorer populations' needs are not well-integrated in the policy and decision-making process about their neighborhoods.
  - *Invest in building healthier neighborhoods for all*: The state should look to adopt more policies and programs that invest in home and community-based services, invest in enhanced transportation options, keep utility costs down, and policies to support safe, affordable, accessible housing.
  - *Multi-agency teams:* For disaster recovery, the state could institute a program for vulnerable families that would provide one-on-one counseling to understand people's needs and help them to make decisions. The team could be made up of Mental Health, NJDEP, DCA, Insurance, Finance, etc. to deal with many inter-connected needs. Most interviewees felt that programs are too "siloed" and not looking at bigger picture needs.
  - *Provide coordinated information*: The State could help to provide coordinated information about state resources, talking with mayors across the state to understand needs, state roles, etc.) Information should first be coordinated between departments, which would result in coordinated messaging outward from state agencies to towns and organizations.
  - *Incentivize local action*: The State could push cities to do climate resiliency and disaster preparedness planning, providing guidance, support and resources.
  - *NJ 211:* This program could better serve immigrant populations, many of whom do not know it exists.

- **Engaging vulnerable populations** - Most community organizations serving New Jersey's vulnerable populations are already engaging residents and families in numerous ways. They stress that many people want to be involved, but for effective engagement, it is important to understand the needs and constraints of the populations, and use a multi-faceted and multi-pronged approach. Some ideas presented include:

- *Strategic outreach*: Interviewees talked about the need to be creative about public engagement, such as building events around the engagement. Build the engagement around something that is interesting or important to them, like health or children.
- *Customize opportunities for input*: Some members of the populations will use the internet, so it is important to have apps or web-based resources that they can access. However, some have no internet at all, so reaching out with other formats is important. For example, one community uses magnets to list all important emergency numbers, etc. Some need ways to participate in other languages.
- *Advantage existing relationships:* It is important to build from existing relationships that social service agencies have with these populations. (e.g. "Could you bring 10 people from your served population to a meeting?") These organizations have the trust of the people.
- *Recognize hard-to-reach populations*: Some residents will have great difficulty providing input or becoming involved. Examples include homeless squatters and some immigrants. Collaborating with organizations that serve more isolated populations, like Meals on Wheels, could work.

> *"Nothing about us without us. Community residents must be involved in the process. We need to actually put the resources into the trusted community organizations that are permanently in the community."*
> Focus group participant

- **Information sources**
  - *For vulnerable populations:* Members of vulnerable populations tend to strongly trust the local organizations that serve them directly. This is where they go to find out how to access services and meet basic needs. However, they also look to more "official" sources for climate and weather information, underscoring the need for clear, consistent information that communities can trust regarding climate hazards. Specifically, interviewees told the Rutgers team about information sources:
    - *Importance of community sources and word of mouth*: People tend to rely on neighborhood organizations, neighbors and faith-based organizations for information about what to do in emergencies. Some vulnerable populations are a "tight-knit" group and wary of outsiders. Trust needs to be earned.
    - *Government sources:* Government sources do not seem reliable and it is such a "mixed bag" of information that it can be confusing. Often, local government is not well-trusted. But institutions like local libraries can be trusted repositories of information. People already go there for many reasons and can access information there.
    - *NIXEL*: Some residents use this voluntary text messaging service.
    - *Social media:* Some social media platforms are active and used by younger members of populations, such as local Facebook groups.
    - *Local news*: Some residents would look to local news or weather-related websites for trust information on upcoming weather hazards.
  - *For organizations:* Many of the organizations report using a good deal of data to drive decision-making and priorities. Much of it is provided by national headquarters or regional offices of major charitable and service agencies to their state or local chapters.

Many though, particularly those that are independent of national organizational frameworks, use a variety of government data. Specifically, interviewees discussed use and trust of information:

- *Government information sources:* Agencies use open source federal and state official government information and standard GIS layers to help to support planning. Some specific agencies mentioned include FEMA, EPA, HHS, NOAA, National Weather Service, US Census, and DCA, DEP and DOH at state level. Some of the larger organizations use online tools like Floodmapper, NJAdapt and EJScreen.
- *Working with local experts and academics:* A number of the interviewees mentioned working with academic institutions to support their data and/or mapping needs and to assist in data collection and assimilation. They may also read reports from universities or research centers about what is happening in other cities or the region.
- *Original data collection*: Some organizations conduct their own primary research, like surveys of the conditions of abandoned properties and assessments of local housing conditions. Some collect information from clients served when, for example, they are conducting a periodic needs assessment for planning purposes.
- *Local news for weather*: The caveat with local news is that understanding where flooding will occur is problematic, as information is not very reliable at the county level. County OEM's send alerts about emergencies.
- *NIXEL and Reverse 911*: Some organizations partner with their police departments to access their NIXLE services to learn about road closures, emergencies, etc.

o *Data needs:* There are some specific types of data or datasets that would be helpful for community-based organizations to better serve the resiliency needs of their clients. Also important and very useful, however, would be a packet of useful information that communities need to know that is prepared by an official government and/or scientific source and could be distributed to local agencies to share with their communities. Data and information needs to be both relevant and practical. These are some of the data needs as described by interviewees:

- *Essential information to share with communities*: It would be very helpful to have vetted, consistent information that community members should know about climate hazards, preparedness and recovery in forms that are easy to share. For some populations with limited education, for example, the information should contain pictures and graphics, etc. It could be in multiple formats such as presentation slides, handouts and posters. It could then be customized to "tell the story" of climate change in specific localities, to get the attention of local policy-makers and also residents.
- *Identification of flood prone areas and vulnerabilities*: It would help organizations to better serve vulnerable populations if flood prone areas could be better identified. Even though the agencies know their areas well, they do not always know *exactly* where the local storm impacts will be, where water

levels will rise, and how it will specifically affect different subpopulations at a more "pinpointed" level.

- *Data gaps about subpopulations:* Agencies need to know more about some of the subpopulations they serve. Some mentioned were: transient workers in terms of their disabilities or vulnerabilities, children age 0-5.
- *Scenario exercises*: Organizations need to think about scenarios that could potentially happen and how local resources can meet needs in those circumstances.
- *Infrastructure information and data*: Service agencies could use more information about how climate change affects storm and sanitary sewers, water systems, heating/cooling systems, etc.
- *Health indicators and quality of life indicators*: It could be helpful to obtain subsets of data at a local level and across time. For example, indicators could evaluate how prepared a community is and where gaps are.
- *Mapping support:* Interviewees desired better mapping of urban heat and heat-island effects, and of cumulative impacts of multiple hazards.
- *Compiling "local" information:* There could be an effort to gather and organize local knowledge that could help to better prepare for the future. For example, people know where storms have occurred and where people were affected.

Specific messages – focus groups

The four focus groups offered important insights regarding needs and challenges of socially vulnerable populations about resilience planning. All the focus groups were highly constructive and interactive with highly vocal participants offering candid insights. The Rutgers team offers several suggestions as to why the focus groups were especially constructive:

- Local engagement – The workplan for this project was specifically designed to establish a partnership with trusted local organizations to host the focus groups. Working with the four non-profit partners created an ease of participant recruitment as well as candor in the actual focus groups.
- Participant incentives – Providing a financial and refreshment incentive was important both in terms of recruiting active focus group participants as well as promoting candor. Participants conveyed a feeling of respect for their time and opinions and an appreciation that their time in the focus group was valued.
- Confidentiality – The Rutgers team took care to explain the concept of confidentiality pursuant to the Rutgers Institutional Review Board meaning that the focus group discussions were not for attribution.

This approach to the focus group created a sense of "partnership" with the focus group host that allowed for an openness of dialogue. It also led to a sense of "ownership" of the outcomes of the focus groups as reflected by the fact that the focus group host organizations have all expressed an eagerness in understanding and commenting on the outcomes of the stakeholder engagement process. It is this sense of "partnership" that seemed to echo many of the recommendations from the focus groups in terms of the ways in which resilience planning can be address the needs of socially vulnerable populations, including: partnerships with residents and with existing, trusted community-based

organizations; partnerships and coordination among social service providers; and a greater role for residents in identifying "what will work" in their own communities.

Specific input received from the focus group includes:

- **Worries and Impacts of Extreme Weather -** Main areas of impact mentioned by focus group members were:
    - *Routine Flooding* – Some roads are now almost inaccessible in normal to heavy rains, so people need to look for alternate routes. This causes delays in getting to work and getting home, which is difficult for vulnerable populations. There are concerns about reaching schoolchildren when roads near schools are flooded. In some areas, it is difficult to park cars due to tidal-related routine flooding. Participants discussed street conditions getting increasingly worse.

> *There are so many expenses, it's hard to "keep up." We have to pick and choose which bills to pay.*
> Focus group participant

    - *Hard financial choices* – Residents in the three community-based focus groups conducted for this project were generally low income. A general theme was the difficulty of making choices for financial obligations that becomes even more difficult when a climate event causes additional financial burden (e.g. loss of food or income).
    - *Severe Storms and Flooding* – Heavy rains make emergency access difficult. Participants discussed trees falling damaging houses and cars. If local stores and gas stations close after a severe storm, populations cannot access necessities. Some told stories of not being able to access or afford fresh food after food spoiled during power outages after Superstorm Sandy.

> *"The heat is worse in the city because we have no shade."*
> Focus group participant

    - *Heat* – As it is noticeably hotter each year, people with outdoor jobs are affected. Urban residents pointed out the increased heat due to minimal shade.
    - *Sewer Backlogs/Overflows* – Backup of sewers is causing dirty water and water-related sickness. Backed up stormwater can damage community gardens, not only contaminating the produce, but also reducing the community-building benefits of the gardens.

- *Pest/Vectors* – Participants talked about a noticeable increase in mosquitoes and poison ivy.
- *Smells* – On high heat days, smells of garbage or from industrial plants become worse. Some residents talked about being able to smell trash and garbage in the streets on high heat days.
- *Stress* – In general, focus group residents talk about the general stress of life and how climate-related events can exacerbate that stress. "You can't feel comfortable in your own home because of the worry."

One poignant personal story is of a man living in rural south Jersey, who has been flooded out of his home and lost all personal belongings on four separate occasions from different flood events. During one of the events (Storm Jonas), no warnings were issued that flood gates broke. The man indicated that, if his dog had not woken him up, he may have died. He has had to replace two vehicles and everything he owned.

- **Interaction of climate stressors with other stressors -** The interaction of other life stressors in vulnerable populations with climate-related stressors is strong. These are the key areas of vulnerability that create disproportionate impacts on these populations:
  - *Poverty or low-income status* - Having limited income makes it harder to deal with any of the many problems that arise in extreme weather like flooding, high heat and severe storms. This is an over-riding stressor/condition that affects severity of impacts and ability to both prepare and recover from impacts. We heard often, for example, that if an A/C or heater breaks down, people must "pick and choose" what bill to pay. For some, they either do not have A/C at all or do not turn it on to save utility costs. Poverty also severely affects the ability to pay to fix damages and remediate unhealthy conditions.
  - *Cost of living/housing* – Costs are so high in New Jersey already, that it is "hard to keep up", much less to add costs like insurance or housing upgrades. Utility rates are very high too – a significant burden. Many talked about not using their air conditioners if they had them to avoid a high bill.
  - *Renters* – Particularly lower income renters are more severely impacted and less able to recover because renter insurance is either not available (too expensive) or does not cover flood loss. They are also dependent on property owners to fix damages and many do not, leaving homes in unhealthy conditions. Recovery money goes to owners and not to renters! Recovery funds do not necessarily get passed along to renters in the form of building repairs.
  - *Transportation access* – Many of the participants in the focus groups do not own personal vehicles. They typically take buses, taxis or use bikes, all of which are difficult during flood events.
  - *Other Health Conditions* – Climate emergencies can make other health conditions worse, like stress and anxiety, respiratory diseases, arthritis. Electrical failures can create impacts for those dependent on oxygen. Heat and molds can also create new diagnoses of asthma, and storms can create PTSD.

- **Municipal or community-based solutions** – Focus group participants pointed to several areas of focus for municipalities to advance solutions to address needs of socially vulnerable residents:

- *Educatio*n – Many focus group members felt that it was very important to educate children about environmental-friendly actions, as well as parents/families.
- *Infrastructure* – We heard calls for cities and towns to do a better job fixing storm drains and roads to be better able to handle storms and flooding. Rain gardens would be beneficial also.
- *Urban Greening* – Cities should plant more trees in neighborhoods and at bus stops and install more parks to mitigate heat island effects. (e.g. as in the "East Ferry Plan.")
- *Cooling/Warming Stations* – More local stations that cover the entire city in a coordinated fashion.
- *Transportation options* – More free or low-cost options to transport seniors and those with disabilities to warming/cooling stations, or to coordinate evacuation during storms.
- *Early Warning Systems* – More timely notices through smart phones.
- *Construction/building codes and policies* – Restrict building in flood prone areas.
- *Emergency planning* – A participant said that towns need to be "proactive to be reactive." A common theme was that if plans exist, no one knows about them. Plans need to be communicated to let people know where to go for help. The municipality should have a plan for helping low-income populations during emergencies, like helping them to get to work, etc. Emergency services need to be *coordinated* and *available* for low-income, elderly, disabled and children. It should be coordinated with agencies, hospitals, and utilities. An idea arose that block captains could be assigned to be activated in times of emergency. "Tell us what to do and where to go!"
- *Coordination with existing community organizations and facilities* – Municipalities should focus on improving existing community centers so that each neighborhood has a center that serves multiple purposes and has capacity.
- *New definitions* – Government officials need to re-define what "low-income" means and what "state of emergency" means, because sometimes one inch of rain causes problems for people who already have difficulty getting around.

- **State-level solutions:** Focus group participants pointed to several areas of focus for state agencies to advance solutions to address needs of socially vulnerable participants:
  - *Cumulative impacts* – State should develop policies on cumulative impacts of hazards.
  - *Enforcement* – State should exercise stronger enforcement of environmental laws on companies.
  - *Community*-based and community-engaged hazards planning – In the three community-based focus groups held for this project, no participant was aware of the existence of a county or municipal hazard mitigation plan.
  - *Better information/communication* – State needs to provide consistent, trustworthy information about how climate is affecting state, like SLR specific to towns. The state should not be afraid to "tell it like it is." Many people felt that if there were official, objective (scientific) information presented by an official government representative, people would listen. It should be "straight facts" that are easily understandable.
  - *Attention to Cities* – The state should pay more attention to the needs of cities. In general, there was a perception that state resources are largely directed to more affluent, suburban communities.

- *Utility Bill Assistance* – There should be more or better funded state programs to help seniors and low-income people to pay electricity bills.
- *FEMA* – FEMA staff need to be more sensitive to vulnerable populations and to mental stresses. It also needs to be clearer about programs and eligibilities. Sometimes people have major damage but do not qualify because the storm was not classified as "major."
- *More localized state offices* – The state should put more DEP and Health Dept. offices in some cities to be closer to the community and be easier to contact. Another idea is to "deputize" the community to deal with problems, i.e. train locals to enforce or run programs, and build capacity.

- **News/information sources and engagement of populations** – As part of the focus group, the Rutgers team initiated discussions about access to information regarding climatic events, trusted information sources. Overall, focus group participants expressed a strong willingness and desire to participate in climate resilience planning efforts. Input received includes:
  - Regarding severe weather emergencies, people generally rely on alerts to come through phones, weather apps, radio or TV. Some elderly people receive landline calls if they are already in a senior services program.
  - Regarding other information, e.g. how to prepare for storms, where to go for cooling/warming and other services, etc., most people prefer to rely on trusted local organizations like social service agencies or faith-based entities. Many mentioned that "word-of-mouth" from neighbors and relatives is how they find out about things, with some younger people using more social media like Facebook, Twitter and other internet sites.
  - In terms of locations to access information, libraries are used often to distribute information that gets to residents, many of whom take their children to libraries for programs. Libraries are increasingly viewed as trusted sources for socially vulnerable populations including immigrant populations, and homeless individuals, often providing privacy and access to services and resources. Family centers or community centers are also good repositories for information. Some populations, like immigrants, can be reluctant to go to City Hall or government locations for information or services. That said, the city or state government are generally viewed as "credible" sources of information that can provide answers. People often fear approaching them, however, or do not know who to approach. Therefore, if the City can work with trusted local community organizations/NGO's that have direct ties to the communities, that is the ideal way to convey information.
  - Some of the ways to spread information that were mentioned were:
    - "canvassing" the community with flyers, door-to-door outreach
    - sending information home with school children, with an incentive for them to show to parents
    - distributing during community events and meetings – meetings should be held at convenient times for both working people (e.g. evening) and parents (e.g. morning or afternoon)

Observations and Insights

A cornerstone of the key messages received from both the key informant interviews and the focus groups echo dialogue being held throughout the United States regarding the critical importance of participatory processes and community-based strategies and efforts to engage traditionally under resourced and socially vulnerable communities regarding resilience planning. These new approaches reflect growing awareness of the extent to which some populations and communities are disproportionately affected by climate change as well as the recognition of the exacerbating effect that climate change will have on underlying social inequities.[11,12] Emerging practices seek to:

- Address resilience challenges associated with whole communities, and not just individuals;
- Engage traditionally under resourced communities and populations in resilience planning; and
- Broaden the scope of resilience planning outcomes to address underlying multi-sector social inequities that are exacerbated by climate change.

The goal of such efforts is inherently addressing the societal, economic and environmental conditions of socially vulnerable populations social and environmental factors that undermine the adaptive capacity of a community and its residents.[13,14] These approaches include strategies that:

- Take a "whole community" approach rather than focusing solely on the resilience of individuals. A whole community approach includes using resilience planning to address challenges in multiple sectors, including but not limited to health, housing, transportation, workforce development, economic opportunity, etc.;
- Seek to address underlying social, economic and environmental inequities that contribute to some populations being socially vulnerable;
- Set priorities for addressing the needs of socially vulnerable populations;
- Provide streamlined, easily accessible processes resources to residents;
- Creating partnerships with trusted local leaders and organizations and providing the capacity that residents and communities need to contribute to solutions leading to resilience; and

[11] USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

[12] Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, 2016: Executive Summary. The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC, page 1–24. http://dx.doi.org/10.7930/J00P0WXS

[13] Foster, Sheila, R. Leichenko, K.Nguyen, et.al. New York City Panel on Climate Change 2019 Report Chapter 6: Community-Based Assessments of Adaptation and Equity. Annals of the New York Academy of Sciences. March 15, 2019. https://doi.org/10.1111/nyas.14009

[14] In the Eye of the Storm: An Action toolkit. NAACP. 2018. Available at: https://live-naacp-site.pantheonsite.io/wp-content/uploads/2018/09/NAACP_InTheEyeOfTheStorm.pdf

- Deploy use of participatory processes that remove challenges for involvement of populations that do not traditionally engage in government planning efforts. [15,16,17,18,19]

In many ways, these equitable, community-based approaches to resilience resonate with the idea of a "social service"-based model of resilience planning that the Rutgers team heard from several key informants. Similarly, these approaches are also consistent with emerging thinking regarding the future of public health planning in the United States. Often referred to as Public Health 3.0, these models promote cross-sector collaboration in which local public health agencies serve as critical agents to coordinate programs and policies to address underlying social determinants of health.[20]

Next tasks in the PSM project include development of training guidance and policy recommendations to inform state and local climate resilience planning in New Jersey. The outcomes of the PSM focus groups and key informant interviews offer important insights to inform both development of training guidance and policy recommendations. In particular, the cornerstone messages of the key informant interviews and focus groups point to the value of New Jersey advancing equitable, community-based resilience planning approaches as a mechanism to address needs of socially vulnerable populations. Advancing such approaches offers important opportunities for addressing needs of socially vulnerable populations but are likely to also present challenges regarding resources, capacity, authorities, creation of partnership models and ensuring the adequacy of data, tools and evidence-based strategies. Consideration of these challenges will be a focus of the remaining of the PSM project, particularly regarding development of training protocols and policy recommendations.

[15] Moser, Susanne, J. Coffee, A. Seville. Rising to the Challenge Together. A Review and Critical Assessment of the State of the US Climate Adaptation Field: A Report Prepared for the Kresge Foundation. 2017.
[16] "Climate Resilience and Urban Opportunity." The Kresge Foundation. Last accessed July 1, 2019. https://kresge.org/content/climate-resilience-and-urban-opportunity-0
[17] "Guide to Equitable, Community-driven Climate Preparedness Planning." Urban Sustainability Directors Network. 2017. Available at: https://www.usdn.org/uploads/cms/documents/usdn_guide_to_equitable_community-driven_climate_preparedness-_high_res.pdf
[18] Social Equity Report 2019, Carbon Free Boston. Last accessed June 28, 2019. http://sites.bu.edu/cfb/files/2019/06/CFB_Social_Equity_Report_053119.pdf
[19] Community-driven Climate Resilience Planning. 2017. National Association of Climate Resilience Planners. Available at: https://movementstrategy.org/b/wp-content/uploads/2017/05/WEB-CD-CRP_Updated-5.11.17.pdf
[20] DeSalvo KB, Wang YC, Harris A, Auerbach J, Koo D, O'Carroll P. Public Health 3.0: A Call to Action for Public Health to Meet the Challenges of the 21st Century. Prev Chronic Dis 2017;14:170017. DOI: http://dx.doi.org/10.5888/pcd14.170017external icon.

Appendices

Appendix A – Key informant supporting materials

- Interviewee list
- Interview protocol

Appendix B – Focus group supporting materials

- Request for Qualifications
- Focus group protocol

Appendix A – Key informant supporting materials

PSM Key Informant Interview List

Keith Adams	Executive Director	VOAD
Gloria Aftanski	President/CPO	United Way of Central Jersey
Staci Berger	President/CEO	HCDNNJ
Alexandra Cross	CEO	JRFNJ
Drew Curtis	Sr. Equitable Dev. Mgr.	Ironbound Community Corp
Marty Johnson	President	Isles
Robert Kley	Vice Pres./COO	MHANJ
Daniel Krupinski	Health Officer	Long Beach Health Dept.
Ray Lamboy	President/CEO	Latin American Econ. Dev. Assn.
Jill Hoegel Mary Ciccone		Disability Rights New Jersey
Meishka Mitchell	VP of Community Initiatives	Coopers Ferry Partnership
Pat Sermon	COO	Urban League of Essex County
Lisa Wilson	Executive Director	Coastal Family Success Center
Avery Grant	Executive Director	Concerned Citizens of Long Branch
Candace Crane	Dir., Commun. Investment/Eval.	United Way of Central Jersey
Rodric Bowman	Regional Disaster Officer	American Red Cross – NJ Region
Shivi Pasad		Legal Services of NJ – Poverty Research Inst.
Meghan Wren	Former Director	Bayshore Discovery Center
Stephanie Hunsinger	State Director	AARP of NJ
Amanda Devecka-Rinear	Founder	NJ Organizing Project
Linda Brown	President	NJ SOPHE

Key Informant Questions

Part 1 – Stressors on the populations that may be exacerbated by coastal hazards

1. What are your perceptions about the effects of a changing climate (flooding, sea level rise, extreme weather) on the populations you serve?
2. What types of stressors and challenges do the individuals and families that you serve face on a day-to-day basis?
    - Where do climate stressors fall in relation to other stressors?
3. Socially vulnerable populations are those that have limited access to the resources and conditions that allow them to prepare for, cope with and recover from changing climate conditions. What type of resources and conditions (that you currently do ***not*** have adequate access to) would assist the socially vulnerable populations' ability to prepare, recover and cope?
    - Prompts: transportation in the event of a disaster, disposable income to pay their bills, interpretive services, housing that can withstand flood and extreme weather event conditions, etc.
4. For the stressors that individuals and families face, what do you think are the top three that, if improved, could improve their ability to prepare for, cope with and recover from changing climate conditions?
5. What stories have you heard about the individuals and families that you serve being affected by flooding and/or extreme weather events (nuisance flooding as well as event-related)?
    - How did the individuals and families overcome these challenges?
6. Are there any examples of where your organization or other organizations like yours worked closely with socially vulnerable individuals and families to increase their ability to prepare for, cope with and recover from changing climate conditions?
    - If yes, what is an example of how the organization helped?
    - Prompt: what challenges were faced and how were they overcome
7. Is there anything that you would like to see the *state of New Jersey* do to increase the ability of the socially vulnerable populations that you work with prepare for, cope with and recover from changing climate conditions?
8. Is there anything that you would like to see *municipal and county governments* do to increase the ability of the socially vulnerable populations that you work with prepare for, cope with and recover from changing climate conditions?

Part 2 – Effective strategies to engage populations AND organizations in resilience *planning* efforts

9. Communities all across New Jersey are working to develop plans to improve the ability of their community to prepare for, cope with and recover from changing climate conditions, including flooding and extreme weather events. Have you or your organization been involved in any such planning efforts at the county or municipal level?
    - Prompt: Please tell us about your experience(s)?

- What do you think might be some effective ways that would make it easier for organizations and leaders such as your organization and you, that are not resilience-mission focused, to be engaged in resilience planning?

10. What do you think are the barriers to socially vulnerable populations from being engaged in community-based resilience planning?
    - Prompt: Can you think of ways in which those barriers can be overcome?
11. What do you think are the barriers to organizations such as yours and individuals such as you being engaged in community-based resilience planning?
    - Prompt: Can you think of ways in which those barriers can be overcome?
12. What are the sources of information that the socially vulnerable populations that you work with trust?
13. What are the sources of information that you and/or your organization trust?
14. What are the three biggest needs of socially vulnerable populations that would prompt your organization to become engaged in a *planning* effort if you thought it would address those needs?

Part 3 – Identification of data resources and data needs for resilience planning

15. With regard to your own organization, what are the sources of data that you use the most to better understand the needs of the populations and communities that you serve?
    - Which data do you find especially accurate or useful?
16. What three types of data would be most helpful to you in the work that you and your organization do with regard to socially vulnerable populations?
17. Are there any specific sets of data related to vulnerable populations and climate conditions that you think our project team should be aware of?

Appendix B – Focus group supporting materials

Focus Groups Questions

1. How long have you lived in this community?

2. Are flooding and extreme weather events something that you think about or worry about?
    - How does this compare to other day-to-day stressors in your life?

3. What are some of your experiences and hardships with flooding, heat and extreme weather events here in New Jersey?

4. If you could change one thing to make it easier for you and your family to deal with flooding and extreme weather events, what would it be?

5. What are some things that organizations could be doing help you to cope with flooding and extreme weather?
    - What could your municipality be doing?
    - What could the state be doing?

6. Where do you get your news generally?

7. Where do you get your information about climate hazards, the weather, etc.?

8. What organizations or sources of information do you trust and use the most?
    - Prompts: doctor, local community-based organization, church, newspaper, social media, etc.

9. What types of information would be helpful to you that you don't currently have access to?

10. What are the best ways to get information to you?

11. If you could, would you participate in community meetings related to climate resiliency planning?
    - Prompts: At what level? (neighborhood, town, etc.) What types of meetings?
    - What would make it easy for you to do that?

Request for Qualifications: *Engagement of Socially Vulnerable Populations in Coastal Resilience and Hazard Mitigation Planning*

Contact: Jeanne Herb, Executive Director; Environmental Analysis and Communications Group, Rutgers the State University of New Jersey; jherb@ejb.rutgers.edu

Issued: March 29, 2019 – Deadline for Response: 5:00 on April 19, 2019

Background:

Two programs at Rutgers University, the Jacques Cousteau National Estuarine Research Reserve and the Bloustein School of Policy and Planning, are working with the New Jersey Coastal Management Program as administered by the Office of Coastal and Land Use Planning within the New Jersey Department of Environmental Protection on a project to identify effective strategies to engage populations identified in the social science literature as socially vulnerable to environmental hazards, as well as Environmental Justice communities, and traditionally underrepresented populations (herein *socially vulnerable* populations) in state, regional and local coastal resilience and hazard mitigation planning.

With climate change, people across the United States are increasingly exposed to coastal hazards. However, some populations are disproportionately affected. Factors that influence the extent to which people can prepare for, cope with, respond to and recover from coastal hazards includes their exposure to particular stressors, their sensitivity to impacts, and their ability to adapt to changing conditions. Characteristics that make a population less able to adapt to coastal hazards include age, physical limitations, race and income, English proficiency, social status, and exposure to other environmental, health or social burdens. The term *'social vulnerability'* is used to describe these populations – more information on social vulnerability can be found at: https://svi.cdc.gov/. The term "environmental justice" is used to describe populations that are socially vulnerable, in part, due to their exposure to a disproportionate amount of industrial pollution and other environmental hazards. More information on "environmental justice" can be found at: https://www.nj.gov/dep/ej/. For the purposes of this Request for Qualifications, the term "socially vulnerable populations" will be used to inclusively describe the terms social vulnerability, environmental justice and traditionally underrepresented populations.

As part of this project, Rutgers University will work with three organizational partners to host three focus groups in spring 2019 with coastal residents that represent characteristics associated with socially vulnerable populations. It is Rutgers' intent to choose three organizational partners that are viewed as trusted local sources within socially vulnerable communities for the purposes of assisting with organizing the focus groups. It is important to note that the New Jersey coastal zone includes 239 municipalities with diverse populations and many different types of municipalities – see: https://www.state.nj.us/dep/cmp/docs/new-detailed-cafra-map.pdf . The focus groups will allow the Rutgers research team to hear from residents regarding challenges they face that may be exacerbated by coastal hazards as well as regarding strategies that would be effective to engage socially vulnerable populations in state, regional and local resilience and hazard mitigation planning efforts.

Purpose

The purpose of this Request for Qualifications is to identify three organizations to which Rutgers will provide $5,000 individual subawards. The three chosen organizations will each work with Rutgers to organize and host a spring 2019 focus group of at least 12 residents representing socially vulnerable populations that reside in New Jersey's coastal zone. Each focus group will be held in person on-site at the three chosen organizations and will last for approximately 1.5 hours. Each participant in the focus group will receive a $40 participation stipend. Rutgers University researchers will: develop the focus group questionnaire, conduct the focus groups, provide Spanish language translational services if needed, take notes at the focus group, and provide the $40 stipend per participant. The chosen three organizations will be responsible for:

- Physical hosting of the focus group
- Recruitment of residents to participate in the focus groups
- Logistical organizing of the focus group
- Providing refreshments for focus group participants
- Provide translational services for languages other than Spanish (if needed)
- Collaborating with Rutgers to summarize the results of the focus group discussions

Note: the $40/participant stipend does not come out of the host organizations' $5,000 budget.

To respond to this Request for Qualifications

This Request for Qualifications (RFQ) is being sent to several New Jersey organizations that are known to provide services and/or resources to socially vulnerable populations in the New Jersey coastal zone. Three organizations will be chosen to receive individual $5,000 subawards for purposes of organizing and hosting individual focus groups.

To respond to this RFP, please complete the attached form and send to Jeanne Herb, Rutgers University, at jherb@ejb.rutgers.edu by **5:00 pm on Friday, April 19**. If you have questions about this RFP, please send an email to Jeanne Herb with the subject line: *questions about RFQ* with your question by April 5. All questions received will be answered within two days and sent via email to all organizations to which this RFQ has been sent.

Selection criteria

Three organizations will be chosen to receive the $5,000 subawards for purposes of organizing and hosting the focus groups based on the following criteria:

- Demonstration of 501(c)3 status and a Board of Directors/Trustees (10%)
- Demonstration of having a focused organizational mission that includes a commitment to:
    - Providing support to voluntary organizations that offer direct support to residents after disasters, including but not limited to socially vulnerable populations;
    - Provides other services and/or resources to socially vulnerable populations.

  (25%).
- Demonstration of having a headquarters in New Jersey including office space in the New Jersey coastal zone that is adequate and appropriate to host a focus group at which approximately 20 people may be in attendance, including focus group participants and Rutgers and the focus group host's staff. (20%)
- Demonstration of having staff available to organize, recruit and host a focus group. (20%)

- Demonstration of current and well-established engagement with socially vulnerable populations in the New Jersey coastal zone and an awareness of issues associated with coastal hazard impacts to such populations in New Jersey. (25%)

Response to Rutgers University Request for Qualifications: Request for Qualifications: Engagement of Socially Vulnerable Populations in Coastal Resilience and Hazard Mitigation Planning

Instructions: please write or type answers to the 14 questions below. Please complete and send completed form by email to jherb@ejb.rutgers.edu by 5:00 on April 19, 2019

1. Date completing this form: _____
2. Name of Organization: _____
3. Contact person: _____
4. Name of person who will be leading the focus group effort if your organization is chosen to be given a subaward: _____
5. Organizational address, telephone and email address for contact person: _____

_____

6. Organization website: _____
7. Number of paid full-time staff in organization: _____
8. Location of physical office in the New Jersey Coastal Zone: _____

_____

9. List of Board of Trustees/Directors or link to list: _____

_____

10. Does your organization have 501(c)3 status? Please attach your 501(c)3 statement: _____
11. Summarize the qualifications of the person who will be leading the focus group effort for your organization (no more than 300 words): _____

_____

_____

_____

12. In the space below and in less than 1,000 words, please tell us about your organization's past and current work with regard to:

- Providing support to voluntary organizations that offer direct support to residents after disasters, including but not limited to socially vulnerable populations; and/or
- Provides other services and/or resources to socially vulnerable populations.

13. In the space below and in less than 1,000 words, please tell us about your organization's past and current engagement with socially vulnerable populations in the New Jersey coastal zone and an awareness of issues associated with coastal hazard impacts to such populations in New Jersey. Please note that this question asks you to focus on your organization's past and current efforts in coastal communities.

14. Please use this space to point to any materials/links that you believe demonstration your organization's qualifications to undertake the focus groups associated with this project:

Appendix d

Web-based Training Handouts

SIX KEY CONCEPTS

Let's start with several essential ideas regarding the nature of resiliency, vulnerabilty, and the values of whole-community planning.

1 Resilience is a community's ability to "bounce forward."

Resilience is the capacity of a community to anticipate, plan for, and mitigate the dangers – and seize the opportunities – associated with environmental and social change. It's not merely bouncing back to a previous condition but "bouncing forward" to a better one.

2 Some people are more vulnerable to climate risks than others.

The ability to cope with a natural disaster depends on exposure to hazards as well as capacity to respond. Some people are more vulnerable to climate risks due to social factors such as age, socioeconomic status, health concerns, English-language proficiency, and access to transportation.

3 Resilience planning is different than emergency management planning.

In general, resilience planning takes a longer-term, more holistic view than emergency planning. It is grounded in the idea that creating healthy, equitable, and vibrant communities is the most effective way to build resilience. And, to do so, it's essential to address the needs of the most vulnerable community members.

4 Including socially vulnerable people in resilience planning produces a more effective outcome.

Because socially vulnerable populations have been historically underrepresented in community decision-making, ensuring their involvement is critical to the development of comprehensive resilience plans.

5 Resilience planning strengthens communities.

Whole-community resilience planning brings community members together for a common purpose. This is especially true when the process includes members of marginalized or disempowered populations. The planning process strengthens social cohesion, which, in turn, enhances resilience.

6 Equality, equity, diversity, and inclusion are the foundations of whole-community resilience planning.

The values of whole-community planning ensure that everyone has the same opportunities to be resilient regardless of each person's unique situation and that socially vulnerable people are given whatever support is needed to meaningfully participate in the resilience planning effort.

How Does Resilience Planning Differ from Emergency Management Planning?

While resilience planning may contain elements of emergency management planning, there are essential differences in focus, process, and objectives. Resilience planning generally takes a more holistic view of a community and operates on a longer time horizon to consider climate futures. The planning process is built upon the values of equity, diversity, and inclusion, and is designed to engage the most vulnerable members of the community.

1

Highly participatory

Engaging vulnerable populations is an essential part of the process.

2

Multisectoral

While a hazard mitigation plan may address a community's exposure to a specific hazard, a resilience plan considers long-term underlying factors that contribute to increased vulnerability, such as housing conditions, unemployment, and poor infrastructure.

3

Forward-looking

Resilience planning considers long-term changes in environmental conditions, including scientific climate-change projections for the next several decades and beyond.

4

Aspirational

An emphasis is placed on restoring the community to a state of self-sufficiency and using strategies

5

Adaptable

Resilience planning considers and accommodates uncertainties of future climate conditions.

SOCIAL VULNERABILITY: A BROADER VIEW

Emergency management registries typically list residents needing assistance due to special health needs.

Whole-community resilience planning offers a broader view of social vulnerability. Planners consider indicators of structural racism and historic underinvestment, which, in turn, point to social vulnerability in low-income populations and some people of color. Resilience planning also considers the vulnerability of populations with limited English proficiency and few options for public transportation or quality affordable housing.

Whole-community resilience planning: A checklist for planners

Whole-community resilience planning is based on the principle that a vision for a resilient future touches on all aspects of a community – social, economic, cultural, and ecological. The approach embraces the idea that inclusive, community-driven processes lead to effective outcomes benefiting all residents. Creating opportunities for socially vulnerable people to identify climate-related challenges is an essential element of this process. To this end, resilience planners are encouraged to:

- [ ] **Think across boundaries.**
  Involve all sectors and disciplines, including social services, built environment, public health, natural resources, public finance, and others.

- [ ] **Be open to new ideas.**
  Developing a whole-community coastal climate resilience plan envisions a new future for a community. Resilience planners are encouraged to be open to innovation and new ideas that can sustain a

- [ ] **Value social capital.**
  Civic engagement, democratic processes, and social networks are enduring contributors to resilience.

- [ ] **Share risks and opportunities**
  Transparency in decision-making and a sense that "we are all in this together" undergird the equitable distribution of benefits and risks.

- [ ] **Value evidence and science.**
  Extensive resources are available locally to support decision-making. Planning for future climate conditions may involve consultation with scientists or other experts.

- [ ] **Translate ideas to action.**
  The resilience planning process needs to identify mechanisms for implementation with an emphasis on existing systems and processes.

- [ ] **Bring many new seats to the table.**
  The strongest resilience plans emerge from involvement of many voices, especially those not typically involved in civic dialogue.

Participatory Processes: A checklist for Resilience Planners

The goal of whole-community resilience planning is to engage all segments of the community – including the most vulnerable – in creating a resilience-based vision of the future. Socially vulnerable populations have historically been excluded from, and may have distrust for, community-based decision-making processes. Additional efforts may be needed to ensure meaningful participation. A participatory process designed to engage socially vulnerable populations should have the characteristics listed below.

- [ ] **Up-front and collaborative**

  Engage early in the planning process. Consultation should begin with the design of the engagement process to ensure that it is equitable, diverse, and inclusive. There is no "one size fits all" engagement approach. Strategies may differ from group to group.

- [ ] **Barrier-free**

  Structure meetings in ways that eliminate barriers to participation. Barriers might include late notice of meetings; culturally insensitive or inaccessible locations; meetings held during work hours; lack of childcare, transportation, or translation.

- [ ] **Partnerships**

  Partner with trusted local organizations, especially those that represent or serve socially vulnerable populations. Local partners can be important co-hosts for meetings and designers of effective participatory processes.

- [ ] **Interactive**

  Create opportunities for a two-way exchange of ideas and allow ample time for questions, answers, and discussion.

- [ ] **Cognizant of unique contributions to governance processes**

  Developing a whole-community coastal climate resilience plan envisions a new future for a community. Be open to innovation and new ideas that can sustain a community into the future.

- [ ] **Capacity-building**

  To ensure inclusion, consider providing socially vulnerable people with additional capacity (e.g., technical assistance) on par with other members of the community who may have greater historic capacity.

- [ ] **Ongoing**

  Build ongoing relations with leaders of organizations that serve and represent socially vulnerable populations. Conduct routine debriefings with such leaders during the course of the planning process to ensure that key messages from socially vulnerable populations are being "heard" accurately by the planning team.

Assessing Your Plan's Impact on Socially Vulnerable Populations

The Resilient NJ Planning to Action Framework instructs resilience planners to develop climate adaptation scenarios and the actions needed to achieve those scenarios. Asking the following questions will help planning teams assess the impacts of resilience scenarios and actions on socially vulnerable populations:

1. Who will be advantaged/disadvantaged most by the resileince scenarios and actions?

2. What current challenges and inequities exist that will be exacerbated by the scenarios and actions under consideration?

3. How do priorities of socially vulnerable populations different from other residents with regard to the proposed scenarios and actions?

4. Should the scenarios and actions under consideration mitigate historic disadvantages to socially vulnerable populations to ensure their ability to "bounce forward"?

5. Is there the possibility that the scenario or action might be less effective for socially vulnerable populations?

Getting Started on a Checklist

The resilience planning team is encouraged to develop a checklist that can be helpful assessing the extent to which the vision, scenario, and actions of the resilience plan incorporate provisions to address the needs of socially vulnerable populations, impact socially vulnerable populations, and/or affect the pre-existing social, economic and physical challenges facing socially vulnerable populations in the community. Each resilience team is encouraged to tailor a checklist to its own needs and circumstances. The following ideas might help a team get started:

☐ Who is vulnerable?

Has the resilience planning team created a profile of the community with regard to populations that, due to pre-existing social, economic, and physical conditions, may be more severely affected by changing coastal climate conditions, including but not limited to the following:

- Low-income populations and populations that are asset limited, income restrained yet employed (ALICE)
- People with limited English proficiency
- People who do not own a car
- People who are homeless
- People of color and others who may experience societal discrimination
- Immigrants and undocumented populations
- People who live in mobile homes
- People with pre-existing health conditions, including mental health
- Older residents and children
- People who may be exposed to disproportionate amounts of environmental pollutants
- People with disabilities, including physical and developmental disabilities

☐ Where do socially vulnerable populations reside?

In addition to identifying pre-existing social, economic, and physical conditions that may be challenging to socially vulnerable populations and exacerbated by changing coastal climate conditions, does the resilience planning team's profile of social vulnerability include maps to compare the relative relationship of socially vulnerable populations to current and future flood and other hazards?

Examples of Indicators of a Climate Resilient Community

As part of its planning effort, the resilience planning team will develop a set of indicators to assess and track overall community resilience. The team is encouraged to ensure that its community-level measures of resilience include indicators that reflect needs and challenges facing socially vulnerable populations, including underlying root causes of social vulnerabilities. This handout provides four examples of community resilience indicators to help resilience planning teams get started with developing their own sets of community resilience indicators.

1. Commonly Used Community Resilience Indicators

Population-Focused Indicators (11)	Number of Methodologies in Which the Indicator Is Used
Educational Attainment (lack of HS diploma)	7
Unemployment Rate	7
Disability	6
English Language Proficiency	6
Home Ownership	6
Mobility (lack of vehicle)	6
Age	5
Household Income	5
Income Inequality	4
Health Insurance	4
Single-Parent Households	3
Community-Focused Indicators (9)	**Number of Methodologies in Which the Indicator Is Used**
Connection to Civic and Social Organizations	6
Hospital Capacity	5
Medical Professional Capacity	5
Affiliation with a Religion	4
Presence of Mobile Homes	4
Public School Capacity	4
Population Change	4
Hotel/Motel Capacity	3
Rental Property Capacity	3

Community Resilience Indicator Analysis: County-Level Analysis of Commonly Used Indicators from Peer Reviewed Research, 2019 Update. U.S. Department of Homeland Security. Argonne National Laboratory. Download file.

2. Climate Change, Health, and Equity: A Guide for Local Health Departments

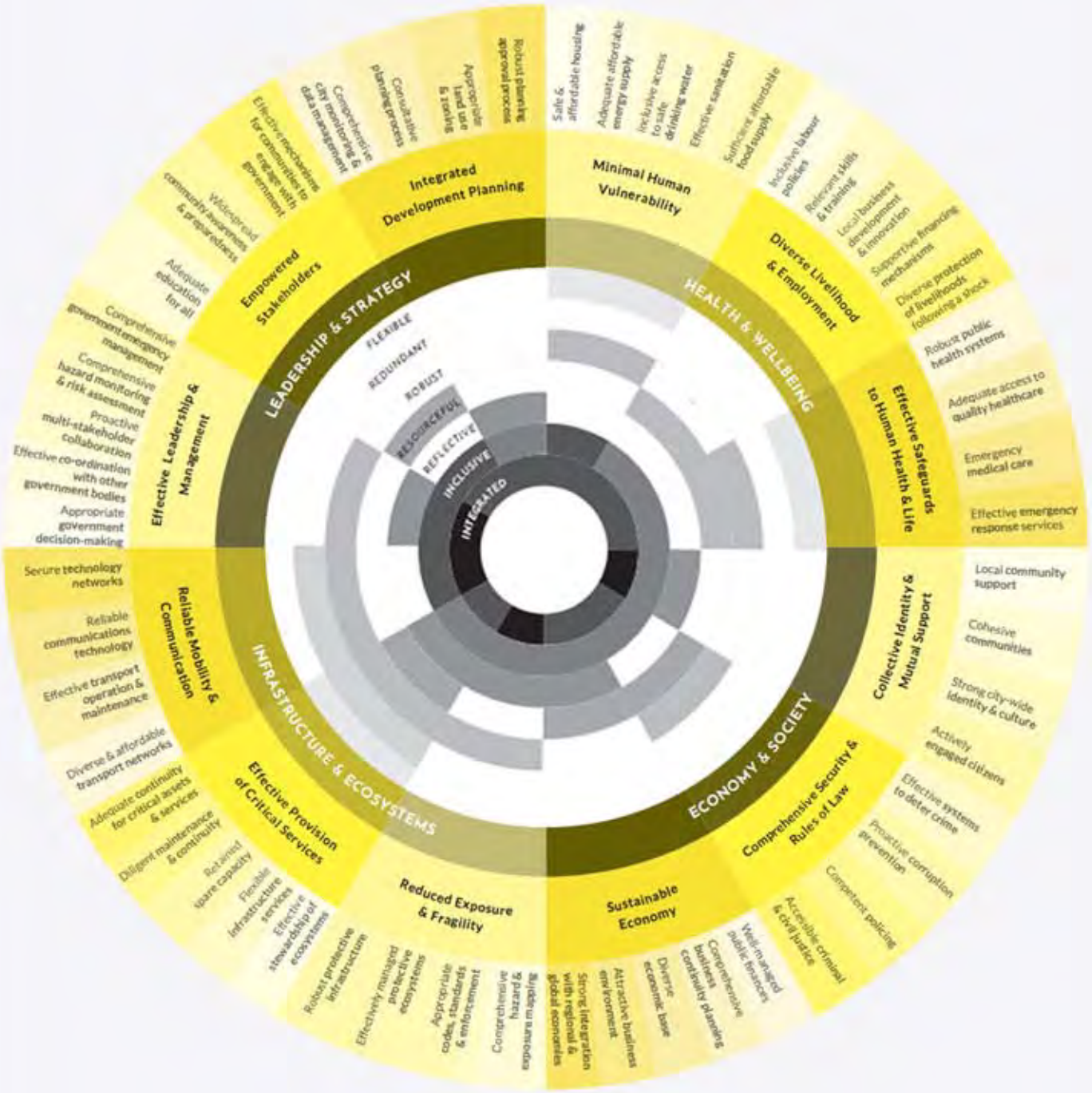
Public Health Institute and American Public Health Association

A climate-resilient community …

- Is committed to the transformative change required to build a healthy, equitable, and sustainable community.
- Takes action to build individual and collective capacity to respond proactively to and influence social, economic, and environmental change.
- Nurtures diversity, respects the experience and knowledge of all community members, and proactively engages all segments of a community in understanding and responding to change.
- Is organized in a way that provides capacity to recognize and act on problems and to learn from experience.
- Fosters social cohesion and collaboration across networks through bonding, bridging, and linking.
- Builds community capitals including economic, social, built, political, and environmental capitals.
- Supports investment in physical infrastructures and services that meet the needs of all residents.
- Recognizes the value of environmental resources and works to protect, enhance, and maintain them.

Rudolph, L., Harrison, C., Buckley, L. & North, S. (2018). *Climate Change, Health, and Equity: A Guide for Local Health Departments.* Oakland, CA and Washington D.C., Public Health Institute and American Public Health Association

3. City Resilience Index
The Rockefeller Foundation/ARUP



4. Baseline Resilience Indicators for Communities (BRIC)

Category	Variable	Resilience Effect
Social Resilience		
Educational equity	Ratio of % of population w/ college education to % population w/ no h.s. diploma	Negative
Age	% non-elderly population	Positive
Transportation access	% population with a vehicle	Positive
Communication capacity	% population with a telephone	Positive
Language competency	% population not speaking English as a second language	Positive
Special needs	% population without a sensory, physical, or mental disability	Positive
Health coverage	% population with health insurance coverage	Positive
Economic Resilience		
Housing capital	% homeownership	Positive
Employment	% employed	Positive
Income and equality	GINI coefficient	Posititve
Single sector employment	% population not employed in farming, fishing, forestry & extractive industries	Positive
Employment	% Female labor force participation	Positive
Business size	Ratio of large to small businesses	Positive
Health access	Number of physicians per 10,000 population	Positive
Institutional Resilience		
Mitigation	% population covered by a recent hazard mitigation plan	Positive
Flood coverage	% housing units covered by National Flood Insurance policies	Positive
Municipal services	% municipal expenditures for fire, policies and EMS	Positive
Mitigation	% population participation in Community Rating System for Flood	Positive
Political fragmentation	Number of governments and special districts	Negative
Previous disaster experience	Number of paid disaster declarations	Positive
Migitation-social connectiveity	% population covered by Citizen Corps programs	Posittive
Mitigation	% population in Storm Ready communities	Posititve
Infrastructure Resilience		
Housing type	% housing units that are not mobile homes	Positive
Shelter capacity	% vacant rental units	Positive
Medical capacity	Number of hospital beds per 10,000 units	
Access/evacuation potential	Principle arterial miles per square mile	Positive
Housing age	% housing units not built before 1970 and after 1994	Positive
Sheltering needs	Number of hotels/motels per square mile	Positive
Recovery	Number of public schools per square mile	Positive
Community Capital		
Place attachment	Net international migration	Negative
Place attachment	% population born in a state that still resides in that state	Positve
Political engagement	% voter participation	Posittive
Social capital - religion	Number of religious adherents per 10,000 population	Positive
Social capital - advocacy	Number of social advocacy organizations per 10,000 population	Positive
Innovation	% population employed in creative class occupations	Positive

Cutter, Susan L.; Burton, Christopher G.; and Emrich, Christopher T. (2010) "Disaster Resilience Indicators for Benchmarking Baseline Conditions," Journal of Homeland Security and Emergency Management: Vol. 7: Iss. 1, Article 51. DOI: 10.2202/1547-7355.1732

☐ **What are opportunities for inclusive processes?**

Has the resilience planning team developed a written plan to ensure inclusive engagement of socially vulnerable populations as part of the resilience planning process?

☐ **What are existing challenges that may be exacerbated by changing coastal climate conditions?**

Has the resilience planning team developed an inventory of pre-existing social, economic, and physical challenges in the community that socially vulnerable populations face that may be exacerbated by changing coastal climate conditions?

☐ **How can resilience affect existing challenges to socially vulnerable populations?**

How might the community vision, scenarios, and/or actions being considered by the resilience planning team positively or negatively affect any of the pre-existing social, economic, and physical challenges in the community that socially vulnerable populations face? Examples:

- The plan might propose to install elevated hard structures, such as seawalls, to prevent rising seas from flooding the community but, in doing so, exacerbate current challenges for people with mobility issues from accessing beaches;
- The plan might include actions to increase open spaces for purposes of flood retention that allow for community gardens that can address food security issues identified as a challenge for some residents previously;
- The plan proposes a new ordinance for the municipality by which all city policies and plans will be translated to the two languages other than English that are prominent in the community in response to complaints heard by the resilience planning team;
- The plan proposes to restrict the subdivision of land within or adjacent to high-hazard areas but does not offer accommodation to burdens that this may place on family arrangements with socially vulnerable members (e.g., older or disabled members) who need to reside adjacent to other family members;
- The plan might articulate a vision for the community that is economically unattainable and culturally irrelevant for some residents, worsening current concerns about racial and socioeconomic divides and limited social cohesion;

- The plan recommends changes to municipal ordinances and zoning that would promote use of natural infrastructure throughout the municipality and identifies priority areas for investment as those where co-benefits include: flood retention, increased tree canopy ratio and vegetative cover compared to municipal levels overall, and contribution to lowering heat island effect to address previous challenges identified about inequitable access to "green" spaces in the community by certain residents;
- The plan may propose to establish a training program with the local community college to train and hire local low-income residents to install natural systems, such as living shorelines in coastal areas for flood retention, and, in doing so, address previously identified challenges regarding a need for living wage jobs;
- The plan includes establishment of a funded home repair program for low- to moderate-income older residents and residents with disabilities that includes installation of resilience measures to address a challenge previously identified regarding the cost of resilience improvements and concerns about long-time residents potentially needing to relocate.

☐ How can resilience create new challenges or opportunities for socially vulnerable populations ?

Do the community vision, scenarios, and/or actions being considered by the resilience planning team create new challenges or new opportunities for socially vulnerable populations in the community? Be as specific as possible for each scenario and/or action and for each population. Examples:

- The plan includes development of a new renewable powered community center that, among other things, will host a community food garden to serve older residents and to act as a cooling center for residents who do not have access to air conditioned homes;
- The plan recommends that the municipality work in partnership with the county and state to acquire a former flood-prone brownfields site and convert it to a recreational eco-park in an area of the municipality that previously had limited recreational open space opportunities;
- The plan establishes a committee to advise the mayor on strategies to prevent "gentrification" of the community that drives out long-time residents, including low- to moderate-income residents, while ensuring improvements that enhance community resilience;
- The plan recommends actions that involve an approach to participatory budgeting for the next municipal budget cycle to plan recreational and open space priorities that increase civic engagement and expand social cohesion in the community;

- The plan recommends actions to increase the availability of affordable housing units in the community in areas that are not flood prone and, in doing so, addresses an existing pressing need within the community;
- The plan recommends actions to work in partnership with the local hospital and health system to conduct a "hot spotting" initiative to identify homeless and below poverty members of the community who are chronic emergency room patients to provide stable community-based living arrangements for them;
- The plan recommends establishment of a new area in need of redevelopment in the community that provides opportunities for affordable housing, housing for older residents and people with disabilities, an arts district, and mixed uses to create a core in the municipality and increase community cohesion to address challenges previously identified. It calls for a diverse and inclusive visioning process for the initiative.

Appendix e

Getting to Resilience Update

Integrating Vulnerable Populations into Resilience Planning



The following PDFs were developed as additional resources to complement the **Whole - Community Coastal Climate Resilience Planning** online training.

The goal of the online training is to improve the practice of coastal resilience planning by incorporating the needs and perspectives of populations that are especially vulnerable to changing climate conditions, many who are historically underrepresented in community-based decision making.

- Six Key Concepts regarding the nature of resiliency, vulnerability, and the values of whole-community planning.



- Whole-Community Resilience Planning: A Checklist for Planners - Whole-community resilience planning is based on the principle that a vision for a resilient future touches on all aspects of a community – social, economic, cultural, and ecological. The approach embraces the idea that inclusive, community-driven processes lead to effective outcomes benefiting all residents.



- How Does Resilience Planning Differ from Emergency Management Planning? - While resilience planning may contain elements of emergency management planning, there are essential differences in focus, process, and objectives. Resilience planning generally takes a more holistic view of a community and operates on a longer time horizon to consider climate futures.



- Resilience Planning - Getting Started Checklist: This can help your team assess the extent to which the vision, scenario, and actions of resilience planning incorporate provisions to address the needs of socially vulnerable populations, impact socially vulnerable populations, and/or affect the pre-existing social, economic and physical challenges.



Getting Started on a Checklist

The resilience planning team is encouraged to develop a checklist that can be helpful assessing the extent to which the vision, scenario, and actions of the resilience plan incorporate provisions to address the needs of socially vulnerable populations, impact socially vulnerable populations, and/or affect the pre-existing social, economic and physical challenges facing socially vulnerable populations in the community. Each resilience team is encouraged to tailor a checklist to its own needs and circumstances. The following ideas might help a team get started.

☐ Who is vulnerable?

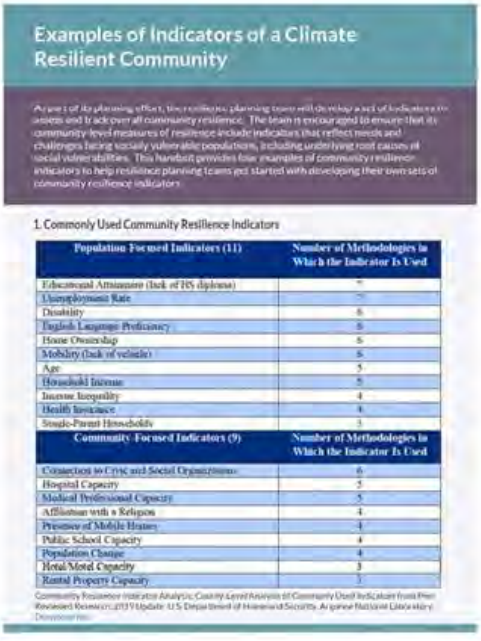
Has the resilience planning team created a profile of the community with regard to populations that, due to pre-existing social, economic, and physical conditions, may be more severely affected by changing coastal climate conditions, including but not limited to the following:

- Low-income populations and populations that are asset limited, income limited yet employed (ALICE)
- People with limited English proficiency
- People who do not own a car
- People who are homeless
- People of color and others who may experience societal discrimination
- Immigrants and undocumented populations
- People who live in mobile homes
- People with pre-existing health conditions, including mental health
- Older residents and children
- People who may be exposed to disproportionate amounts of environmental pollutants
- People with disabilities, including physical and developmental disabilities

☐ Where do socially vulnerable populations reside?

In addition to identifying pre-existing social, economic, and physical conditions that may be challenging to society vulnerable populations and exacerbated by changing coastal climate conditions, does the resilience planning team's profile of social vulnerability include maps to compare the relative residency of socially vulnerable populations to current and future flood and other hazards?

- Examples of Climate Resilient Community Indicators - This handout provides four examples of community resilience indicators to help resilience planning teams get started with developing their own sets of community resilience indicators.



Examples of Indicators of a Climate Resilient Community

As part of its planning effort, the resilience planning team will develop a set of indicators to assess and track overall community resilience. The team is encouraged to ensure that its community-level measures of resilience include indicators that reflect needs and challenges facing socially vulnerable populations, including underlying root causes of social vulnerabilities. This handout provides four examples of community resilience indicators to help resilience planning teams get started with developing their own sets of community resilience indicators.

1. Commonly Used Community Resilience Indicators

Population-Focused Indicators (11)	Number of Methodologies in Which the Indicator Is Used
Educational Attainment (lack of HS diploma)	7
Unemployment Rate	7
Disability	6
English Language Proficiency	6
Home Ownership	6
Mobility (lack of vehicle)	6
Age	5
Household Income	5
Income Inequality	4
Health Insurance	4
Single-Parent Households	3
Community-Focused Indicators (9)	**Number of Methodologies in Which the Indicator Is Used**
Connection to Civic and Social Organizations	6
Hospital Capacity	5
Medical Professional Capacity	5
Affiliation with a Religion	4
Presence of Mobile Homes	4
Public School Capacity	4
Population Change	4
Hotel/Motel Capacity	3
Rental Property Capacity	3

Community Resilience Indicator Analysis: County-Level Analysis of Commonly Used Indicators from Peer Reviewed Research. (2019 Update). U.S. Department of Homeland Security, Argonne National Laboratory. Document No.

- Participatory Processes: A Checklist for Resilience Planners - Socially vulnerable populations have historically been excluded from, and may have distrust for, community-based decision-making processes. Additional efforts may be needed to ensure meaningful participation. This checklist provides characteristics of participatory processes.



- Assessing Your Plan's Impact on Socially Vulnerable Populations - The Resilient NJ Planning to Action Framework instructs resilience planners to develop climate adaptation scenarios and the actions needed to achieve those scenarios. Asking the following questions will help planning teams assess the impacts of resilience scenarios and actions on socially vulnerable populations.



Acknowledgements

The NJ Coastal Management Program developed the GTR questionnaire which this website is built from. Support has been provided by through the Barnegat Bay Partnership, JC NERR, US EPA's Climate Ready Estuaries Program, NOAA, NJ Sea Grant , Rutgers Bloustein School of Planning and Public Policy and Sustainable New Jersey

Getting to Resilience (3) - TEST

A Community Planning Evaluation Tool

SURVEY SECTIONS

Section 1
Risk & Vulnerability Assessments

Section 2
Public Engagement

Section 3
Planning Integration

Section 4
Disaster Preparedness and Recovery

Section 5
Hazard Mitigation Implementation

Linkages
See your links to other programs

Public Engagement

Establishing a rapport with local residents and business owners is an integral part of reducing vulnerability within a community. Residents and business owners not only have an array of local knowledge on previous storm and natural hazard impacts, they are also the target audience to education about disaster preparedness, recovery and mitigation. Including stakeholders in planning processes is yet another way to build capacity for a resilient community.

Question		Yes	No	N/A	Notes	Clear
2.1	Is the community active in the National Flood Insurance Program's Community Rating System	✓	✗		NOTES	x
2.2	Does the community have a Program for Public Information (PPI) that is responsible for outreach materials?	✓	✗		NOTES	x
2.2.1	Is the PPI CRS approved?	✓	✗		NOTES	x
2.2.2	Is the PPI multi-jurisdictional?	✓	✗		NOTES	x
2.2.3	Is the PPI tailored to community needs?	✓	✗		NOTES	x
2.2.4	Has there been an effort to identify vulnerable populations? Participatory Process Checklist	✓	✗		NOTES	x
2.2.5	Are outreach materials presented in other languages as needed? Participatory Process Checklist	✓	✗		NOTES	x

Question		Yes	No	N/A	Notes	Clear
1.12.3	Has your community completed a repetitive loss area analysis?	✓	✗		NOTES	
1.12.4	Have you used this information to inform mitigation strategies and zoning decisions?	✓	✗		NOTES	
1.13	Has your community used maps to compare vulnerabilities in relationship to risks?	✓	✗		NOTES	
1.13.1	Populations, e.g. race, elderly, children, poor, disabled, linguistically isolated More mapping resources available at: NJFloodMapper	✓	✗		NOTES	
1.13.2	Buildings, e.g. business and residential	✓	✗		NOTES	
1.13.3	Infrastructure, e.g. roads, schools, wastewater treatment facilities, hospitals, public works	✓	✗		NOTES	
1.13.4	Natural Resources, e.g. freshwater wetlands, forests, beaches	✓	✗		NOTES	
1.13.5	Historical and Cultural Resources, e.g. historic districts, properties, libraries, museums, and landmarks	✓	✗		NOTES	
1.13.6	Economic Resources, e.g. major employers	✓	✗		NOTES	
1.14	Does the community have homes or businesses that are within the A or V-zone?	✓	✗	–	NOTES	
1.15	Has the municipality developed a build-out analysis using existing zoning ordinances?	✓	✗		NOTES	

Question		Yes	No	N/A	Notes	Clear
3.4.9.4	Consequences on socially vulnerable populations (race, elderly, linguistically isolated, etc)? Which plans contain this analysis? • Mapping resources at NJFloodMapper • Checklist of Pre-existing Community Challenges to Socially Vulnerable Populations • Assessing Your Plan's Impact on Socially Vulnerable Populations	✔	✖		NOTES	
3.5	Are policies in place that discourage or restrict the siting of critical facilities in high-hazard areas?	✔	✖		NOTES	
3.6	Does the municipality employ any of the following land use regulations and policies?	✔	✖		NOTES	
3.6.1	Transfer of development rights or purchase of development rights?	✔	✖		NOTES	
3.6.2	Conservation overlay districts or cluster development?	✔	✖		NOTES	
3.6.3	Zoning for open or recreational space?	✔	✖		NOTES	
3.6.4	Riparian and/or wetland buffer ordinances?	✔	✖		NOTES	
3.6.5	Lot size averaging?	✔	✖		NOTES	
3.6.6	Re-zoning for lower densities?	✔	✖		NOTES	
3.6.7	Rolling easements?	✔	✖		NOTES	
3.6.8	Landscaping, tree, and vegetation protection?	✔	✖		NOTES	

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Question		Yes	No	N/A	Notes	Clear
4.5.3	Does the plan include a list of contacts for operators of municipal facilities?	✓	✗		NOTES	
4.5.4	Is the plan updated as required?	✓	✗		NOTES	
4.5.5	Are vulnerable communities identified? • Mapping resources available at: NJFloodMapper.org Additional Resources • A Checklist of Pre-existing Vulnerable Populations Challenges • Assessing Your Plan's Impact on Socially Vulnerable Populations	✓	✗		NOTES	
4.5.6	Are retirement communities identified? • Mapping resources available at: NJFloodMapper.org Additional Resources • A Checklist of Pre-existing Vulnerable Populations Challenges • Assessing Your Plan's Impact on Socially Vulnerable Populations	✓	✗		NOTES	
4.5.7	Are linguistically isolated populations identified? • Mapping resources available at: NJFloodMapper.org Additional Resources • A Checklist of Pre-existing Vulnerable Populations Challenges • Assessing Your Plan's Impact on Socially Vulnerable Populations	✓	✗		NOTES	

Question		Yes	No	N/A	Notes	Clear
4.8.3	Does the community have a memorandum of agreement to provide sheltering for a neighboring community's constituents?	✓	✗	–	NOTES	
4.8.4	Are shelters equipped for special needs, pets, etc? • Mapping resources available at: NJFloodMapper.org	✓	✗		NOTES	
4.8.5	Is the storm shelter located outside of flood hazard areas?	✓	✗		NOTES	
4.8.6	Is the storm shelter located outside of the possible extent for storm surge inundation because flood hazard areas are not completely inclusive of all storm surge scenarios?	✓	✗		NOTES	
4.8.7	Are storm shelters designed to withstand high wind impacts?	✓	✗		NOTES	
4.8.8	Does the shelter capacity adequately service the community population, including seasonal tourists? • Mapping resources available at: NJFloodMapper.org	✓	✗		NOTES	
4.9	Does the community have an evacuation plan?	✓	✗		NOTES	
4.9.1	Are neighboring municipalities that would impact evacuation involved in the planning process?	✓	✗		NOTES	
4.9.2	Are municipal responsibilities for evacuation clearly defined?	✓	✗		NOTES	

	Question	Yes	No	N/A	Notes	Clear
4.9.3	Does the plan identify the necessary time frame to evacuate your residents and vacationers outside of storm hazard areas?	✔	✖		NOTES	
4.9.4	Does the plan identify where evacuation routes are prone to flooding?	✔	✖		NOTES	
4.9.5	Is there more than one route identified to evacuate your community?	✔	✖		NOTES	
4.9.6	Does the plan identify the conditions that would spur a lane reversal?	✔	✖		NOTES	
4.9.7	Does the plan identify local and state evacuation assistance programs for the following special needs: • Hospitals • Nursing Homes • Prisons • Residents without Personal Transportation • Elderly • Disabled • Linguistically isolated Resources • A Checklist of Pre-existing Community Challenges to Socially Vulnerable Populations • Assessing Your Plan's Impact on Socially Vulnerable Populations	✔	✖		NOTES	
4.9.8	Does the plan include the moving of emergency equipment out of the floodplain?	✔	✖		NOTES	
4.10	Does the municipality have a volunteer Community Emergency Response Team (CERT)?	✔	✖		NOTES	
4.11	Does the community have a Continuity of Operations Plan?	✔	✖		NOTES	
4.11.1	Does the plan provide guidance on post-disaster waste management and debris removal?	✔	✖		NOTES	

Appendix f

Draft Atlantic City Social Vulnerability Municipal Snapshot

Atlantic City: Social Vulnerability Snapshot

Introduction

While all people living in the United States are affected by climate change, some communities and some populations are more vulnerable. Some populations and communities are subject to multiple stressors, making them disproportionately affected by changing climate conditions.

Vulnerability may vary by several factors:

- **Location** - such as living close to flood prone areas.
- **Physical status** - such as age, pre-existing health conditions and/or physical disability.
- **Social, economic and physical factors** – such as underlying community conditions and the extent to which individuals have access to the services. Underlying conditions are often the result of long-standing societal factors such as community underinvestment, racism, and poor representation in decision-making.

The United States Centers for Disease Control (CDC) and Prevention uses information from the U.S. Census to create an index (the Social Vulnerability Index) that ranks the social vulnerability of communities in the United States to hazardous events and disasters. The CDC index is at a census tract level and is comprised of 15 social factors that are organized according to four themes.

Atlantic City: Social Vulnerability Snapshot

Population Impacts

Total Population: 38,372

Total Housing Units: 20,100

Total Municipality Acres: 10,181

Total Urban Area (Acres): 2,741

- Urban Area Impacted by 2 Ft. SLR: 108 (3.95%)
- Urban Area Impacted by 7 Ft. SLR: 2,369 (86.44%)

Socioeconomic Status

Variable	Population	% of Total Population	2 ft. Exposed	7 ft. Exposed
Below Proverty	14,385	37.49%	568	12,434
Unemployed	29,879	77.87%	1,179	25,827
No High School Diploma	6,759	17.61%	267	5,842

Average Household Income: $19,924

Household Composition & Disability

By Population

Variable	Population	% of Total Population	2 ft. Exposed	7 ft. Exposed
Aged 65 or Over	5,233	13.64%	206	4,523
Aged 17 Or Younger	9,489	24.73%	374	8,202
Civilian with a Disability	6,175	16.09%	244	5,337

By Households

Variable	Households	% of Total Households	2 ft. Exposed	7 ft. Exposed
Single-Parent Households	2,724	13.55%	107	2,355

Minority Status & Language

Variable	Population	% of Total Population	2 ft. Exposed	7 ft. Exposed
Minority	32,480	84.65%	1,281	28,075
Speak English "Less than Well"	5,630	14.67%	222	4,866

Housing & Transportation

By Households

Variable	Households	% of Total Households	2 ft. Exposed	7 ft. Exposed
Multi-Unit Structures [1]	8,242	41.00%	325	7,124
Mobile Homes	42	0.21%	2	36
Crowding [2]	1,249	6.21%	49	1,080
No Vehicle	6,612	32.90%	261	5,715

[1]: Multi-unit structures is defined here as 10 or more housing units in a structure.
[2]: Crowding is defined here as the number of households that have more people than rooms.

By Population

Variable	Population	% of Total Population	2 ft. Exposed	7 ft. Exposed
Group Quarters [3]	754	1.96%	30	652

[3]: Group Quarters is defined as persons who are in institutionalized group quarters (e.g., correctional institutions, nursing homes) and non-institutionalized group quarters (e.g., college dormitories, military quarters)

Atlantic City: Social Vulnerability Snapshot

CDC SVI

In addition to the CDC SVI data, several other sets of data are available that can be used to reflect social vulnerability of populations and communities:

Municipal Revitalization Index

Managed by the state Department of Community Affairs, the Municipal Revitalization Index (MRI) serves as the State's official measure and ranking of municipal distress. This index is linked to fiscal, economic, housing, and the labor market.

Link to Municipal Revitalization Map

Asset Limited, Income Constrained, Employed

ALICE, an acronym for Asset Limited, Income Constrained, Employed (ALICE), represents the growing number of individuals and families who are working, but are unable to afford the basic necessities of housing, child care, food, transportation, energy, and health care.

Link to ALICE Map

NJCounts Point-in-Time

The Federal Department of Housing and Urban Development (HUD) requires and each state conducts an assessment in January of each year to identify individuals residing in emergency shelters, transitional housing programs, safe havens and living on the streets or other locations not fit for dwelling. For NJ, this data is known as NJCounts.

Link to NJCounts Point-in-Time Map

Veterans

The U.S. Census Bureau, American Community Survey maintains data regarding demographic, social and economic data on veterans.

Link to Veterans Map

Housing Stock Age

Maintained by the United States Census Bureau, American Community Survey, the Housing Stock Age reflects the number of housing units built in the municipality prior to 1970. These homes may be more vulnerable and less resilient to changing climate conditions.

Link to Housing Stock Age Map

Landscan

Landscan provides a relative assessment of population density measured on a "people per cell" indicator basis. While this is not a measure of social vulnerability, it is provided to better understand where populations reside.

Link to Landscan Map

Atlantic City: Social Vulnerability Snapshot

Appendix

Temperature Changes
Annual temperatures in New Jersey have increased approximately 3°F since the beginning of the 1900's. Historically unprecedented warming is projected by 2100. Temperatures are projected to most likely exceed historical record levels by 2050. Increases in the number of extremely hot days and decreases in the number of extremely cold days are projected to accompany the overall warming. For example, by 2050, an estimated 70% of summers in New Jersey are anticipated to be hotter than what we now recognize as the warmest summer on record (Source: NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION). For New Jersey regional specific information visit https://njforestadapt.rutgers.edu/.

Rainfall Changes
Annual precipitation for New Jersey has been about 8% above average over the last 10 years. Winter and spring precipitation are projected to increase for the 2000's; extreme precipitation is also projected to increase. These events may result in increased coastal and inland flooding risks throughout the state (Source: NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION). For New Jersey regional specific information visit https://njforestadapt.rutgers.edu/.

Sea level Rise
Sea-level in New Jersey rose 1.5 feet along the New Jersey coast from 1911 to 2019, compared to a 0.6 feet total change in the global mean sea-level. New Jersey coastal areas are likely to experience sea-level rise of 0.5 to 1.1 feet between the years 2000 and 2030, and 0.9 to 2.1 feet between 2000 and 2050.

Likewise, the number of days that New Jersey residents have experienced high-tide floods in the absence of a storm has increased. For example, between 2007-2016, there was an average of 8 high-tide flood events in Atlantic City. Based on the likely range of sea-level rise projections, Atlantic City will experience 17-75 days of expected high-tide flooding per year in 2030, and 45-255 days per year of expected high-tide flooding in 2050 (Source: https://climatechange.rutgers.edu/images/STAP_FINAL_FINAL_12-4-19.pdf).