



GEARING UP FOR THE GOLD STAR IN RESILIENCE CLIMATE READINESS

May 3, 2024

Tanya Rohrbach, New Jersey Future Anne Heasly, Sustainable Jersey

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WIFI INFORMATION: 2 Open Networks

1.sustainablenj: Ballroom, GS3, Nonprofit Exhibit area **2.Bell_Works_Conf_Center:** Bell Theatre & Conference



Gearing up for the Gold Star in Resilience *Climate Readiness*

GS2

11:30am-12:30pm

IG: Sustainable_Jersey | X: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey

Agenda

- 1. Overview
- 2. Poll Questions
- 3. Vulnerability Assessment
- 4. Draft Gold Star Framework
- 5. Questions



Session slides will be available on the sustainablejersey.com by May 10, 2024

Are potential hazards communicated to the public through accessible means?



In your town, are plans, policies, and regulations routinely updated when new information is available regarding vulnerabilities to climate hazards and strategies to address them?



Does a designated staff position have responsibility for continuously assessing the community's vulnerability to climate hazards and managing implementation and adaptation strategies?



Does your town's budget for capital improvement projects fund climate adaption actions?

Funded Capital Projects Summary FY 2015/16

| Capital Projects | FY 2015/16 Budget | 5-Year Total Budget |
|--|----------------------|------------------------|
| Streets & Sidewalks | | |
| Downtown Streetscape Improvement Project (Specific Plan) | 115,000 | 390,000 |
| Sidewalk Repair Program | 300,000 | 1,500,000 |
| Street Resurfacing | 600,000 | 12,700,000 |
| City Buildings | | |
| City Buildings (Minor) | 325,000 | 1,700,000 |
| Traffic & Transportation | | |
| High Speed Rail Coordination | 50,000 | 150,000 |
| Sand Hill Road Signal Modification Project | 125,000 | 125,000 |
| Environment | | |
| Community Zero Waste Policy Draft | 50,000 | 50,000 |
| Water System | | |
| Sharon Heights Pump Station | 200,000 | 200,000 |
| Parks & Recreation | | |
| Bedwell Bayfront Park Electrical Panel Upgrade | 100,000 | 100,000 |
| Belle Haven Pool Deck Lighting | 30,000 | 30,000 |
| Jack Lyle Park Restrooms - Construction | 40,000 | 240,000 |
| Library Landscaping | 200,000 | 200,000 |
| Measure T Funds Evaluation/Project Ranking | 125,000 | 125,000 |
| Nealon Park Sports Field Sod and Irrigation System Replacement | 250,000 | 250,000 |
| Park Improvements (Minor) | 150,000 | 810,000 |
| Relocation of Dog Park at Nealon Park | 250,000 | 250,000 |
| Tennis Court Electronic Key Upgrade | 100,000 | 100,000 |
| Willow Oaks Dog Park | 250,000 | 250,000 |
| Stormwater | | 9 |
| Bay Levee Project | 90,000 | 180,000 |
| Storm Drain Improvements | 115,000 | 595,000 |
| Willow Place Bridge Abutment Repairs | 250,000 | 250,000 |
| Technology & Other | | |
| Cost of Service/Fee Study | 100,000 | 100,000 |
| Radio Infrastructure Replacement | 100,000 | 100,000 |

Do zoning ordinances reflect the latest projected climate hazards sufficiently to reduce impact, and are they enforced adequately?



Gearing up for the Gold Star in Resilience

Become a Climate-Ready Municipality Using the Model CCRHVA

Tanya Rohrbach, Community Planning Manager New Jersey Future

May 3, 2024



NEW JERSEY

FUTURE

Regulatory Requirement

Law P.L. 2021, c6 specifically requires municipalities to:

1. Analyze current and future threats to, and vulnerabilities of, the municipality associated with climate changerelated natural hazards;

2. Include a **build-out analysis** of future residential, commercial, industrial, and other development in the municipality, and an assessment of the threats and vulnerabilities identified above related to that development;

3. Identify critical facilities, utilities, roadways, and other infrastructure that is necessary for evacuation purposes and sustaining quality of life during a natural disaster, to be maintained at all times in an operational state;

4. Analyze the potential impact of natural hazards on relevant components and elements of the master plan;

5. Provide **strategies and design standards** that may be implemented to reduce or avoid risks associated with natural hazards;

6. Include a specific **policy statement on the consistency, coordination, and integration of the climate changerelated hazard vulnerability assessment with certain other plans adopted by the municipality**; and

7. Rely on the most recent natural hazard projections and best available science provided by the NJDEP.





Collaborative Guidance Development



ADAPTATION PLANNING

Assessment for New Jersey Municipalities

GUIDE TO LOCAL CLIMATE CHANGE

The Model Climate Change-Related Hazard Vulnerability



Best Practice Guidance for the Comprehensive CCRHVA Action! https://www.njfuture.org/ccrhva/ **Coordination of efforts** — NJDEP, OPA, OEM, FEMA, Rutgers, non-profits, etc.

Research — Literature review, vulnerability assessment examples, Pew methodology review

Advisory committees — MLUL compliance, best practices, feedback along the way

Practitioner review — Verification of logic model, systems approach, data, and methodologies





Climate Change Hazards & Impacts



How Comprehensive of a CCRHVA Do You Think Your Community (or the communities you work with) Would Prefer to Conduct?



- Minimally Comprehensive, such as one limited to a review of the Multi-jurisdictional Hazard Mitigation Plan, vulnerable populations, and FEMA flood hazard areas.
- Moderately Comprehensive, including evaluation of vulnerabilities of economic, natural, and social assets to several different climate hazards.
- Comprehensive to the extent possible, including robust community engagement, evaluation of vulnerabilities across systems exposed to all potential hazards, and considering ways in which the municipality can change its policies, practices, and regulations.



What Do You Think is Currently the Biggest Challenge to Conducting a Municipal CCRHVA that would Sufficiently Help Your Community Adapt to Climate Change?



Cost

- Political Obstacles at the Local Level
- Lack of Clear Standards and Methods for a CCRHVA
- Limitations of Available Data and Tools





- Points are earned by completing action components as part of the municipal process to complete a CCRHVA that meets the requirements of N.J.S.A. 40:55D-28.
- To accomplish a comprehensive CCRHVA, it is expected that the full CCRHVA Guide will be utilized while completing this action





Inside the Guide



Inside the Guide





Action Components for Part I of the CCRHVA Guide



Gearing Up and Scoping = getting informed and building a team

Step 2.1 Planning Documents Review



Step 3.1 Project Team Selection

| ٢Ţ | Step 3.2 | Community | Engagement | Plan |
|----|----------|-----------|------------|------|
|----|----------|-----------|------------|------|



Phase 1: Initiate and Contextualize the Process



 1.1 Designate a lead individual or core team

1.2 Understand principles of climate adaptation planning

What depth should the CCRHVA go into?

– Minimal, moderate, comprehensive

What's the end product?

- Separate component attached to the Land Use Plan Element
- Integrated into the Land Use Plan Element

Who should be involved?

- Who will lead the process staff?
- Who will produce the deliverable planner?
- Roles of participants Level and type of volunteer and community engagement?

Learning Resources

- Resource Document 1.2 Implementation Goals
- NJDEP climate science resources
- Trainings (equity, hazards, adaptation)





Action Components for Phase 2 of the CCRHVA Guide



2.2 Identfy partners

2.3 Identify community stakeholders and resources

Explore Community Data and Resources

Step 2.1 Planning Documents Review

- "Before" and "After"
- Gather information about the community and align all plans with climate resilience goals.

Step 2.3 Key Local Stakeholders

Identify municipal staff and departments, community groups and advocates, and community members who can provide expertise and diverse community perspectives throughout the climate adaptation planning process.

| <u>Existing or P</u> | revious Planning | <u>New Planning Considerations</u> |
|-----------------------------|--|--|
| (Complete P | rior to Step 4.1 - | (Complete After Step 4.2.a - |
| Identification and Characte | erization of Community Hazards | Analysis of exposure and sensitivity |
| and Vu | Inerabilities) | to climate hazards) |
| Plan Visions and Goals | Relevant Climate, Hazard, and Vulnerability Data/Information | How the Plan May be Affected by Climate Change; Updates and Changes to Make to the Plan's Goals and Strategies |



Equitable, Inclusive Process and Outcomes

Socially vulnerable populations

Neighborhood leaders, advocates, and associations

Municipal elected and appointed officials

Municipal decision-making or advisory boards and committees

Other staff from municipal and county departments

Local businesses, employers, and business or commerce organizations

Utility providers

Cultural and ethnic groups

Faith-based groups

Youth groups

Social service organizations

Environmental and social advocacy non-profit organizations



From: Yuen, Tina & J. Nguyen. (2020). *The Planner's Playbook: A Community-Centered Approach to Improving Health & Equity*. Change Lab Solutions.





Action Components for Phase 3 of the CCRHVA Guide



3.1 Form a project team

3.2 Develop and implement a community engagment plan

Activate Community Engagement

- Step 3.1 Project Team Selection
 - Based on background research on hazards and planning goals, and key local stakeholders.

Step 3.2 Community Engagement

 Use information gathered in previous phases about vulnerable populations, local groups, & climate hazards experienced in the community.







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Action Components for Part II of the CCRHVA Guide



| | | STEP | TECHNICAL TEAM | GREEN TEAM |
|---|---|--|---|--|
| PHASE | PHASE | 4.1 – Identify climate hazards | Compile and analyze GIS data, reports, measurements. | Gather information from community members and accessible data sources. |
| 4 ANALYZE | 4 5 STRATEGIZE STRATEGIZE S.1 Facilitate community visioning for climate adaptation 5.2 Identify | 4.1 – Identify critical and important facilities | Compile and create GIS data for critical facilities. | Engage the community to identify important community resources. (i.e. Community Asset Mapping Action) |
| identify mate hazards, | | 4.2 – Analyze hazard impact | Conduct GIS overlay analyses and interpret a syntheses of all data and information collected. | Assist in assigning scoring for hazard impact of features across all systems. |
| tterns, and stem features Analyze and | | 4.2 – Analyze adaptive capacity | Identify and evaluate municipal policies, ordinances, and procedures. | Assist in assigning scoring for adaptive capacity and overall vulnerability across all systems. |
| racterize the nerability of features d systems porting the nmunity | strategies and design standards 5.3 Create the | 5.1 – Community visioning | Provide audience-appropriate findings of technical studies. | Conduct an inclusive community visioning workshop. |
| | plan of action | 5.2 – Identify strategies | Incorporate community engagement findings into a final CCRHVA draft. | Assist in finalizing scoring and provide feedback on the final strategies and CCRHVA |

Phase 4: Analyze Climate Change-Related Hazard Vulnerability Vulnerability = Exposure x Sensitivity x Adaptive Capacity

- Exposure The extent people, places, or systems are touched by or in
 Impact contact with or disturbed by a hazard.
 - **Sensitivity** The extent that they can experience harm from that exposure
 - Adaptive Capacity The extent people or systems can respond to and learn from disturbances to mitigate the causes and the impacts of climate-related hazards





4.2.a VULNERABILITY KEY

Scoring the Impact of Climate Hazards on Features

 After working through <u>Worksheet 4.2.a Analysis Workflow</u> to analyze the indicators of system features (and specific individual features, if applicable) in relation to specific hazards, use the outputs from the analyses to score the potential impact due to exposure and sensitivity of each indicator of a system feature (and specific individual features, if applicable) to the hazard based on the below Hazard Impact Key. Refer to information from the community, project advisors, and other stakeholders to deliberate the scoring of hazard impacts your community could experience. For each indicator, there should be an impact score for exposure and an impact score for sensitivity.

| | Hazard Impact Key | | | | | |
|--------------|---|--|--|--|--|--|
| Impact Score | <u>Exposure</u> The extent people, places, or systems are touched by or in contact with or disturbed by a hazard. | <u>Sensitivity</u> The extent that people, places, or systems can experience harm or dysfunction from exposure to a given hazard. | | | | |
| Negligible | Exposure is unlikely to occur. | There is no noticeable physical damage or functional disruption to a feature or system. There is no noticeable change to public health, safety, or system viability. | | | | |
| Low | Exposure is somewhat likely to occur. | There is minor physical damage or functional disruption to a feature or system. There is some noticeable change to public health, safety, or system viability. | | | | |
| Moderate | Exposure is likely to occur. | There is intermediate physical damage to a feature or system. There is potential for chronic stress and reduced functional reliability. Services may be entirely disrupted on occasion or for extended periods of time. There is a detectable decline in public health, safety, or system viability. There is a potential for long-term effectiveness and sustainability of the system to be degraded. | | | | |
| High | Exposure is highly likely to occur. | There is significant physical damage or functional disruption to a feature or system. Services may be limited and unable to meet needs frequently or permanently. There is a significant decline in public health, safety, or system viability. The long-term effectiveness and sustainability of the system may be degraded. | | | | |
| Very High | Exposure is certain or nearly certain to occur. | There is substantial physical damage or functional disruption to a feature or system. The ability to provide services is destroyed. There is substantial or severe harm to public health, safety, and system viability. The long-term effectiveness and sustainability of the system is degraded. | | | | |

Scoring Adaptive Capacity

4. Use the output from the analysis of potential impact on the master plan and consistency with other planning efforts and the community's adaptive capacity (Steps 4.2.b & 4.2.c), to score the capacity of the community to address each assigned hazard impact score in <u>Worksheet 4.1.c Vulnerability</u> <u>Matrix</u> based on the below "Adaptive Capacity Key."

| Adaptive Capacity Key | | | | | |
|-------------------------|--|--|--|--|--|
| Adaptive Capacity Score | Observed Community Adaptation Potential | | | | |
| Low | The community is not able to anticipate impact, respond to impact, and proactively avoid impact from climate change-related hazards. The public is generally unaware of specific changes that are needed to adapt to impacts. Planning documents generally do not consider the impacts beyond minimum federal, state, or regional regulatory requirements. There is no mechanism to manage implementation of climate planning strategies and continuously monitor adaptation to impacts. Major changes to local policies and practices are needed. | | | | |
| Moderate | The community is somewhat able to anticipate impact, respond to impact, and proactively avoid impact from climate change-related hazards. There is some public awareness of changes that are needed to adapt to impacts. Planning for impacts is considered in most local planning documents beyond minimum federal, state, or regional regulatory requirements. There may be a mechanism to manage implementation of climate planning strategies and continuously monitor adaption to impacts. Some local policies and practices are in place or under consideration, but significant changes to local policies and practices are needed. | | | | |
| High | The community is highly able to anticipate impact, respond to impact, and proactively avoid impact from climate change-related hazards. Most of the public are aware of changes that are needed to adapt to impacts. Planning for impacts is considered in all local planning documents beyond minimum federal, state, or regional regulatory requirements. There is an effective mechanism to manage implementation of climate planning strategies and continuously monitor adaptation to impacts. Several local policies and practices are in place and under consideration. Continuation of changes to local policies and practices is sufficient to occur at a similar pace compared to the present. | | | | |

| | | Hazard Impact Score Matrix | | | | | | |
|------|--|----------------------------|---|---|---|---|--|--|
| | | Exposure | | | | | | |
| | Negligible Low Moderate High Very High | | | | | | | |
| | Negligible | 1 | 2 | 3 | 3 | 3 | | |
| vity | Low | 2 | 2 | 3 | 3 | 4 | | |
| siti | Moderate | 2 | 3 | 3 | 4 | 4 | | |
| Sen | High | 3 | 4 | 4 | 4 | 5 | | |
| | Very High | 4 | 4 | 4 | 5 | 5 | | |

| | | Vulnerability Score Matrix | | | | | | |
|----------|----------|----------------------------|-----------|------------|----------|------|--|--|
| | | | н | azard Impa | ct | | | |
| | | 1 | 2 | 3 | 4 | 5 | | |
| | | High | Very High | | | | | |
| oacity | Low | Moderate | Moderate | Moderate | High | High | | |
| tive Cal | Moderate | Low | Moderate | Moderate | High | High | | |
| Adap | High | Low | Moderate | Moderate | Moderate | High | | |



Phase 4: Analyze Climate Change-Related Hazard Vulnerability

Vulnerability = Exposure x Sensitivity x Adaptive Capacity



| Work through I worksheet. Use | he Resource Document 4 the worksheet to assign | .2.a Analysis Workflow to complete this vulnerability scores. | | | | | | | |
|----------------------------------|---|---|---|--|--|--|---|---|--|
| SYSTEM | SYSTEM FEATURE | FEATURE INDICATOR | INDICATOR ALL- HAZARD IMPACT SCORE SUM Sum of All Hazard Impact Scores (Exposure + Sensitivity) | INDICATOR ASSIGNED ALL- HAZARD IMPACT SCORE (1-5) | FEATURE ASSIGNED ALL- HAZARD IMPACT SCORE (1-5) | FEATURE ADAPTIVE CAPACITY SCORE (LOW, MODERATE, HIGH) | FEATURE VULNERABILITY SCORE (LOW, MODERATE, HIGH) | DESCRIPTION OF HAZARD VULNERABILITY FOR FEATURE | DESCRIPTION OF SYSTEM VULNERABILITY Note that priority features of the built system are listed on another tab in this worksheet. |
| | Facilities and | | 0 | | | | | | |
| Built | Infrastructure | Physical Damage | | | | | | | |
| Built | Infrastructure | Operational Damage | 0 | | | | | | |
| Built | Housing Stock and Businesses | Residential and Commercial Structures | 10 | 4 | | | | localized residences and businesses affected by river | The system is vulnerabile to multiple climate hazards; and this vulnerability needs to be added |
| Built | Housing Stock and Businesses | Public and Affordable Housing Siting | 10 | 3 | 3 | Low | Moderate | flooding and urban flooding (undersized storm sewer); landslide, and wildfire | to several plans and policies - e.g. zoning in floodplain and steep slopes; projects identified to improve flooding from undermaintained and |
| Natural | Natural Lands Resources | Protected Natural Lands and Buffers for Their Migration | 0 | | | | | | improve nooding non-andermaintainta and |
| Natural | Natural Lands Resources | Biodiversity and Connectivity | 0 | | | | | | |
| Natural | Natural Lands Resources | Urban Ecology | 0 | | | | | | |
| Natural | Water Source Resources | Water Quality | 0 | | | | | | |
| Natural | Water Source Resources | Water Quantity | 0 | | | | | | |
| Natural | Air Quality | Air Pollution | 0 | | | | | | |
| Social | People | Public Health | 0 | | | | • | | |
| Social | People | Vulnerable Populations | 0 | | | | | | |
| Economic | Sustainable Economic Development | Jobs | 0 | | | | | | |
| Economic | Sustainable Economic Development | Non-Residential Tax Base | 0 | | | | | | |
| Economic | Working Lands | Farming | 0 | | | | | | |
| | | | 0 | | | | | | |



TEMPLATE

1.1 CCRHVA

Objective: Use this editable template to draft the municipality's climate change-related hazard vulnerability assessment (CCRHVA). The CCRHVA needs to be in the Land Use Plan Element of the municipal master plan to be in compliance with <u>NJSA 40:55D-28.b.(2)(h)</u> (the Municipal Land Use Law, or MLUL). Refer to the <u>Municipal Climate Resilience Planning Guide</u> from the NJ Office of Planning Advocacy for a summary of the law.

How to Use This Form: Insert the relevant content that was developed by working through the CCRHVA planning process into the appropriate sections of this template. A provision of the MLUL states that the CCRHVA must "rely on the most recent natural hazard projections and best available science provided by the New Jersey Department of Environmental Protection," and this template also includes a section to cite the data sources referenced for the community's CCRHVA. Working through the six phases of the CCRHVA guide will ensure the appropriate data are used, and additional data that was used by the community to conduct the CCRHVA can be added as needed.

Land Use Plan Element Climate Change-Related Hazard Vulnerability Assessment for [Municipality, County]

I. Policy Statement of Consistency with Other Planning Efforts (meets NJSA 40:55D-28.b.(2)(h)(vi))

Insert a policy statement on the consistency, coordination, and integration of the climate change-related hazard vulnerability assessment with any existing or proposed natural hazard mitigation plan, floodplain management plan, comprehensive emergency management plan, emergency response plan, post-disaster recovery plan, or capital improvement plan.

II. Background

Describe the purpose of the CCRHVA, including general information about the community and general implications of climate change and vulnerabilities for the community.

III. Description of Process and Community Participation

IV. Characterization of Community Systems, Features, and Hazard Vulnerabilities (meets NJSA 40:55D-28.b.(2)(h)(i))

First, indicate all critical infrastructure that was identified for the CCRHVA. Then, insert the results of the CCRHVA for each feature that was analyzed, including an overall assessment of vulnerability (e.g. score of low, medium, or high), into the appropriate sections below. These sections should not be finalized until after an inclusive community engagement and stakeholder process has been conducted. Each of the analysis outputs or sections should be accompanied by a brief and easily interpreted narrative that describes the feature, the extent that it is vulnerable to a given hazard (i.e. climate-related threat impacting the feature), and how the vulnerability of the feature impacts the functioning and sustainability of the corresponding system to support the municipality and any other jurisdictions evaluated. Brief descriptions should be used to the extent possible to convey results of the analysis, limiting lengthy text descriptions and employing graphics, if possible. Within each system outlined below, the order can be arranged to suit a particular narrative of the community. If an indicator or feature was not analyzed, indicate the reason (e.g. why it is not a relevant feature or indicator, lack of specific data/information or other resources, community self-assessment rationale, etc.).

i. List of Critical Facilities and Infrastructure (meets NJSA 40:55D-28.b.(2)(h)(iii))

Insert the full list of critical facilities and infrastructure features identified by the community.

ii. Built System Vulnerability Analysis

Vulnerability of Built Facilities and Infrastructure
 Vulnerability of Housing Stock and Businesses
 Vulnerability of Public and Affordable Housing

iii. Natural System Vulnerability Analysis

Vulnerability of Natural Lands Resources
 Vulnerability of Water Source Resources
 Vulnerability of Air Quality

iv. Social System Vulnerability Analysis

Vulnerability of Public Health
 Vulnerability of Vulnerable Populations

v. Economic System Vulnerability Analysis

1. Vulnerability of Sustainable Economic Development

- 2. Vulnerability of Working Lands
- 3. Vulnerability of Outdoor Recreation

V. Potential Impact on the Master Plan, Other Planning Efforts, and Municipal Capacity

i. Development Analysis (meets NJSA 40:55D-28.b.(2)(h)(i)&(ii))

Insert the completed development analysis, which includes a build-out analysis and an evaluation of current zoning in relation to current and projected hazards.

ii. Governance System and Adaptive Capacity Vulnerability Analysis (meets NJSA 40:55D-28.b.(2)(h)(i))

Insert the completed municipal governance worksheet.

iii. Impact on the Master Plan and Other Plans (meets NJSA 40:55D-28.b.(2)(h)(iv))

Insert the completed planning documents review worksheet.

VI. Strategies And Design Standards (meets NJSA 40:55D-28.b.(2)(h)(v))

Insert the completed strategies and design standards worksheet.

VII. Description of Implementation of Strategies, Standards, and Ongoing Climate Adaptation

Describe how the community plans to implement the strategies and design standards identified in this assessment. The description should include administrative, financial, timing, monitoring, and other aspects relevant to achieving the actions necessary to apply the strategies and design standards identified to reduce vulnerability to climate hazards. Alternatively, the community may wish to develop a separate Climate Adaptation Action Plan that points to the CCRHVA in a section of the plan (as shown in the action plan outline worksheet provided with this guide) and refer to that plan in this section of the CCRHVA.

VIII. Climate Hazards Descriptions

Insert maps, tables, and narratives depicting current and projected climate change-related hazards that may impact the community. Describe all hazards, including those for which a vulnerability score of "Low" was determined through the CCRHVA process.

IX. Appendix

- i. Data Sources (meets NJSA 40:55D-28.b.(2)(h)(vii))
- ii. Vulnerability Matrix / Scoring Worksheet
- iii. Communications Materials and Additional Community Engagement and Project Team Descriptions
- iv. Climate Readiness Actions List
- v. Mitigation Projects List



Part III: Implementation

Phase 6

OHASA

IMPLEMENT

6.1 Maintain and monitor actions

6.2 Update and

sustain climate

readiness

- Implement strategies and design standards.
- Integrate the CCRHVA throughout the Master Plan, Capital Improvement Plan, and other plans.
 - Use the outputs of the CCRHVA in the description of current conditions and then set goals for future conditions while addressing hazard vulnerabilities identified in the CCRHVA.
 - Sample policy statement on consistency, coordination, and integration of the CCRHVA with other plans (in Phase 4).







GUIDE TO LOCAL CLIMATE CHANGE ADAPTATION PLANNING

The Model Climate Change-Related Hazard Vulnerability Assessment for New Jersey Municipalities New Action: <u>Comprehensive</u> Climate Change-Related Hazard Vulnerability Assessment

SUSTAINABLE JERSEY

Protect and Strengthen Your Community



PUBLIC

HEALTH







ECOSYSTEM SERVICES AND NATURAL HABITATS







AGRICULTURE

BUSINESSES LIVELIHOODS



Thank you!!

Download the guide: https://www.njfuture.org/ccrhva/



Email us: trohrbach@njfuture.org heaslya@tcnj.edu



It's not Climate Change, it's Everything Change.

LIVING-FUTURE.ORG

BOOTH #2238

Systems Approach

- Systems and the corresponding key features and indicators that sustain a community.
- Indicators are based on what is needed to sustain each system's functionality.
- Holistic perspective to look at multiple ways to reduce a community's vulnerability.



Systems Approach



| Work through worksheet. Use | the Resource Document the worksheet to assign | 4.2.a Analysis Workflow to complete this vulnerability scores. | | | | | | | |
|-----------------------------|--|---|---|--|--|--|---|--|--|
| SYSTEM | SYSTEM FEATURE | FEATURE INDICATOR | INDICATOR ALL- HAZARD IMPACT SCORE SUM Sum of All Hazard Impact Scores (Exposure + Sensitivity) | INDICATOR ASSIGNED ALL- HAZARD IMPACT SCORE (1-5) | FEATURE ASSIGNED ALL- HAZARD IMPACT SCORE (1-5) | FEATURE ADAPTIVE CAPACITY SCORE (LOW, MODERATE, HIGH) | FEATURE VULNERABILITY SCORE (LOW, MODERATE, HIGH) | DESCRIPTION OF HAZARD VULNERABILITY FOR FEATURE | DESCRIPTION OF SYSTEM VULNERABILITY *Note that priority features of the built system are listed on another tab in this worksheet. |
| Built | Facilities and | Physical Damage | 0 | | | | | | |
| Built | Facilities and Infrastructure | Operational Damage | 0 | | | | | | |
| Built | Housing Stock and Businesses | Residential and Commercial Structures | 10 | 4 | | | | localized residences and businesses affected by river | The system is vulnerabile to multiple climate hazards; and this vulnerability needs to be added |
| Built | Housing Stock and Businesses | Public and Affordable Housing Siting | 10 | 3 | 3 | Low | Moderate | flooding and urban flooding (undersized storm sewer); landslide and wildfire | to several plans and policies - e.g. zoning in floodplain and steep slopes; projects identified to improve flooding from undermaintained and |
| Natural | Natural Lands Resources | Protected Natural Lands and Buffers for Their Migration | 0 | | | | | | |
| Natural | Natural Lands Resources | Biodiversity and Connectivity | 0 | | | | | | |
| Natural | Natural Lands Resources | Urban Ecology | 0 | | | | | | |
| Natural | Water Source Resources | Water Quality | 0 | | | | | | |
| Natural | Water Source Resources | Water Quantity | 0 | | | | | | |
| Natural | Air Quality | Air Pollution | 0 | | | | | | |
| Social | People | Public Health | 0 | | | | - | | |
| Social | People | Vulnerable Populations | 0 | | | | | | |
| Economic | Sustainable Economic Development | Jobs | 0 | | | | | | |
| Economic | Sustainable Economic Development | Non-Residential Tax Base | 0 | | | | | | |
| Economic | Working Lands | Farming | 0 | | | | | | |
| | | | 0 | | | | | Construction of the second | |

Vulnerability = Exposure x Sensitivity x Adaptive Capacity

Tools for Actionable Outcomes

RESOURCE DOCUMENT

Dejective: This form is a practitioner's resource for understanding the assessment of climate hazard vulnerabilities based on a holistics, systems approach to climate adaptation planning and resistings, and for communicity the approach to others. If describes the framework this guide uses for conducting a climate change-related hazard vulnerability assessment (CCRHVA), and why it is important for local planning. The first section provides an overview of the systems approach. The second section describes the organization of the framework for the systems approach in this guide, and the third section describes how each systems is impacted by specific climate hazards.

How to Use This Form: Refer to this form while identifying and analyzing the vulnerability of community features to climate hazards, as outlined in Steps 4.1 and 4.2 of this guidance. It is

Systems Approach to Climate Adaptation

What is a systems approach?

A systems approach considers the impacts on a community from the perspective of the key features that sustain the community. It provides an organizational framework. The key features are categorized into systems based on their function and how they are administered, managed, maintained, and received. The benefits of this approach include greater feasibility in assessing a limited number of key features and the potential to realize dynamic relationships and cohenefits within and among systems. This framing enhances approaches to resilience that focus on isolated efforts that aim to identify specific risks and corresponding projects to mitigate the risks individually. Because municipalities are more accustomed to organizing themselves around ways to improve the sustainability and functioning of their communities than they are to defining and studying natural hazards data, a systems approach provides a framework for municipal decision-makers and practitioners and other local stakeholders to holistically perceive climate vulnerability in ways that resonate





Input Data and Tools Morcard Binn Marc Building Toothins GIS date
 M. Office of GIS Data portal
 Particle and MOA-IV Composite of NJ (download)
 Particles and MOA-IV Composite of NJ (download)
 Courty-specific data may be available for building toothrints
 MOAPP GIS Data. Imprevious Strategic (areas covered by buildings can also be extracted from this layer) NOAA Impervious Surface Analysis Tool (provided if federal data sources are needed-use of local NJ data is recommended Analysis What This Information Can Tell You In a GIS, overlay residential and commercial features with flooding, Identifying areas where people and property are exposed to hazards mudslides/landslides, wildfire, and saltwater intrusion hazard GIS can inform communication and adaptation strategies that involve public can inform communication and adaptation strategies that involve public engagement and support. Properties that are exposed to climate hazards should be considered during land use planning and regarding changes to zoning. Adaptation strategies that reduce impervious surfaces can be targeted based on information gathered in this layers and with impervious surface to export maps and tables for the below outputs. Information gathered during community enga sessions and from hazard mitigation plans can also inform this analysis component analysis Space for Practitioner Outputs and Narrative Map(s) of residential and commercial building footprints with current and projected spatially-defined hazards. Table(s) of parcets that contain residential or commercial structures with current and projected spatially-defined hazard exposure. Map(s) and table(s) of high imgervious surface (<0%) and residential and commercial attructure points, structures, or properties within areas of high impervious surface A MODEL CLIMATE HAZARD VULNERABILITY ASSESSMENT FOR NJ MUNICIPALITIES

Identify residential and commercial structures within areas of current and projected spatially-defined hazards
 Identify residential and commercial structures within areas of high impervious surface (flood exposure).

Analysis Matrix Code: C1. C3. C5. C7

System: Built Feature: Housing Stock & Businesses Indicator: Residential & Commercial Structures

Impact: Exposure to Spatially-Defined Hazards

4.1.c Systems Approach

4.1.c Vulnerability Matrix

4.2.a Analysis Workflow



Scoring Adaptive Capacity

RESOURCE DOCUMENT

4. Use the output from the analysis of potential impact on the master plan and consistency with other planning efforts and the community's adaptive capacity (Steps 4.2.b & 4.2.c), to score the capacity of the community to address each assigned hazard impact score in <u>Worksheet 4.1.c Vulnerability</u> <u>Matrix</u> based on the below "Adaptive Capacity Key."

| | Adaptive Capacity Key | | | | | |
|-------------------------|--|--|--|--|--|--|
| Adaptive Capacity Score | Observed Community Adaptation Potential | | | | | |
| Low | The community is not able to anticipate impact, respond to impact, and proactively avoid impact from climate change-related hazards. The public is generally unaware of specific changes that are needed to adapt to impacts. Planning documents generally do not consider the impacts beyond minimum federal, state, or regional regulatory requirements. There is no mechanism to manage implementation of climate planning strategies and continuously monitor adaptation to impacts. Major changes to local policies and practices are needed. | | | | | |
| Moderate | The community is somewhat able to anticipate impact, respond to impact, and proactively avoid impact from climate change-related hazards. There is some public awareness of changes that are needed to adapt to impacts. Planning for impacts is considered in most local planning documents beyond minimum federal, state, or regional regulatory requirements. There may be a mechanism to manage implementation of climate planning strategies and continuously monitor adaptation to impacts. Some local policies and practices are in place or under consideration, but significant changes to local policies and practices are needed. | | | | | |
| High | The community is highly able to anticipate impact, respond to impact, and proactively avoid impact from climate change-related hazards. Most of the public are aware of changes that are needed to adapt to impacts. Planning for impacts is considered in all local planning documents beyond minimum federal, state, or regional regulatory requirements. There is an effective mechanism to manage implementation of climate planning strategies and continuously monitor adaptation to impacts. Several local policies and practices are in place and under consideration. Continuation of changes to local policies and practices is sufficient to occur at a similar pace compared to the present. | | | | | |



Municipal Roles to Increase Adaptive Capacity Adapt roles to be climate-ready

| Mayor or chief executive | Provides leadership and encourages collaboration among departments. |
|--|--|
| Municipal governing body (city council or committee) | Has knowledge of existing policies, adopts the needed plans, and enacts legislation for needed adaptation and mitigation efforts. |
| Planner/planning board | Facilitates a vision and brings expertise for a stronger community that supports transit, housing, vibrant and livable neighborhoods, and improved quality of life. |
| Planning department | Identifies pre-event land use and mitigation opportunities and post- event recovery opportunities that will improve the city's layout and reduce vulnerabilities through repair and reconstruction projects and future development. |
| Zoning board of adjustment | Enforces municipal ordinances and land use regulations and reviews variance appeals. |

Adaptive Capacity

Municipal Governance

Does the town undertake and sustain climate adaptation actions?

- Code Enforcement
- Land Use Ordinance
- Programs
- Protocols & Procedures
- Studies
- Staffing & Administration
- Funding

| Municipal Action LAND USE ORDINANCE | How the Action Improves Climate Readiness | Community Features Most Impacted by Municipal Capacity for This Action | Respons Yes/No |
|--|---|--|-------------------|
| Do zoning ordinances reflect the latest projected climate hazards sufficiently to reduce impact and are they enforced adequately? | | Facilities/Infrastructure Housing Stock/Businesses Natural Lands Resources Water Source Resources Air Quality People Sustainable Economic Development Working Lands Working Waters Outdoor Recreation | - |
| Do subdivision ordinances reflect the latest projected climate hazards sufficiently to reduce impact and are they enforced adequately? | □Equitable Land Use □Community Engagement ☑Plans/Accountability | Facilities/Infrastructure Housing Stock/Businesses Natural Lands Resources Water Source Resources Air Quality People Sustainable Economic Development Working Lands Working Waters Outdoor Recreation | _ |
| Does the flood damage prevention ordinance comply with state, regional, and federal requirements? | □Equitable Land Use □Community Engagement ☑Plans/Accountability | Facilities/Infrastructure Housing Stock/Businesses Sustainable Economic Development | |

A MODEL CLIMATE HAZARD VULNERABILITY ASSESSMENT FOR NJ MUNICIPALITIES

Guide to Local Climate Change Adaptation Planning







GOLD











Create a Green **Development**

Stormwater Management Control Ordinance

Complete & Green **Streets for All Policy**

Firewise Community / **Community Wildfire Protection Plans**

Green Infrastructure Planning and Green Infrastructure Implementation



System

overnance

(Ē)

Emergency

Planning

Event Plan

Funding for

Company

Adaptation

Implementation

Ready Set GO! Fire

Communication

Extreme Temperature

Comprehensive Climate Change-Related Hazard Vulnerability Assessment +



Interim Guidance

Sustainability and Resiliency: Guidance on Creating Climate-Ready Communities

PREFACE

This guide presents 10 strategies that municipalities can implement to foster climate-resilient communities. These strategies are Sustainable Jersey "actions" that score points in the <u>municipal certification program</u>. These actions make sense to implement now - and will still be relevant in the future as a new, more comprehensive climate resilience framework is being developed by the New Jersey Department of Environmental Protection. This guide goes beyond the traditional reactive mindset in emergency management and encourages municipalities to prepare for the worst of climate change impacts and adapt as seen necessary by the community as a whole.

SUSTAINABLE

Sustainable Jersey has numerous Emergency Management & Resiliency actions to help municipalities prepare for and respond to climate change. They address a variety of climate hazards, including sea level rise, increased precipitation, and extreme heat. These impacts damage infrastructure, overwhelm utility systems, and disrupt vital ecological and agricultural processes, which, as they progress in severity, will only increasingly impact New Jerseyans' everyday lives. Thus, communities are turning to these actions - now more than ever - as climate change progresses in the Garden State and around the world.

Municipalities stand at the forefront of climate change adaptation. New Jersey's Home Rule Act (1917) grants municipal governments authority to enact ordinances and regulations to promote and improve environmental public health. Municipalities are in charge of land use practices, stormwater management, and energy. They also possess the ability to address social inequality and create mechanisms that foster equitable and resilient communities.

CLIMATE CHANGE POLICY ENVIRONMENT IN NEW JERSEY

In 2020, Governor Phil Murphy signed Executive Order No. 100 asking the New Jersey Department of Environmental Protection (NJDEP) to begin a regulatory reform effort to help reduce greenhouse gas and other climate pollutant emissions while making the natural and built environments more resilient to the impacts of climate change.

On February 4, 2021, Governor Murphy signed into law P.L. 2021, c6, amending the <u>Municipal Land Use Law</u>, to require municipalities to incorporate a climate change-related hazard vulnerability assessment into any Master Plan Land Use Element. These assessments will need to analyze current and future threats associated with climate change-related natural hazards, including increased temperatures, drought, flooding, hurricanes and sea-level rise.

Upcoming events



VIRTUAL JUNE 5-6 / IN-PERSON JUNE 7

https://site.pheedloop.com/event/njprc24/register#start

UPCOMING EVENTS AND OPPORTUNITIES

EARNING YOUR DIGITAL SCHOOLS STAR: TIPS FOR SUCCESS WEBINAR

This webinar offers an overview of the Digital Schools program, insights and examples of ways to improve digital school action submissions and earn points to attain Digital Schools Star recognition. The informational webinar will be held on **Wednesday, May 8, 2024, 3:30pm-4:30pm**.

Register: bit.ly/4dhdj91

2024 MUNICIPAL CERTIFICATION CYCLE

The next deadline to apply for certification is **Friday**, **May 10**, **2024**. The final application deadline is **Wednesday**, **July 31**, **2024**. View the full cycle timeline on the 2024 Certification Cycle page.

Learn More: bit.ly/SJ2024CertCycle

NJBPU'S COMMUNITY ENERGY PLANNING GRANTS

The New Jersey Board of Public Utilities is offering a new round of Community Energy Plan Grants for all New Jersey municipalities.

Application Deadline: Friday, May 24, 2024

Learn More: bit.ly/3WcmAt7

TRI-COUNTY SUSTAINABILITY GENERAL MEETINGS

This Sustainable Jersey Regional Hub will host virtual meetings on a variety of sustainability topics throughout the year. The next meeting is **Tuesday, May 28, 2024, 7:00pm-8:00pm.**

Learn More: bit.ly/Tri-CountySustainability

2024 SUSTAINABLE COMMUNITIES GRANT PROGRAM

Atlantic City Electric is contributing \$35,000 to support municipal environmental stewardship and resiliency projects within its service territory. Join us for an informational webinar on **Monday, May 13 from 1:00pm-2:00pm** to learn more about the program and how to use the online application portal.

Application Deadline: Thursday, June 27, 2024

Learn More: bit.ly/SustainableCommunitiesGrantProgram

2024 SCHOOL CERTIFICATION CYCLE

The final deadline to apply for certification and Digital Schools Star Recognition is **Thursday, June 13, 2024**. View the full cycle timeline on the 2024 Certification Cycle page.

Learn More: bit.ly/SJS2024CertCycle

□ HOW TO ADOPT OR UPDATE A COMPLETE AND GREEN STREETS POLICY WEBINAR

Save the date! Join a one-hour walkthrough on how to create your own model municipal Complete and Green Streets Policy, brought to you by the Voorhees Transportation Center at Rutgers University, Sustainable Jersey, the New Jersey Department of Transportation, and the North Jersey Transportation Planning Authority, on **Tuesday, September 17, 2024**, **12:00pm-1:00pm.** Registration information coming soon. Follow-up Open House Q&A for attendees to be held virtually on **Wednesday, October 30, 2024 from 3:00pm-5:00pm.**





Thank You

Session slides will be available on sustainablejersey.com by 5/10.



CEU SIGN OUT



QR CODE INSTRUCTIONS:

1.Open the Camera app on your phone.

2.Hold your phone so that the QR code appears in view.

- 3. Tap the notification to open the link.
- 4. You **MUST** Sign out to receive CEU credits.

WIFI INFORMATION: 2 Open Networks

1.sustainablenj: Ballroom, GS3, Nonprofit Exhibit area2.Bell_Works_Conf_Center: Bell Theatre & Conference

SUSTAINABILITY SUSTAINABILITY

