Town and Village of New Paltz

Climate Change:

Identifying Vulnerabilities and Taking Action




Produced in partnership with ICLEI – Local Governments for Sustainability USA

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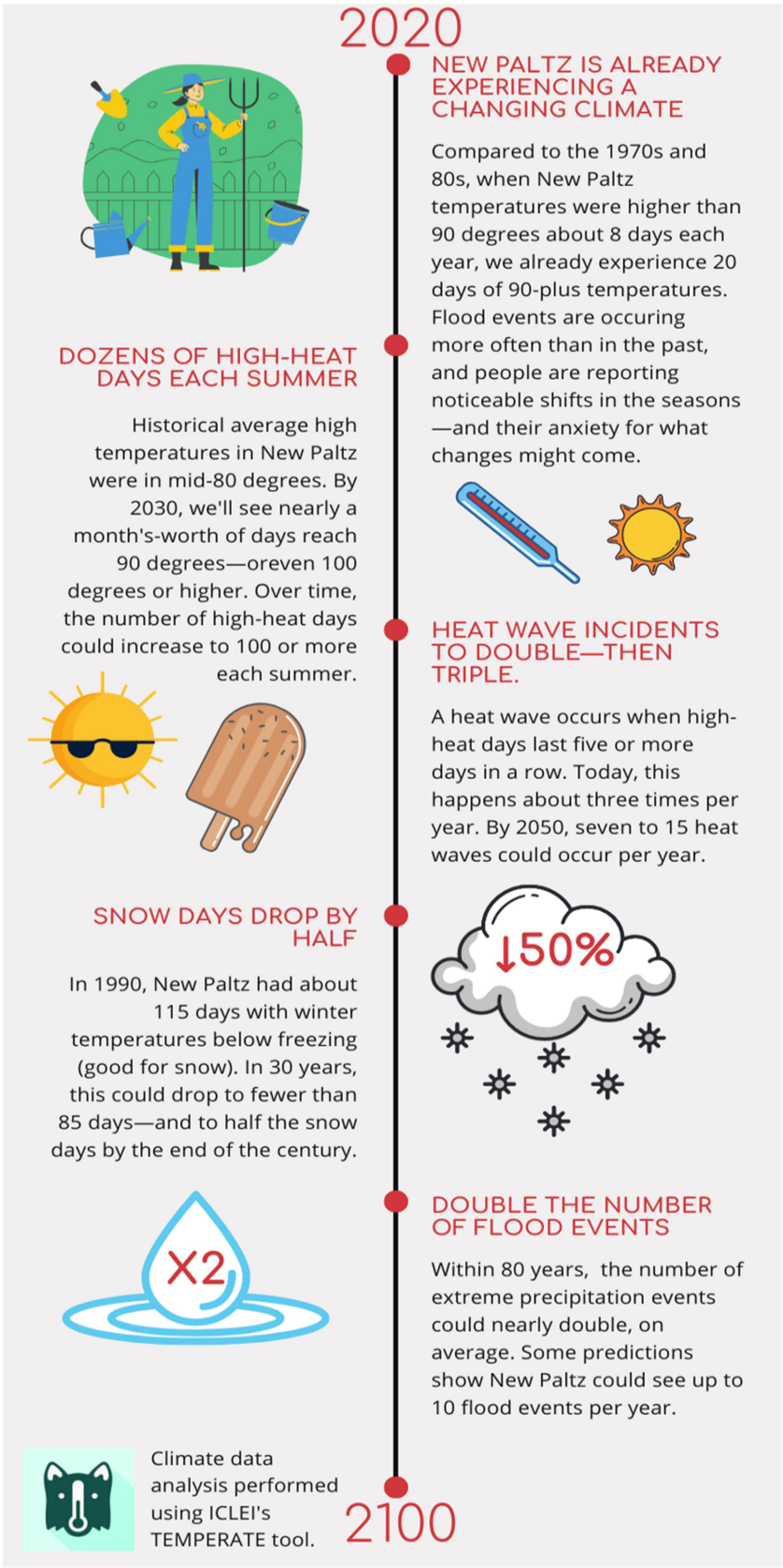
Executive Summary

With natural disasters becoming more frequent and devastating around the county and the world, it is clear that climate change is already beginning to impact people and communities.

In response to the climate emergency, the Town and Village of New Paltz began the process of completing a vulnerability assessment to better understand where, how, and when they need to take action to reduce risk in the community. This report presents the complete vulnerability assessment, which uses climate data and community input to identify the most prevalent climate hazards, susceptible community systems, and opportunities for climate adaptation.

The figure to the right illustrates the projected conditions and hazards under climate change until the year 2100. The following table shows the community systems that will be most vulnerable to these extreme weather events and conditions, along with a ranking of their potential impact and adaptive capacity.



Vulnerability Matrix

Community System	Hazard	Potential Impact	Adaptive Capacity
Agriculture	Extreme Heat	Moderately High	Moderately low
	River Flooding	High	Moderately low
	Changing Seasonal Patterns	High	Moderately low
	Drought	Moderately High	Moderately low
Open Space	Drought	Moderate	Low
Energy	Extreme Heat	High	Low
Transportation	River Flooding	High	Low
Wastewater/ Storm Water	River Flooding	High	Low
Water Supply	Drought	Moderately High	Low
Public Health	Extreme Heat	High	Moderately Low
	Drought	Moderately High	Low
Public Safety	River Flooding	High	Moderately Low

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Acknowledgements

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1 Background and Significance

This chapter discusses the context behind the New Paltz Climate Change Vulnerability Assessment report, including the risks posed by climate change, existing state and local initiatives to address climate change, and the value of completing a vulnerability assessment.

1.1 Introduction

Climate change is not a distant threat but a current reality for communities across the United States. Congress recognized this as early as 1990 when it requested the U.S. Global Change Research Program to deliver a wide-reaching climate impacts report at least every four years. The *Fourth National Climate Assessment* report, published in 2018 amid wildfires sweeping through much of the nation while coastal communities struggled to rebuild hurricane-battered infrastructure, focuses on the human welfare and societal risks of climate change (USGCRP, 2018). The conclusions are stark: Climate change is here and now. If greenhouse-gas emissions remain unchecked—and current trends do point toward the world continuing down a "high-emissions scenario" pathway—economic sectors are likely to incur losses in the hundreds of billions of dollars by the end of the century. In the Northeast region, these losses stem in part from vulnerabilities particular to the region: The Northeast maintains some of the oldest infrastructure, for which flooding from heavy rainfall can compound issues associated with age. For instance, more frequent and longer-lasting heat waves can strain electrical systems which in turn lead to more frequent and longer-lasting power outages (and outages during heat events leave vulnerable people without air conditioning, a significant public health concern).

Briefly, we can rely on four key messages the *National Climate Assessment* offers the Northeast: 1) The region's identity is deeply tied to the seasons and those seasons are shifting, with implications for tourism, recreation, agriculture and local economies. 2) The Northeast is a coastal region and even inland towns are subject to impacts from a warmer, rising and more acidic ocean. 3) The region's urban hubs are cultural and economic engines for the country with some of the most important historical sites. Threats to these hubs are threats to the country as a whole. 4) Health impacts (including mental health) related to heat can lead to hire costs, emergency room visits, and a generally lower quality of life.

The fifth message is one of hope—and where the New Paltz Vulnerability Assessment report aims to pick up and begin to write a new, more positive message for the Town and Village's future. While communities of all sizes are grappling with the economic, social, and environmental reality of a warmer planet, a growing number in the Northeast region have shown particular ability to mobilize their local communities to address the climate crisis. Within this leading group of cities, towns and counties, New Paltz holds the special designation as the first smaller-sized community in New York to tackle a climate vulnerability assessment, and the smallest community in the U.S. to do so using ICLEI-Local Government

for Sustainability's TEMPERATE tool. This pioneering effort positions New Paltz to serve as a model for all communities, regardless of size or level of resources, to address the climate crisis now—and lay the groundwork for a response plan that builds a narrative of resilience for decades to come.

1.2 Climate Emergency in New York

Climate change is already beginning to impact the people and communities of New York State. Where the *National Climate Assessment* presents the scope of change for the Northeast region, New York's ClimAID Report describes what can be expected in New York specifically (NYSERDA, 2014). Increases in summer and winter temperatures are a primary driver of change throughout the state, and temperatures have already risen about 2.4 degrees Fahrenheit over the past 50 years, with winters even warmer. Heat waves are becoming more frequent and longer-lasting, increasing heat-related illness and death and posing new challenges to heat-stressed electricity infrastructure, air quality, and agriculture (by the end of the century, our growing season could be a month longer) (NYSERDA, 2011). Shifts in year-to-year precipitation patterns that reduce snowpack and increase flooding are among the most acutely felt impacts across the state. For instance, since the late 1950s, the amount of precipitation falling in downpours increased by more than 70%, and although more precipitation is falling during winter, the amount falling as snow has decreased. Moreover for coastal communities, sea levels have risen more than a foot over the past 100 years and we could see sea levels rising another two or more feet by 2050, increasing the chances of coastal flooding. Our human community is not the only one climate change impacts: Pollinating bees arrive about 19 days earlier than they did during the 1800s and bird and fish populations have shifted their ranges northward, each migration affecting agriculture, hunting and fishing, and recreation.

To respond to the climate emergency, New York State passed the Climate Leadership and Community Protection Act (The Climate Act) in June 2019. Hailed as the most ambitious state climate legislation in the United States, The Climate Act calls for 100 percent carbon-free electricity by 2040 and a net-zero carbon economy by 2050, with 85 percent of reductions coming from reduced GHG emissions and the remaining 15 percent coming from carbon offsets (from projects primarily occurring within the state). Moreover, strong statewide local climate initiatives—the Climate Smart Communities and Clean Energy Communities Programs, both programs for which New Paltz is pursuing certification—offer the potential capacity to address many climate-related risks at the local level.

1.3 Climate Smart Communities

In 2009, New York State launched the Climate Smart Communities (CSC) program, an interagency initiative to encourage local communities to take action towards reducing greenhouse gas emissions and adapting to climate change. The program provides a robust framework for implementing climate-smart actions and issues Climate Smart Community certifications for those who complete a number of those actions. Specifically, a government can become a "Certified Climate Smart Community" if it adopts a resolution containing the 10-point CSC pledge, and completes a set of actions to implement the pledge. The ten required elements of the CSC pledge are as follows:

1. Build a climate-smart community by forming a CSC task force with community members, and connecting to larger climate action networks
2. Inventory emissions, set goals, and plan for climate action
3. Decrease energy use
4. Shift to clean, renewable energy
5. Use climate-smart materials management
6. Implement climate-smart land use
7. Enhance community resilience to climate change
8. Support a green innovation economy
9. Inform and inspire the public
10. Engage in an evolving process of climate action

The Climate Smart Communities framework details actions to implement each of the 10 "pledge elements" (PEs), as well as for two optional categories: Innovation and Performance. A jurisdiction receives points for each action they complete, and there are three levels of the certification depending on their point total: bronze, silver, and gold.

There are numerous benefits to becoming CSC certified. The certification actions foster energy efficiency and independence, public health, environmental quality, ecological restoration, climate change adaptation, and ultimately the sustainability and resilience of the community. In addition to the advantages of the actions themselves, CSC certified communities receive better scores on certain state grant applications, state-level recognition for their leadership, and access to a network of other certified communities, resources, trainings, tools, and expert guidance (New York State, 2019).

1.4 New Paltz: A Climate Smart Community

New Paltz is the economic and cultural hub for 14,066 people, with an economy rooted in both ecotourism and the SUNY New Paltz campus. New Paltz can be proud of its history of social and community activism for which more than a decade of climate activism is grounded in this culture: The Village of New Paltz formed a Global Warming Task Force in 2004 (since disbanded), and a citizen-based Climate Action Coalition was formed in 2007. Both have often focused on consumer choices such as

public recycling bins, promoting cloth shopping bags, repair cafes, home composting, and light bulb replacement. The Climate Action Coalition (CAC) was formed in the wake of the Step It Up campaign event, which showed conspicuous community interest in fighting climate change. Meetings have been held weekly ever since, as CAC has organized highly visible concurrent campaigns and public outreach events.

Most recently, the Town and Village successfully applied for a grant from the New York State Department of Environmental Conservation to fund the process of becoming a certified Climate Smart Community. To help municipalities meet the State's twin goals of reducing emissions and adapting to unavoidable changes, New York State has created the Climate Smart Communities program under the Department of Environmental Conservation (DEC). In 2016, the Town and Village of New Paltz successfully applied to the Climate Smart Communities grants program and to complete a range of actions:

- Action 6.17: Develop a natural resource inventory,
- Action 7.1: Conduct a vulnerability assessment,
- Action 7.3: Review existing community plans and projects, and
- Action 7.4: Develop climate adaptation strategies.

In addition to these actions, the Town and Village undertake: three Greenhouse Gas Inventories (Town operations, Village operations, and Community), which were completed in 2019, the development of GHG reduction goals, the development of resilience goals, and drafting three Climate Action Plans (again, Town operations, Village operations, and Community). The Town is now focused on completing *PE7: Enhance Community Resilience*, starting with this Climate Change Vulnerability Assessment. The next step will be developing and implementing a Climate Adaptation Strategy. This Vulnerability Assessment will meet the requirements of New Paltz's Climate Smart Communities grant in line with the climate planning process articulated by DEC. This report will serve as a starting point for municipal discussion on how Town and Village Board can work alongside the Climate Action Coalition to begin helping New Paltz adapt to climate change.

1.5 Climate Change Vulnerability Assessment

A climate change vulnerability assessment identifies community assets, systems, and populations that are particularly sensitive to the impacts of climate change. A vulnerability assessment is a necessary step for developing a climate adaptation strategy, as it characterizes the physical and social elements of a community for which adaptation actions are needed. Generally, vulnerability assessments involve the following steps:

1. Identify climatic hazards occurring and likely to occur within the geographic boundary of interest
2. Identify community assets, systems, and populations currently and likely to be exposed to the identified climatic hazards
3. Assess the sensitivity and adaptive capacity of each exposed asset, system, and population to each applicable hazard
4. Use a scoring or prioritization methodology to rank each identified community facet to inform an adaptation strategy.

Several methodologies exist to complete each step. Some methodologies lean more heavily on technical resources and top-town data collection, while others lean more on qualitative input from community members. As there are benefits and drawbacks to every approach, many communities choose a combination of methods that suit their financial, administrative, and political limitations. The methodology chosen by New Paltz is further described in the next chapter.

Box 1.1 Definitions

Sensitivity: The degree to which a community facet is directly or indirectly impacted by climate variability or change.

Adaptive Capacity: The ability of a community facet to adjust to climate variabilities and extremes to reduce the likelihood of damage, recovery from a destructive event, and leverage opportunities presented by climate change, adverse impacts of climate variability and extremes, adverse impacts of climate variability and extremes.

Vulnerability: The extent to which a community facet is susceptible to, or incapable to manage, adverse impacts of climate variability and extremes; a function of both sensitivity and adaptive capacity.

(Intergovernmental Panel on Climate Change (IPCC), 2014)

2 Vulnerability Assessment

2.1 Methodology

This framework behind this vulnerability assessment is consistent with the requirements of the New York State Climate Smart Communities program, as well as ICLEI's GreenClimateCities framework. The process involved multiple tools and types of data, chosen based on feasibility, comprehensiveness, and replicability for future updates. The context and components of the methodology are further described in the following sections.

2.1.1 New York State Climate Adaptation Framework

The process of climate adaptation assessment is summarized by New York State ClimAID program in the eight steps outlined in **Figure 2.1** beginning with identifying current and future climate hazards that a community faces so that it can then move into cataloguing vulnerabilities to climate change so that opportunities to reduce vulnerability can be prioritized. This Vulnerability Assessment completes Steps 1 through 3 for New Paltz — identifying hazards and prioritizing vulnerabilities — while getting the Town and Village started on tackling Step 4 with a set of recommended adaptation strategies.

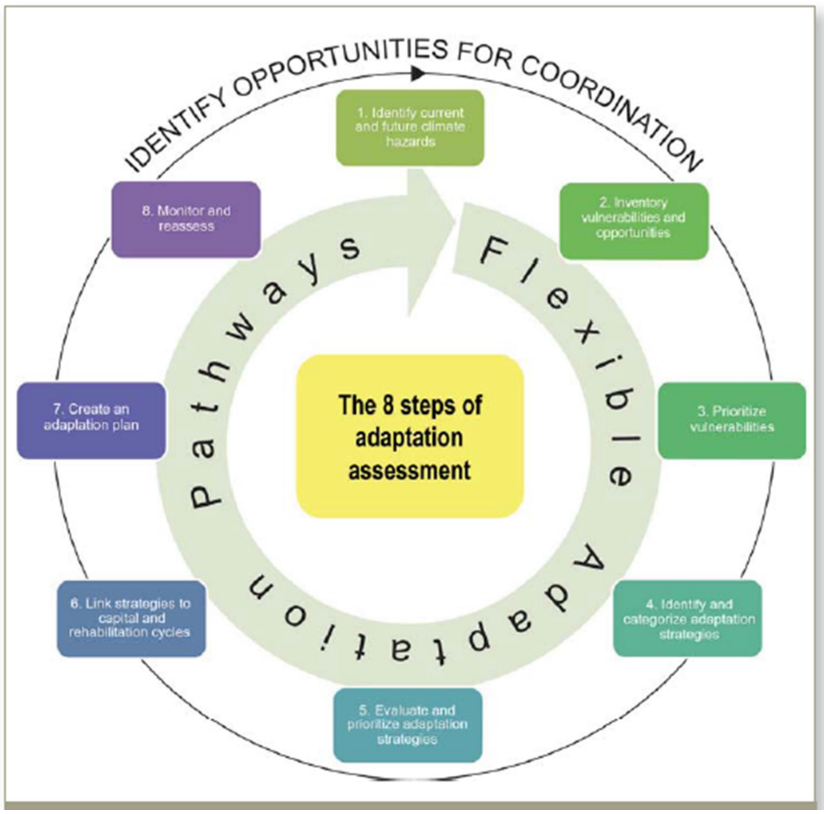


Figure 2.1 New York State's ClimAID program outlines an 8-step framework for communities to achieve climate-adaptive development.

2.1.2 ICLEI GreenClimateCities

For this assessment, the New York State ClimAID framework is informed by ICLEI's GreenClimateCities methodology for integrated climate action. Because GreenClimateCities' steps track closely to the ClimAID framework, the combination is thought to complement each other by integrating New Paltz's previous greenhouse gas emissions-reduction work (tackling mitigation) with the Vulnerability Assessment addressing climate adaptation (see **Figure 2.2**). The additional benefits to incorporating GreenClimateCities are process guidance tailor-made for local governments to "analyze, act, and accelerate" climate action that builds on ClimAID to include measuring, reporting and verification, integrating climate adaptation and climate mitigation activities that New Paltz currently has underway, and including New Paltz in a global network of cities, towns, and regions committed to tackling climate change. Under GreenClimate Cities, New Paltz has already taken the important "Analyze" step to a) Commit and mobilize action (see Section 1.4) and with this Vulnerability Assessment moves the Town and Village into b) Research and assess, and c) Analyze and set baseline, bringing climate adaptation components in line with progress made on mitigation with New Paltz's greenhouse gas inventory. Armed with the data in the inventory coupled with this report, New Paltz is well positioned to move into the "Act" phases.

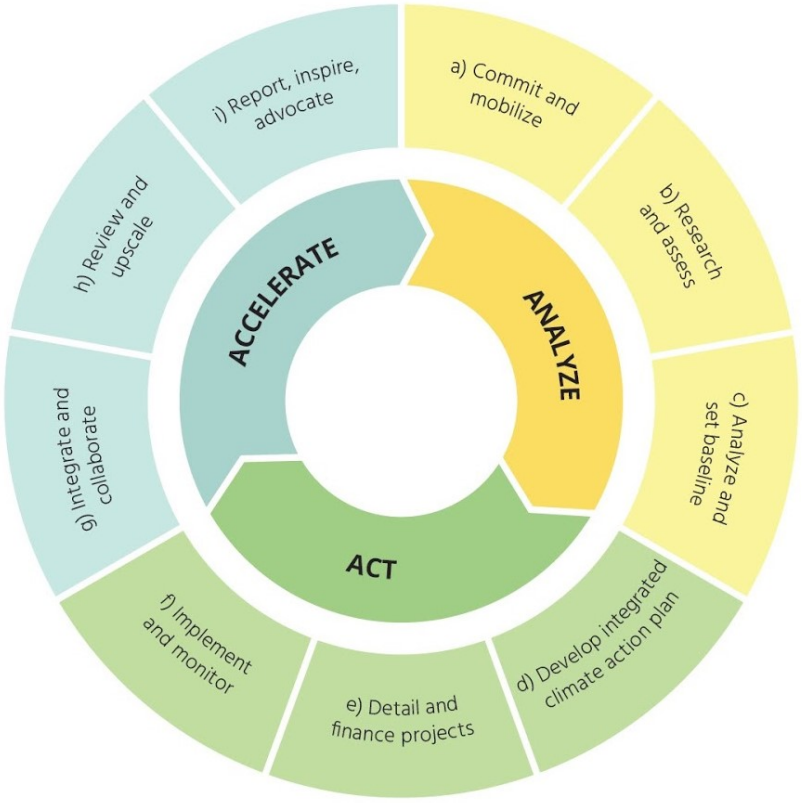


Figure 2.2 ICLEI's GreenClimateCities Framework follows an Analyze-Act-Accelerate pathway for integrated climate action that incorporates GHG emissions reduction, climate adaptation actions, and equitable, inclusive decision-making.

2.1.3 Temperate

TEMPERATE is an online tool created by Azavea, Inc. and ICLEI to assist communities in conducting a climate change vulnerability assessment and developing an adaptation strategy. The tool identified potential climate hazards in New Paltz, based on the geographic regions and findings of the 2014 National Climate Assessment. For projecting how the magnitude and/or frequency of those hazards might change under different emissions scenarios, TEMPERATE uses historical climate data from 1,000 U.S. cities and projects under two popular carbon emission scenarios through the end of the century. To provide the most detail possible, TEMPERATE averages more than 30 climate models provided by a variety of research institutions around the globe.

In addition to identifying hazards, TEMPERATE displays which community systems are likely to be impacted by each hazard. The nexus between climate hazards and community systems is based on the Climate Risk and Adaptation Framework and Taxonomy (CRAFT) developed by the Global Covenant of Mayors for Climate & Energy (GCoM), C40 Cities, and ARUP (GCoM, 2019).

2.1.4 Climate Vulnerability Survey

The purpose of the Climate Change Vulnerability Assessment Survey is to gauge public perception of current and future conditions of community assets and systems within the Town and Village of New Paltz. Beginning on July 31st, 2019, the survey was posted on multiple webpages, distributed via e-mail to stakeholders, and promoted via flyers posted in public locations (details in **Appendix C**).

To better understand the demographics of the respondents, the survey begins with questions about age, household size, and relationship to the Town and/or Village. The next section of the survey asks the respondents to identify climate-related hazards in the community. The final and largest section of the survey asks the respondents to rank existing quality and accessibility of the following community systems, as well as their resilience to shifting conditions under climate change:

- Food
- Water
- Energy
- Transportation and housing
- Jobs and economy
- Civic preparedness and social services

The survey design was based on Bay Localize's Community Resilience Toolkit: A Workshop Guide for Community Resiliency Planning.

2.1.5 Community Workshops

Assessing a community's vulnerability to climate change is not a desk exercise. To maximize community voice in the process, the Town and Village Board Members, New Paltz Climate Smart Communities Task Force, and ICLEI hosted a series of in-person workshops during 2019 to bring the Climate Vulnerability

Survey to life. Each workshop was open to the public, required a quorum of Town and Village Board Members, and were presented in a sequenced format so that the **July 10, 2019, workshop:** 1) Solidified a commitment to climate action from New Paltz elected leadership; 2) Established an intention and project path for New Paltz staff and stakeholders, 3) Reviewed local climate data on temperature and precipitation, and 4) Informed the development of a community survey. The **December 4, 2019, workshop** carried the sequencing forward to: 5) Identify climate hazards in New Paltz, 6) Map community assets; 7) Pair community assets to climate hazards for which they are perceived to be most vulnerable, and 8) Prioritize three community assets—people, places and infrastructure—to develop recommendations for adaptation actions for.

Each of the eight workshop outcomes provided opportunity for Town, Village, and community stakeholder input, revealing a number of insights detailed in Section 2.2. In particular, three activities aimed to garner constructive input from workshop participants: "Where Are Your Values? Mapping Community Assets", "Web of Vulnerability: Asset-Climate Hazard Pairing", and "Plot the Priorities: Choosing Community Systems for Immediate Action."

"Where Are Your Values?" Mapping Community Assets

The top-level priority of the New Paltz Climate Vulnerability Workshops was to gather multi-stakeholder participants to identify priority community systems, rank each system's vulnerability to climate change, and determine a short-list of assets to target for climate adaptation planning. The final prioritization was assembled on the backbone of a community assets mapping exercise. To ensure that all NYS Climate Smart Communities "community systems" were addressed, participants were instructed to consider primary assets— defined as the populations, places, institutions, and service components that give the Town and Village their character, quality, and livability—both system-by-system and spatially. In this way, a community asset can be a neighborhood or favorite gathering place, a wastewater treatment plant, a site that exemplifies the local economy, a historical landmark, or a more intangible element, such as a "viewscape". Participants worked through the Climate Smart Communities shortlist of community systems, addressing each by documenting assets by system on a series of

small adhesive-backed paper strips, placing strips on a large projected map of New Paltz, therein assigning a spatial component to the asset (see **Figure 2.4**).

Box 2.1 Climate Smart Communities "Community Systems"

- Municipal facilities and buildings including critical facilities (e.g., schools, hospitals, fire and police departments)
- Transportation infrastructure
- Waste disposal systems
- Wastewater treatment infrastructure
- Drinking water sources, infrastructure, and treatment processes
- Stormwater infrastructure
- Energy sources, infrastructure, and systems
- Communication systems
- Economic sectors (e.g., manufacturing, recreation and tourism)
- Social sectors (e.g., the elderly, youth, low-income and non-native English speakers)
- Parks and public land
- Public health including the private health care system
- Agriculture
- Food supply
- Natural assets
- Cultural assets
- Emergency response systems

Web of Vulnerability: Asset-Climate Hazard Pairing

After workshop participants identified community assets, by assigning both community-system categorization and spatial placement, the exercise turned toward making a connection between those assets and anticipated climate hazards. Prior to the workshop, New Paltz utilized the ICLEI TEMPERATE tool's hazard-identification feature, yielding an initial list of climate hazards. To the shortlist were added NYS ClimAID climate adaptation insights on anticipated climate impacts for the state and those from the *Fourth National Climate Assessment* report finding for the Northeast region. An array of cut strings were provided to participants, who were asked to consider each climate hazard for its own merits and, based on their personal perception, match that hazard with the community asset which they believed would be most impacted were that hazard to occur. Each workshop participant would then adhere a piece of string to the hazard card, posted alongside the map, and connecting to an individual community asset. Each participant completed one full round of hazard-to-asset pairing followed by a group discussion on why these choices were made. Then, each participant completed a second full round of hazard-to-asset pairing, in essence "ranking" the second-most impacted asset to each hazard. Due to time constraints, only some participants were able to successfully complete a second round (with some completing a third).

Plot the Priorities: Choosing Community Systems for Immediate Action

New York State Climate Smart Communities Program offers a list of community systems to consider (see **Box 2.1**). Whereas the initial mapping exercise addressed all 18 community systems, in order to begin developing a climate resilience action agenda, workshop participants ranked a Top 8 list of systems for further discussion. The ranking mechanism involved considerations, including:

- Local government jurisdictional control.
- Implications for local economy.
- Consideration for social justice.

- Perceived degree of climate relevance.
- Overlay with natural resource inventory.

The results of this ranking are detailed in **Section 2.2.3.** Attendees chose a consensus-based approach to select a final three community systems for immediate action. To facilitate this consensus, an X-Y Diagram plotting exercise called on attendees to plot each of the Top 8 systems according to 1) The Adaptive Capacity of each system (i.e. extent of resilience in the face of change); and 2) The degree of vulnerability of each system, based on the perceived amount of potential exposure to climate hazards and the potential impact of those hazards on that community system (see **Figures 2.4a and b** on the next pages).

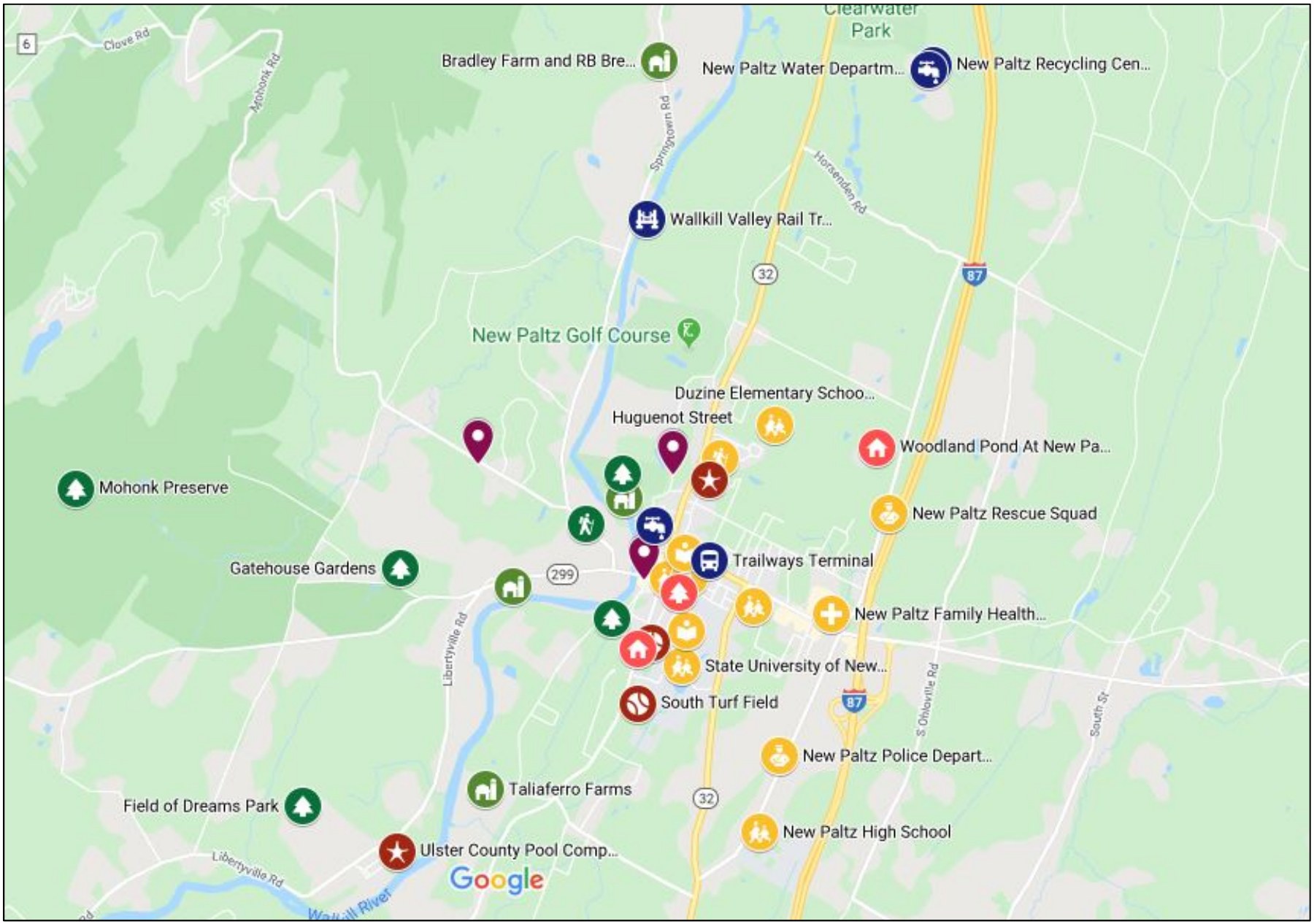


Figure 2.4a Community Asset Map (New Paltz and Surrounding Area)

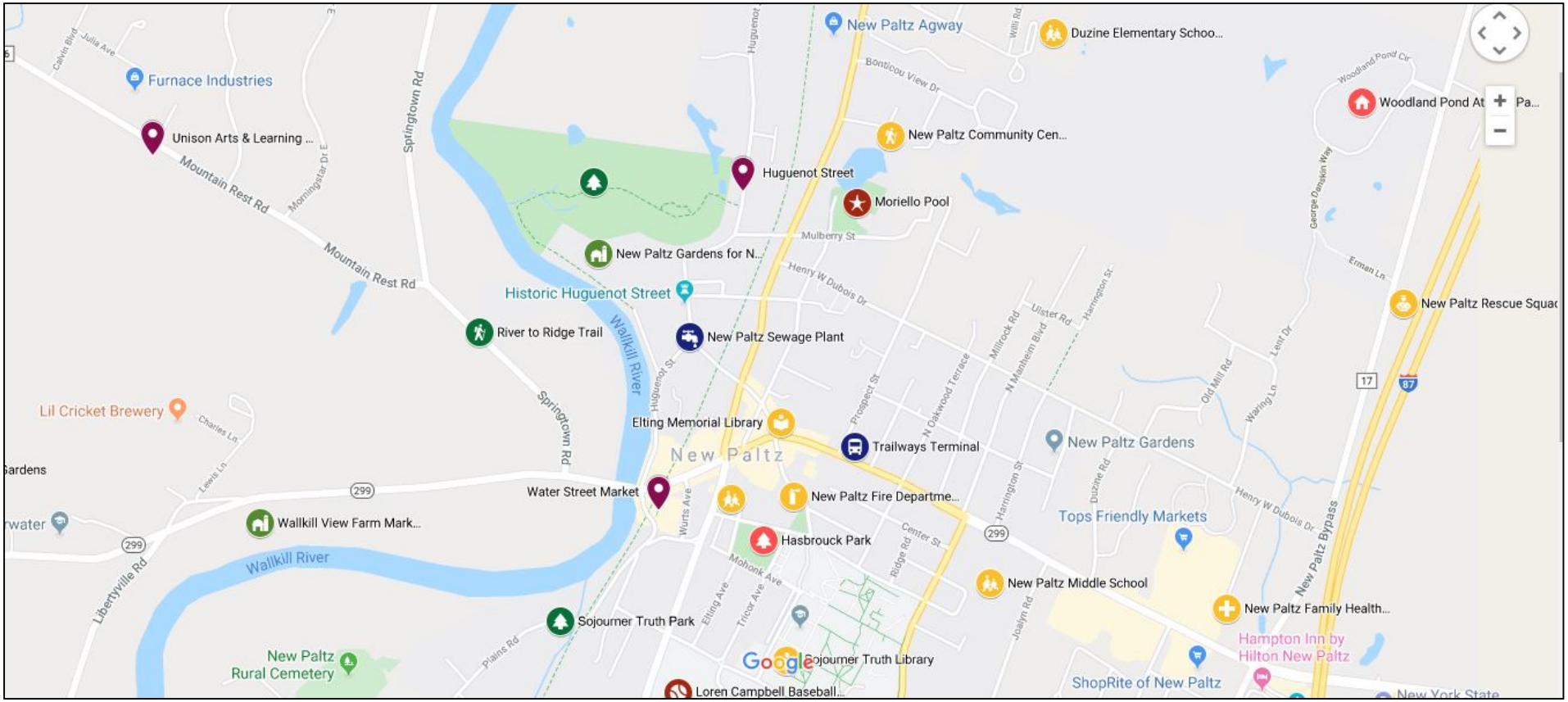


Figure 2.4b Community Asset Map (New Paltz

2.2 Results

2.2.1 Temperate

Climate Hazards

Reliable climate data can help decision makers plan for impacts. For this reason, both New York State ClimAID and the ICLEI GreenClimateCities frameworks begin with gathering and analyzing data for how precipitation, temperature, and other climate-related elements in New Paltz are anticipated to change over time. This Vulnerability Assessment looked at TEMPERATE tool data from 22 climate models and presented the results at a July 2019 Town and Village Board workshop. The results here reveal these top-level takeaways (see **Appendix B** for full results).

Because all the latest evidence points toward the world on track to exceed 3 degrees Celsius of warming (5.4 degrees Fahrenheit), it is important for New Paltz to know what the climate data says for this likely high-emissions scenario. For this reason, the bulk of the climate data relayed here is presented for a warmer, more variable, and more likely New Paltz climate. **Table 2.1** categorizes the most relevant climate indicators for the Town by their amount of change.

Table 2.1 Overview of Climate Indicators in New Paltz
(High emissions scenario projected over 100 years, compared to 1970 averages)

Significant change	Moderate Change	Some change
• Average & maximum high temperature • Average & minimum low temperature • Freezing degree days • Cooling degree days • Extreme heat events • Frost days • Heat wave duration • Heat wave incidents	• Extreme cold events • Extreme precipitation events • Heating degree days	• Daily temperature range • Dry spells • Max consecutive dry days • Total precipitation

New Paltz is projected to experience 7 times the number of days reaching mid-80s temperature. New Paltz in the 1990s rarely experienced temperatures over upper 80s Fahrenheit. Today, the current maximum average temperature for the Town is 97.2 degrees Fahrenheit. This means that during any given summer, we can expect temperatures to reach the mid-90s, with only some years reaching 100 degrees. However, within a decade, the typical hottest days of summer will become warmer, reaching an average high temperature of 99.6 degrees in 2030. Looking out 30 years to 2050, temperatures are likely to routinely breach 100 degrees and, if climate change goes unchecked, New Paltz can expect highs up to 110 degrees by end of the century. Even if the world is successful in achieving global climate goals, limiting average warming to less than 4 degrees Fahrenheit, the climate of New Paltz is projected to feel comparable to the current conditions for Charleston, S.C., by the end of the Century.

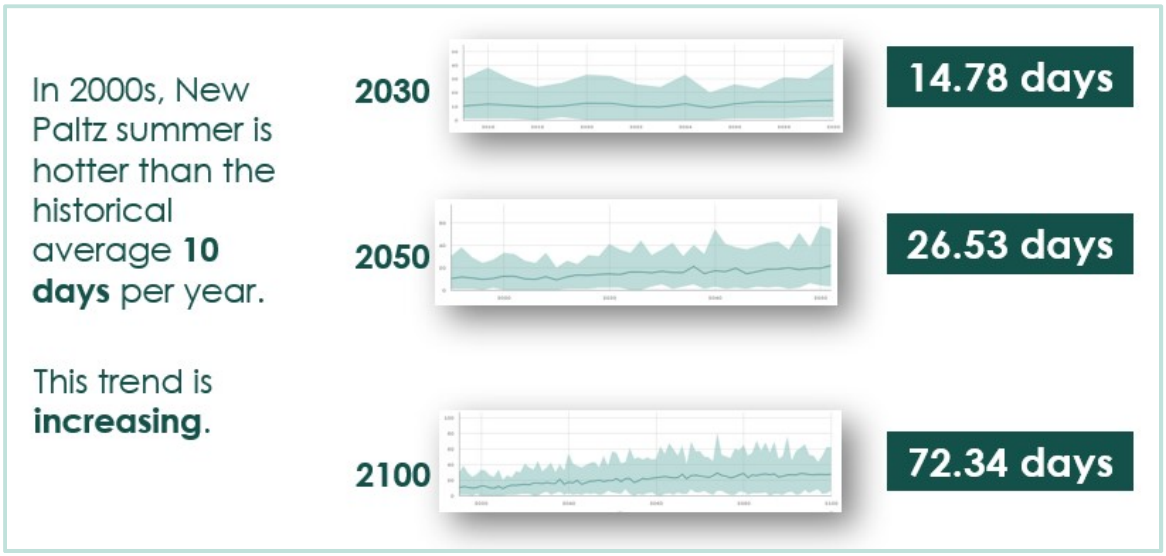


Figure 2.5 Projected Extreme Heat Events (# days per year temperatures exceed historical highs)

New Paltz is expected to experience 7 times more extreme heat days. During the early 2000s, New Paltz summers have been warmer than the historical average about 10 days per year. This trend is increasing. Because historical average high temperatures for New Paltz have been mid-80s Fahrenheit, In a decade, we can expect about two weeks exceeding mid-80s. Looking out to 30 years, the number of hotter-than-historical days is projected to be 26.5 days. By end of the century, we can expect 72.34 days of hotter-than-normal days. In other words, within 80 years, New Paltz will experience 2.5 months of temperatures hotter than mid-80s most every year.

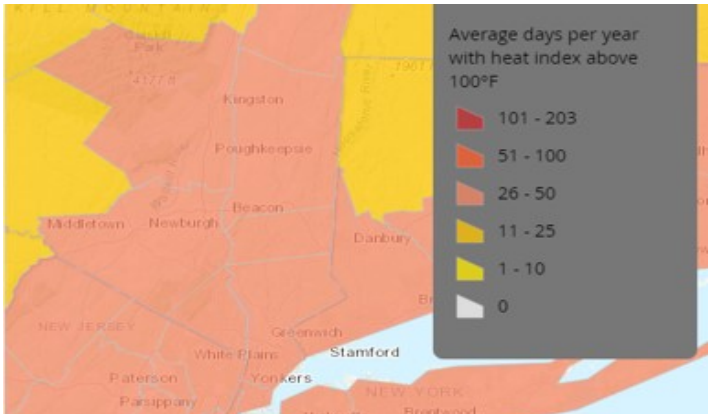


Figure 2.6 Average Days Exceeding Heat Index of 100°F

Within 20 years, New Paltz summer days will routinely begin to reach 100 degrees. Moreover, the majority of these days are likely to exceed 90 degrees and even upwards of 26 days per year exceeding 100 degrees. Often considered a more relevant metric than absolute temperature is heat index, or the perception of heat the average person is thought to experience when temperature is combined with humidity—otherwise thought of as how weather "feels". While TEMPERATE data does not provide heat index values, a June 2019 report by the Union of Concerned Scientists shows that the heat index for Ulster County is likely to top 100 degrees Fahrenheit an average of 27 days per year within 80 years, including 16 days per year with a heat index above 105 degrees Fahrenheit and one "off-the-charts" day each year.

New Paltz is projected to experience 5 times the number of heat waves. A heat wave is considered for this report to occur any time temperatures in New Paltz exceed mid-80s for a five-day period or longer. Recall that mid-80s is considered to the historical high for New Paltz, at least since the 1970s. Today, the Town experiences heat waves an average of three times each year. Going forward, we can expect more and more incidents: five heat waves a decade from now, seven incidents by mid-century, and an average 15 heat waves near every year by the end of the century.

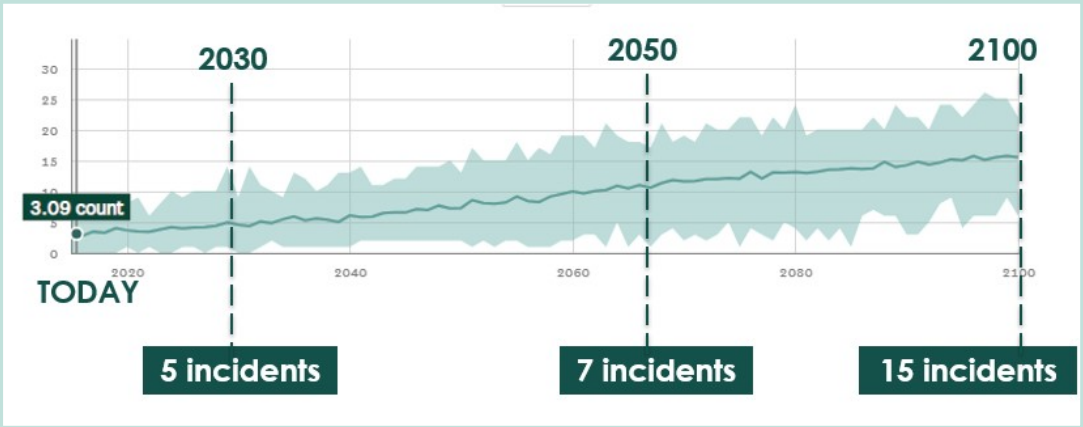


Figure 2.7 Projected Heat Wave Incidents (# of times high temperatures exceed historical average for 5+ days)

Not only will heat waves be more frequent, but they will last longer, too. Recall that we consider a heat wave to occur anytime temperatures are higher than mid-80s Fahrenheit for five days or longer. During the early 2000s, New Paltz's temperature exceeded mid-80s no more than seven consecutive days at a time in a typical year. The future is likely to see more years where heat waves last longer than seven days: Within a decade, a typical heat wave is projected to last around 9.5 days, with this trend increasing to an average 12.7 days within 30 years and 28 days by the end of the Century. In other words, within 80 years, when a heat wave comes to New Paltz, it is likely to last upwards of one month at a time without reprieve.

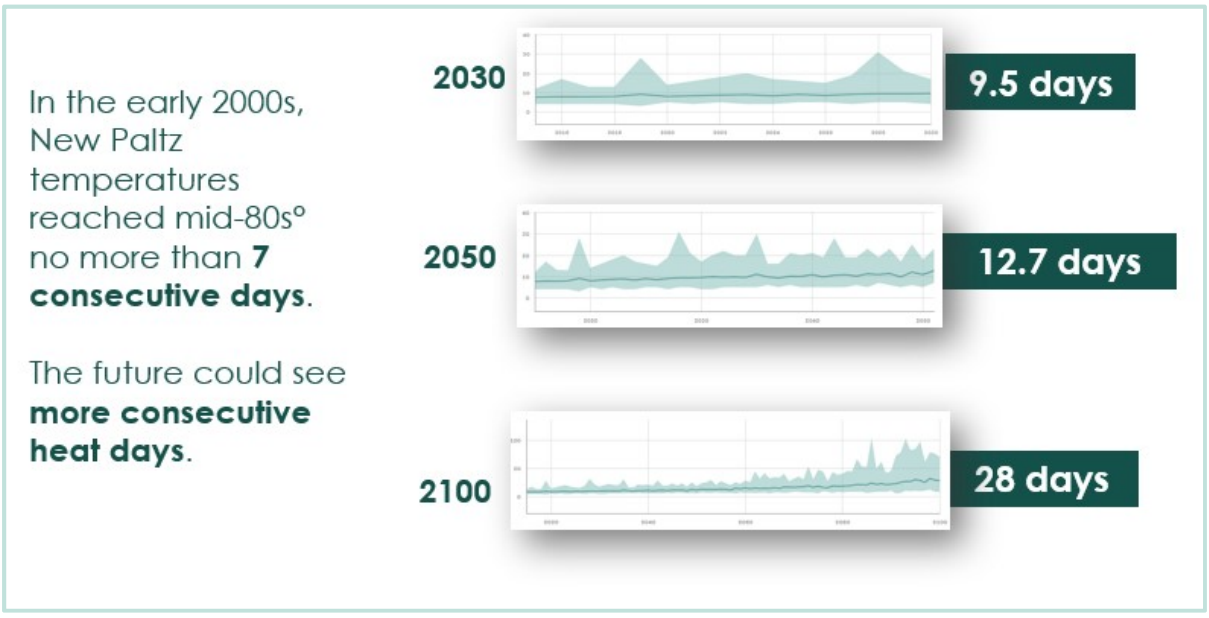


Figure 2.8 Projected Heat Wave Duration (# consecutive days that temperatures exceed mid-80s°)

The number of extreme precipitation events are projected to nearly double by 2100. We have seen that New Paltz is projected to experience hotter (and more frequently hot) days over the course of a year. Heat in the atmosphere leads to altered weather patterns and fluctuations in the amount of moisture that is retained in the atmosphere throughout the year. While the total amount of precipitation in New Paltz is anticipated to change only modestly — from an average of 46 inches of precipitation today to an average 52 inches by 2100 — when and how that precipitation falls is likely to change quite a bit. One way is that the number of extreme precipitation events are projected to nearly double within 80 years. This report considers an "extreme precipitation event" to be any time the average precipitation on a given day is higher than the 99th percentile of historical precipitation, in this case looking back to the 1970s. Today, these extreme events of heavy rain or snow occur about twice per year, and that number is anticipated to reach four or more occurrences per year by the end of the century.

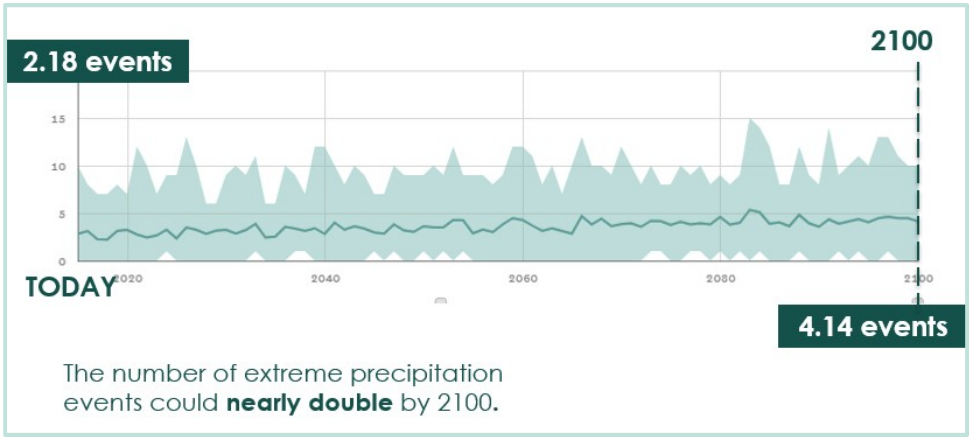


Figure 2.9 Projected Extreme Precipitation Events (# times per year average precipitation exceeds 99 percentile based on historical

New Paltz freezing days are projected to decrease by half. When temperatures warm, precipitation not only changes in quantity but and timing but also in type. In particular, fewer freezing days indicate more precipitation falling as rain than as snow. New Paltz's winters already have been warming for some

time now. While the average low temperature in the 1990s was -2.5 degrees, the average low today is about 0.25 degree. And this warm-winter trend is projected to accelerate quite fast with a 2030 average low of 3.5 degrees moving up to an average 14 degrees within 80 years. Because snowy winters depend on the number of frost days, or days below freezing, we can anticipate fewer snow days: Current frost days occur an average 108 days each year, reducing over time to an average just 58 frost days in 80 years.

Figure 2.10 Projected Frost Days (# of days below freezing)

New Paltz anticipates a precipitation shift from snow to rain. While TEMPERATE outputs are able to project for precipitation changes, it will not speak to type of precipitation and changes throughout the year, such as snow versus rain. For trends in snowpack and snowfall, New Paltz Vulnerability Assessment relies on Chapter 18 of the *National Climate Assessment*, which details impacts to snow for the Northeast region:

As Northeast winters warm, scenarios project a combination of less early winter snowfall and earlier snowmelt, leading to a shorter snow season. The proportion of winter precipitation falling as rain has already increased and will likely continue to do so in response to a northward shift in the snow–rain transition zone projected under both lower and higher scenarios (RCP4.5 and RCP8.5). The shift in precipitation type and fewer days below freezing are expected to result in fewer days with snow on the ground; decreased snow depth, water equivalent, and extent; an earlier snowmelt; and less lake ice. Warming during the winter–spring transition has already led to earlier snowmelt-related runoff in areas of the Northeast with substantial snowpack.

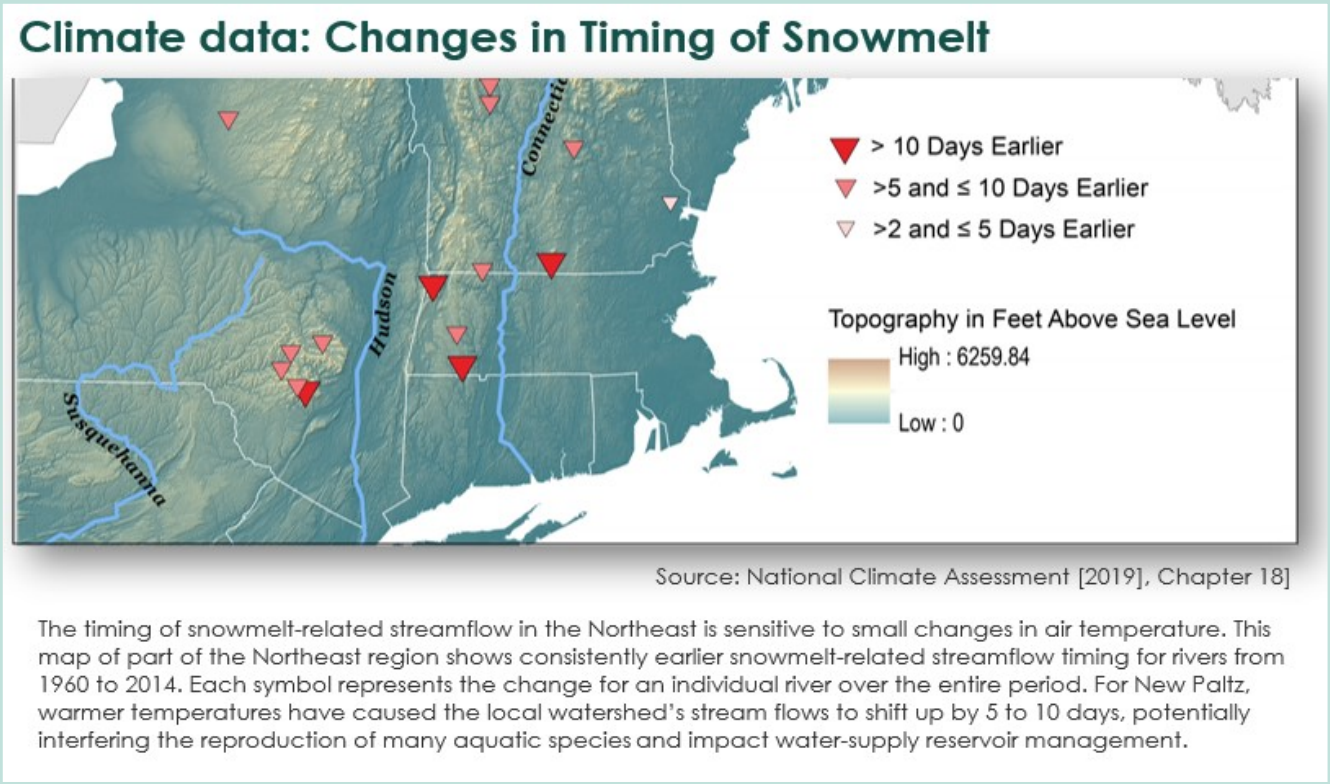


Figure 2.11 Projected Changes in Timing of Snowmelt

2.2.2 Survey

The survey reached 160 respondents at the time it was closed on November 25th, representing over 1 percent of the Town and Village's populations. Although the responses do not represent the whole community, they do provide some insight into where there is, and is not, consensus and understanding about climate vulnerabilities. See *Appendix B* for the full survey and aggregated responses.

Demographics

The survey begins with a few demographic questions to understand the respondents' relationship with New Paltz, household size, and age. The following are key characteristics and some possible implications for the survey:

- About 88% of the respondents live in New Paltz, nearly half of whom also work there, which indicates they are very familiar with the area
- Over 60% of the respondents live in the Town, and 27% in the Village, which appropriately reflects the population distribution between the Town and Village.
- About 90% of the respondents have household sizes above 1, which indicates that most of the respondents have immediate family, or live with housemates who possibly share their perspective and knowledge. It might also indicate that they have less expendable income.
- About 90% of the respondents are over age 35, indicating that the results might not be representative of the perspectives of college-aged and youth populations.

These characteristics are important for survey analysis, because they indicate which populations are represented in the data.

Climate Hazards

When asked what climate change hazards they have experienced or observed within the Town or Village of New Paltz, the following hazards were selected the most:

1. Extreme hot days (80%)
2. Heat waves (77%)
3. River flooding (64%)
4. Different seasonal patterns (60%)
5. Insect infestation (36%)
6. Drought (37%)
7. Groundwater flooding (32%)
8. Flash floods (22%)

In the "other" box, three respondents mentioned algal bloom, the polar vortex causing extreme cold days and an increased presence of ticks. In conclusion, the hazards of most concern are extreme temperatures (mainly heat), river flooding, different seasonal patterns, and insect infestation (especially ticks).

At-Risk Community Systems

The next part of the survey asks the respondents to rate their agreement (on a scale of 1 to 5) with statements regarding the quality, accessibility, and resilience of the following community systems (1) food, (2) water, (3) energy, (4) transportation and housing, (5) jobs and economy, and (6) civic preparedness and social services. It is important to note that every statement had an "I don't know or I need more information" option, which was marked by over 40 respondents for most of them. This number was particularly high for statements about whether a system had the capacity to adjust or respond to extreme climate events. The following sections summarize the perception of each system, as indicated by the majority of respondents.

Food

- Convenient and affordable food access is not guaranteed to everyone in the community, regardless of income or race.
- The majority of food is not grown locally or regionally.
- New Paltz does not have, or has not adequately communicated, a strategy to ensure local agricultural production, even in emergencies.
- Local agriculture will be very impacted by extreme climate events.
- Local agriculture has little capacity to adjust and respond to extreme climate events or other disruptions.

Water

- Residents in the community have access to enough water, regardless of income or race.
- Their (the respondents) tap water is clean and safe.
- The community does not conserve as much water as possible.
- The local water system will be impacted by extreme climate events.

Energy

- Energy access is not guaranteed to everyone, regardless of income or race.
- The energy supply is not entirely stable, consistent, or reliable during/after natural disasters.
- The community does not conserve as much energy as possible, and only uses some local renewable sources.
- The local energy systems will be impacted by extreme climate events.
- The local energy systems do not have the capacity to adjust and respond to extreme climate events or other disruptions

Transportation & Housing

- It is not guaranteed that everyone who wishes to live in New Paltz, regardless of income or race, can find quality affordable housing near jobs and schools.
- Neighborhoods have fair, but not excellent access to jobs, schools, open space, fresh produce, and key services via walking, biking, and public transit.
- Our transportation systems are not powered by local renewable energy sources.
- Transportation and housing will be impacted by extreme climate events.
- Transportation and housing has very little capacity to adjust and respond to extreme climate events or other disruptions.

Jobs & Economy

- A majority of our residents, across all race/ethnicities, do not have access to sufficient income to sustain a household.
- The Town or Village does not actively seek economic development opportunities that support the creation of full-time local jobs.
- The local economy is not based on sustainable use and re-use of our region's resources.
- Extreme climate events would likely interrupt the job that they (the respondents) do in New Paltz.
- Our community does not have effective public strategies to secure local employment opportunities.
- New Paltz's local jobs and economy will be impacted by extreme climate events.
- New Paltz's local jobs and economy has little capacity to adjust and respond to extreme climate events or other disruptions.

Civic Preparedness & Social Services

- Neighbors in our community could be much more organized to help each other in times of need.
- Local government is not adequately prepared for climate change, rising costs, and natural disasters.
- Government services are not funded from sources that are sustainable as energy prices rise.
- Local government does not respond effectively to natural disasters.
- If no climate adaptation occurs, New Paltz's local government services will be impacted by climate change.
- Local government has some will and ability to adjust and respond to extreme climate events or other disruptions over time.

2.2.3 Workshop

Participants in the community workshops were armed with both a map plotted with the community assets they collectively identified and a list of climate hazards provided through a combination of TEMPERATE tool outputs (see "Climate Hazards" above), NYS ClimAID report findings, the *Fourth National Climate Assessment*., and responses to the New Paltz Climate Action Community Survey. Space was given for attendees to identify any potential climate hazards not provided through these venues and revealed one final climate hazard: Climate anxiety (climate impacts to mental and emotional well-being).

Asset Mapping

The exercises in total yielded a number of insights:

Most connections were made from River Flooding and Drought. While more asset-hazard pairing analysis will be completed for the final report, including which assets were perceived to be most at risk from each hazard, the number of connections made from River Flooding and Drought were the highest with five or greater connections made to community assets. This greater number of pairings can indicate workshop attendees' relative knowledge of how assets may respond to River Flooding and Drought, their past experience with these two hazards creating for outsized presence in their perceptions of impact, their ability to complete the exercises for these particular hazards in the timeframe — or most likely, some combination of these factors.

Agriculture and food supply-related assets were paired with the highest number of hazards. Participants continued to express the agricultural qualities that give New Paltz and the surrounding region its character, economic base (from both food and tourism), and cultural significance. It is not surprising then that most of

the hazards were paired to at least one, and often up to four, agriculture or food supply assets. For instance, area farms sited along the Wallkill River, were heavily paired with River Flooding, Flash Flooding, and Seasonal Changes.

Heat-related hazards pose unique social impact challenges. Both Heat Waves and Extreme Heat were the second-most noticed hazard pairing, and these hazards were most often linked to social assets: schools, elder-care facilities, low-income housing neighborhoods, and parks.

Impact & Likelihood Discussion

For purposes of maintaining an actionable final project outcome, three community systems were prioritized for recommended actions. Workshop attendees chose a consensus-based approach to selecting a final three community systems for immediate action. Recall from Section 2.1 that an X-Y Diagram plotting exercise called on attendees to plot each of the Top 8 systems according to (see diagram): The Adaptive Capacity of each system (otherwise thought of how resilient a given system is in the face of change); and The Degree of Vulnerability of each system, based on the perceived amount of exposure to climate hazards a given community system would face plus the severity of impact were that hazard to occur.

This plotting exercise yielded this final result:

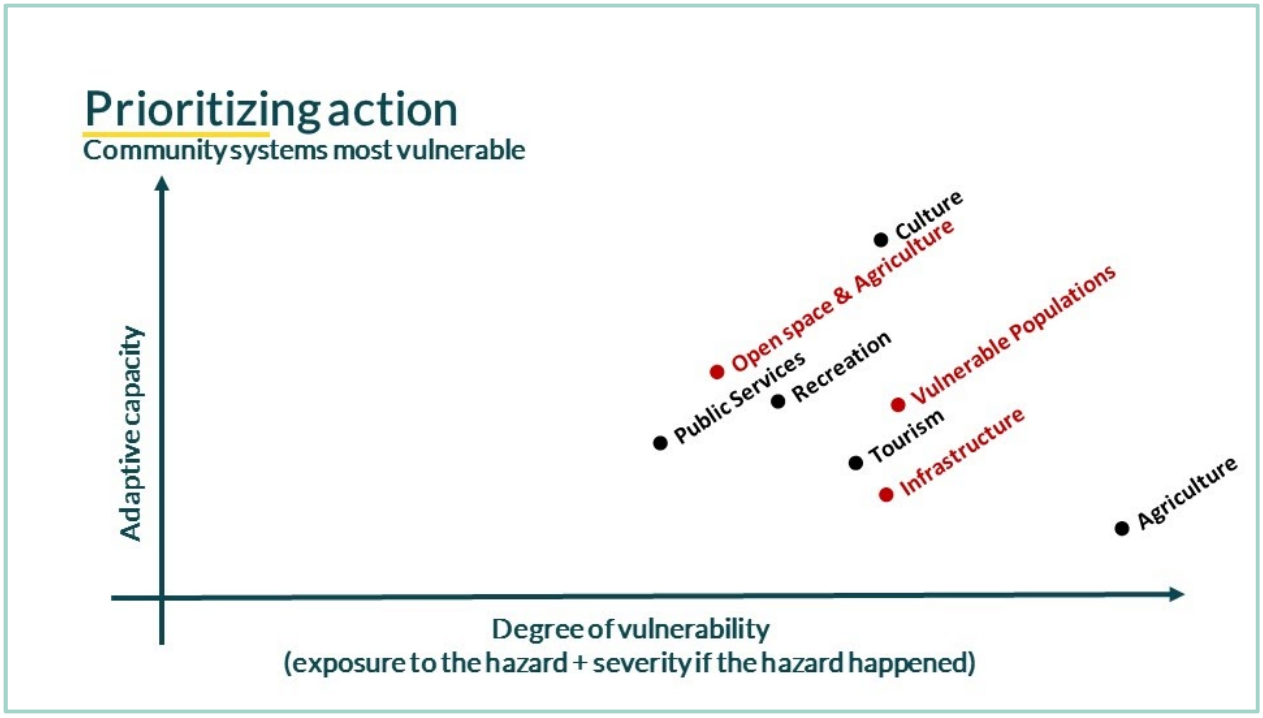


Figure 2.12 Plotting the Priorities: Community Systems for Immediate Action

Those community systems listed in red are those which will be prioritized for action recommendations in the final project report: Infrastructure, Open Space & Agriculture, and Vulnerable Populations.

Infrastructure. Participants reached agreement ahead of the plotting exercise to define the term "infrastructure" as a combined categorization for water delivery, wastewater treatment, energy-supply, and stormwater management systems. Each are critically important to underpinning economic vitality, public health, safety, and general quality of life in New Paltz, and therefore, participants elected to consider the disparate components as a singular, complete infrastructure system. And although the systems, considered separately, show varying degrees of climate exposure and adaptive capacity, each are perceived to be highly vulnerable to climate impacts and relatively non-resilient in their current configuration. This is true whether the infrastructure components are considered in isolation or collectively and so were prioritized for recommended action.

Open space and agriculture. Note that Agriculture appears as a standalone system and as combined with community space. Participants found a agreement that Agriculture was both the most vulnerable of the Top 8 community systems and also that least adaptive to change. However, when the ranking consideration for "government jurisdictional control" was considered, participants felt there was low opportunity for New Paltz to influence agriculture to become more climate-adaptive—with the notable exception of farmer education outreach and some zoning opportunities, both of which participants identified to be included in the final recommendations report. In addition, New Paltz community sentiment tends to value the richness of the surrounding mountains and natural resources, as well as the viewsheds that an agricultural economy affords (both assets well represented in the Asset Mapping exercise, see below). For this reason, Open Space will be prioritized, but to reach consensus, agriculture was combined with open space as overlapping and mutually influential systems that participants wish to prioritize.

Vulnerable populations. Seniors, children, low-income residents, and farm workers with limited English-speaking ability were identified by participants to be the most vulnerable segments of community members. Susceptibility to tick-borne illness, fluctuations in fuel costs, lack of affordable housing, river flooding and heat waves all were identified as justification for including Vulnerable Populations among the three priority action categories. Participants perceived that with concerted planning, vulnerable populations could become much more adaptive to climate hazards than in the current plotted position (such as through education campaigns and constructing a resilience hub), but that given the present state of public services, Vulnerable Populations suffer from relatively low adaptive capacity.

The Top 8. New Paltz is regionally recognized for its artistic and creative culture, historical landmarks, sweeping open views, recreational opportunities, and local food economy. Taken together, participants perceived these assets as central to New Paltz's identity and therefore ranked Culture, Recreation, and Tourism among the remaining priority community systems. Cross-country skiing, hiking such as in and around the Mohonk Preserve, a vibrant restaurant and late-night scene, and area orchards all contribute to this asset base. While Recreation and Tourism both are moderately vulnerable and resilient, participants view the distinct Culture of New Paltz as highly adaptive due to the creative nature of its residents. Additionally, participants recognize Public Services among the top priority, defining this community system in terms of schools, public health institutions, fire, rescue and police services. Overall, participants perceive public services to be both moderately vulnerable and resilient to climate hazards.

3 Implications

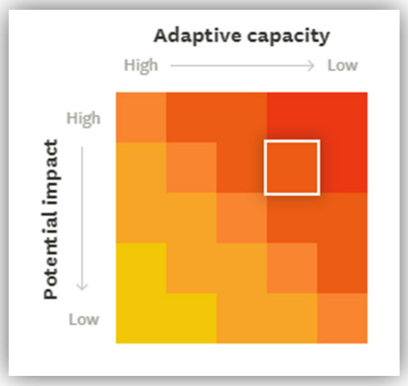
Based on the results from the workshops, survey, and TEMPERATE projections, the climate hazards of most concern for New Paltz are extreme heat, river flooding, changing seasonal patterns, and drought. Summarized in the following sections, community feedback and TEMPERATE methodology also indicate which hazards are of most concern to the top three vulnerable community systems. Each community system has a different level of "adaptive need" for its associated hazards, which is a function of potential impact and adaptive capacity. The heat maps below indicate the level of adaptive need for each community system-hazard combination.

While the results presented in Section 2 looked at all 18 community systems presented under the NYS Climate Smart Communities framework, the implications detailed here hone in on the three community systems prioritized by stakeholders during the Climate Vulnerability Workshops: Agriculture & Open Space, Infrastructure, and Vulnerable Populations (see **Section 2.2.3**).

3.1 Agriculture & Open Space

Ringed by apple orchards, community-supported agriculture (CSA) farms, and farm breweries and distilleries, agriculture is foundational to the identity and local economy of New Paltz. Meanwhile, sweeping views of the Mohonk Preserve and Shawangunk Mountains foster a spirt of environmental stewardship in New Paltz residents, who take pride in their open space. Both assets, agriculture and open space, are also identified as particularly vulnerable to climate impacts and not well positioned to easily adapt to anticipated changes. Agriculture, in particular, is most vulnerable to heat, drought, and seasonal shifts, while demonstrating the least perceived adaptive capacity. The security of the area's open space—understood here as pastoral viewsheds and residents' access to parks and nature—is seen as a function of zoning, community priority, and development policy and, therefore, shows altogether more ability to adapt to climate change (albeit only if development chooses a climate-resilient path). Organic and regenerative agriculture is practiced at a number of area farms, with Bradley Farm and RB Brew, Dressel Farms, Taliaferro Farms, and Wallkill Farm among them, and community stakeholders prioritized preserving these working farms' ability to continue production. The benefits provided by woodlands, street trees, and carefully managed agriculture lands, such as for storing carbon, providing animal habitat and purifying water, positions climate-resilient land use as a top priority for New Paltz. Important sites for these capabilities include the Nyquist-Harcourt Wildlife Sanctuary and nearby Mohonk Preserve. Town and Village of New Paltz, as governments have varying jurisdictional control over these assets but play an important role in convening farmers and guiding development.

Extreme Heat & Agriculture



Potential impact on agriculture: Moderately high

Extreme heat will likely reduce farm productivity, as it can damage crops and limit ability to work outdoors. Crop varieties that struggle under New Paltz's current average high temperatures in the mid-90 degrees may not survive with anticipated 100-degree temperatures within 30 years. See agriculture under "changed seasonal patterns" for more information.

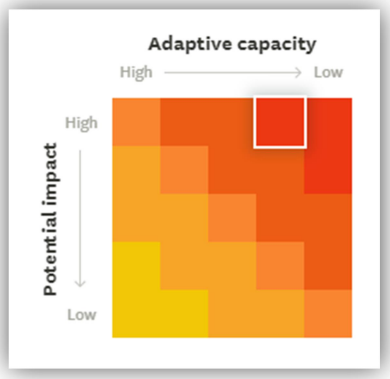
Adaptive capacity: Moderately low

Farms operate in a land-based system, meaning as temperatures rise over the decades, locating to cooler ground is most often impossible. Diversified farms that grow a variety of crops may have more ability to move toward planting drought- and heat-tolerant varieties. Farms that rely on a single staple—such as apple orchards and local farm breweries sourcing from on-farm hops—have fewer options to adapt and maintain their core business. See "changed seasonal patterns" under "agriculture and open space."

River Flooding & Agriculture

Potential impact on agriculture: High

Most farms are in the lowlands and have been devastated by floods in the past. In 2011, Hurricane Irene caused the Walkhill River to swell into a lake. The floodplain around Walkhill River provides excellent farmland, but farms sited along the river have lost their crops to floods many times. News sources show pumpkins floating in the river during a recent storm. Additionally, some community gardens—including one of the oldest community gardens in New York, New Paltz Gardens for Nutrion—are also in the floodplain, putting microscale, urban agriculture at risk of flooding.



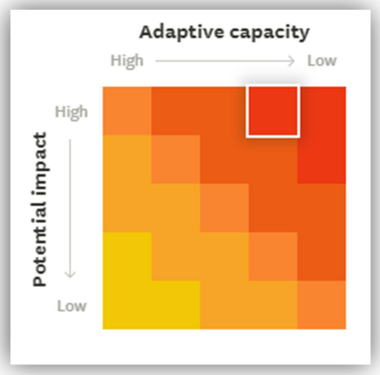
Adaptive capacity: Moderately low

During Hurricane Irene, local farms were flooded and crops destroyed. There was an obvious farmer network in the region that worked together to move through that time, but it is a self-created and self-sustained network that is not supported or known about from the outside. It is unknown whether this farmer network has done much pre-disaster work to prevent these losses from occurring again. But the network certainly has the potential to foster climate resilience, especially were the Town and Village to play an active convening role.

Changed Seasonal Patterns & Agriculture

Potential impact on agriculture: High

Agriculture has been and will continue to be adversely affected by changed seasonal patterns in the greater region. A healthy crop is highly dependent on precipitation and frost occurring at a predictable time and level. Heavy precipitation and frost at the wrong time can devastate a crop. Drought and extreme heat also can be detrimental to crops, particularly when considering a doubling of extreme precipitation (flood) events for New Paltz by the end of the century and upwards of a full month of 100-degree days during this time. Today's farms have been planned during relatively consistent rain patterns and milder temperatures.



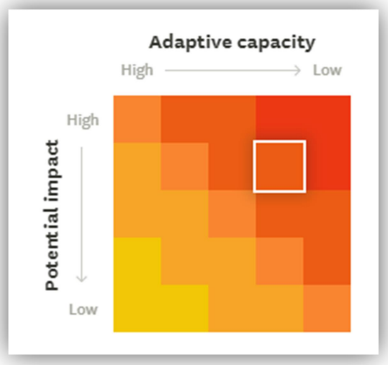
Adaptive capacity: Moderately low

Farmer networks exist in the area and can certainly play a positive role in recovering from an unsuccessful crop year, but it is unknown to what extent these networks are being proactive in forming or implementing a strategy to prevent future losses from uncertainty and extremes.

Drought & Agriculture

Potential impact on agriculture: Moderately high

Drought could devastate agriculture in the greater region. The instances fo five or more days or dry spell are anticipated to grow by 50% in New Paltz by the end of Century. The prolonged absence of precipitation would increase regional dependence on groundwater and possibly lead to state-mandated water consumption limits for agriculture as well as residents and businesses. At the same time, drought will strain farmers economically by increasing the budgets required for enhanced irrigatation infrastructure.

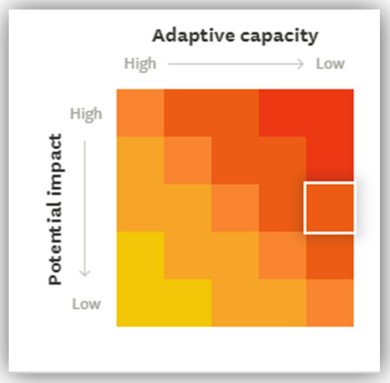


Adaptive capacity: Moderately low

Some crops, such as alfalfa grown for livestock and pasture grasses, apple and fruit trees, some field crops, and wine grapes, do not manage well under water stress. In some instances, drought-resistant varieties exist but are not well tested in the region for all cases. Farmer networks exist in the area and can certainly play a positive role in recovering from an unsuccessful crop year, but it is unknown to what extent these networks are being proactive in forming or implementing a strategy to prevent future losses from uncertainty and extremes.

Drought & Open Space

Potential impact on open space: Moderate



The region's parks and rivers provide recreational opportunities that are very important to New Paltz residents and visitors. Prolonged drought can affect the health and thus the recreational and aesthetic value of these natural areas. For instance, street and highway trees are an important community asset but species that do not do well under dryer conditions may predominate. Wetlands are imporant for phytoremediation, such as for road salt and auto pollutants, yet these ecosystems are threatened by the increased instances of drought New Paltz is projected to experience over the next 80 years. Wildfires have occurred in the Mohonk Preserve several times over the past century. Drought conditioins can cause more frequent burns, affecting public health as well as the quality of viewsheds.

Adaptive capacity: Low

The Town and Village of New Paltz have limited control over how drought will impact the aesthetic or recreational value of natural areas.

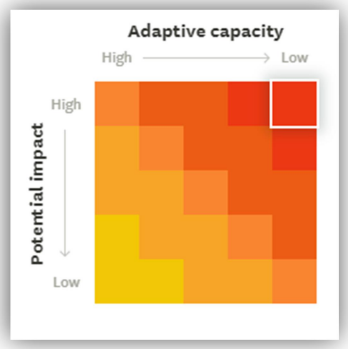
3.2 Infrastructure

We often take for granted the many public services on which our daily lives rely, espeically when they are well functioning: Clean drinking water flows to our taps, we hum along on bikes lanes and streets (cleared of debris and stormwater), ectricity lines light up our homes and garbage trucks whisk trash away. Expected increases in the severity of heavy precipitation events impacts our access to roads, the viability of bridges, and the safety of pipelines. Moreover, the Northeast region boasts some of the country's oldest infrastructure, and climate change will compound age-related complications. On the other hands, power plants often relay on surface water for cooling that can be diminished due to drought. When disaster disrupts services, we can really appreciate the Village, Town, and state government support systems—and those contributed by private entities—that underpin our social and economic wellbeing. Yet, when it comes to climate change, long-used legacy systems can be among th emost recalcitrant to resilince-building. For this Vulnerability Assessment, we align infrastructure consideration with the subcategories included in TEMPERATE methodology: wastewater/stormwater management, water supply, transportation, and energy. Workshops identified New Paltz Recycling Center, Sewage Plant, Water Department, the Carmine-Liberta Bridge, and the Trailways Terminal Bus Station as particularly important infrastructure. By no means the complete list, each of these specific components is representative of the larger systems that keep the goods, services, and people in New Paltz moving. The following sections describe which hazards are of most concern to these different subcategories of infrastructure.

Extreme Heat & Energy Infrastructure:

Potential impact on energy infrastructure: High

Extreme hot days and heat waves will increase the demand for energy for A/C, which could cause power outages. The cascading effect would be on public health, as A/C is a necessity for many people during extreme heat days. Meanwhile, increased temperatures reduce the capacity of power lines and transformers, meaning the grid will be straining to deliver at the same time that demand is highest. This combination is a recipe for blackouts, with higher rates of heat-related mortality and other health impacts.



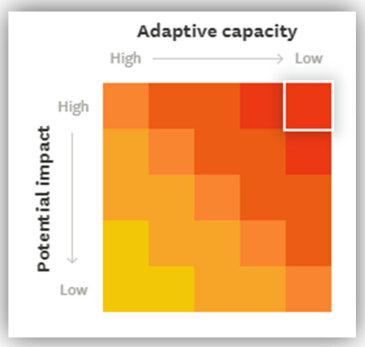
Adaptive capacity: Low

New Paltz does not appear to have any programs targeted at reducing the risk of a power outage, such as programs that would increase grid capacity, energy efficiency, or energy conservation. Some efforts have been made to deploy distributed solar resources, which can be more heat-tolerant, but much more should be done to build additional solar capacity.

River Flooding & Transportation

Potential impact on transportation: High

There are multiple road segments overlapping with the floodplain near Wallkill River, which have flooded during large storm events in the past. Flooded roads keep vehicles, including emergency response vehicles, from ingress or egress.



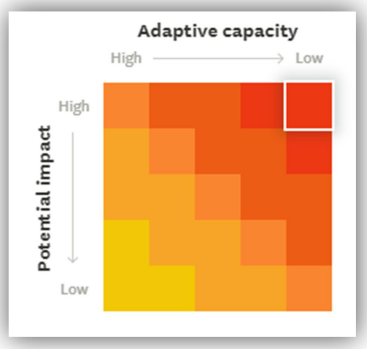
Adaptive capacity: Low

Transportation infrastructure in New Paltz has largely not been designed for extreme river flooding events, which will become more and more frequent. The community has done limited pre-planning when it comes to emergency routes. Workshop attendees reported that, already during high-precipitation events, emergency response vehicles are moved to higher ground west of the Wallkill river, because they will otherwise be flooded in. This is an adaptive response but one that can benefit from careful coordination.

River Flooding & Wastewater/Stormwater Management

Potential impact on this wastewater/stormwater management: High

The New Paltz sewage plant is within the floodplain due to its proximity to the Wallkill River. The plant could be flooded during an extreme storm event, which will not only disrupt operations but could also create a public health emergency by polluting the river.



Additionally, river flooding could back up the stormwater drainage system, which could exacerbate flooding elsewhere in the community and not just along the river.

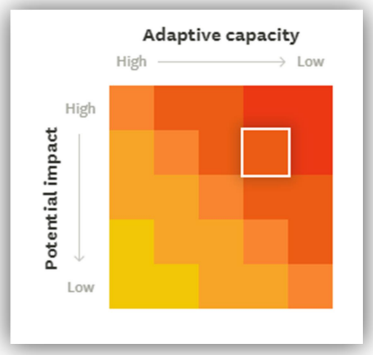
Adaptive capacity: Low

The sewage plant does not currently have the capacity to deal with extreme rainfall, and is sited at a high-risk area next to the river. There are no known plans to build the capacity and/or relocate the plant.

Drought & Water Supply

Potential impact on water supply: Moderately high

A long period of drought would increase overall dependence on groundwater, which is limited and extremely slow to recharge. Thus, groundwater would become increasingly scarce as droughts become more frequent. Furthermore, many households in the Town and Village of New Paltz rely on private wells. A prolonged drought could dry up wells and increase reliance on external sources.



Adaptive capacity: Low

The Town and Village of New Paltz do not have any specific plans or programs to address drought's impact on water supply.

3.3 Vulnerable Populations

New Paltz's reputation as an energetic, industrious college town often beclouds the fact that vulnerable people make the Town and Village their home, and may work to keep the needs of vulnerable populations from being acknowledged. When we think about climate change, people are considered vulnerable when they are more susceptible to heat-related health impacts, or if they have less financial mobility that allows for air-conditioned spaces or the ability to build flood resilience into their homes (if they are able to achieve home ownership at al), or if language or cultural barriers prevent someone's access to educational resources that would boost his or her ability to adapt to change. We can see that vulnerability can take many forms, but generally, the elderly, the young, people with lower incomes, and

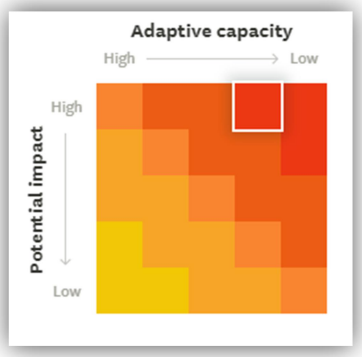
people whose primary language is not English fare worse in the face of climate change. Places in New Paltz where vulnerable populations reside should be prioritized for consideration and include senior housing, such as Woodland Pond At New Paltz. We should consider the ability of families living in affordable housing units at Meadowbrook Housing Apartments and New Paltz Family Housing to adjust to warmer summers and increased flood events. We also should not overlook the imporant services provided by institutions, such as the Elting Memorial Library, New Paltz Gardens for Nutrition and VFW Brannen – van den Berg Post 8645, for fostering resilience.

Among the four top hazards, extreme heat, river flooding, and drought will threaten public health and safety the most. These impacts will be felt across the Town and Village of New Paltz, but the populations described here will be more affected than others.

Extreme Heat & Health

Potential impact on vulnerable populations: High

Extreme heat will have a severe effect on the community, particularly populations who are more susceptible to heat-related illnesses and/or do not have access to A/C. The greatest burden will be on seniors, children, people with respiratory illnesses, outdoor workers, people who rely on public transit or walking (walking and waiting outdoors, sitting in poorly conditioned buses, etc), renters in properties with no A/C system, unhoused people, and households who have little to no financial capacity to afford to use or even install an A/C system. Heat impacts extend to all populations' ability to recreate outside. For example, health suffers when people remain indoors rather than exercising to avoid the heat or out of fear of tick-borne diseases, or when people use the Wallkill River less for fishing, boating, or walking pets because of a heat-induced algal bloom.



Adaptive capacity: Moderately low

There are several cooling centers in Ulster County, only one of which is in New Paltz. While this definitely an adaptive factor, not everyone will be able to access these places if they do not have reliable transportation. Furthermore, these facilities can only hold so many people at once. More proactive solutions to mitigate indoor and the urban heat island effect, as well as to enact/enforce labor laws that would allow outdoor workers to stay home on extreme heat days.

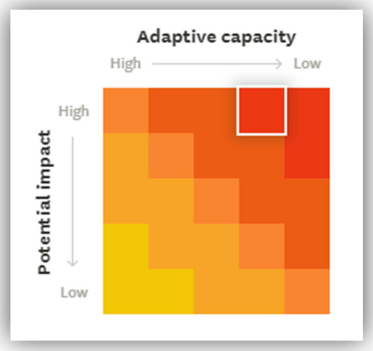
New Paltz is a heavily forested community and trees provide shade that mitigates indoor and outdoor heat. As trees are an important part of this community, it is likely politically feasible to plant more in areas that are less forested.

River Flooding & Safety

Potential impact on public health: High

Low-income and senior residents have been and will be disproportionately impacted by river flooding. Many low-income households are concentrated within the floodplain, because those properties are cheaper to buy or rent. Furthermore, the Mountain View Nursing and Rehab Center has been cut off from emergency services when a bridge that provided the only ingress and egress was washed away.

Adaptive capacity: Moderately low

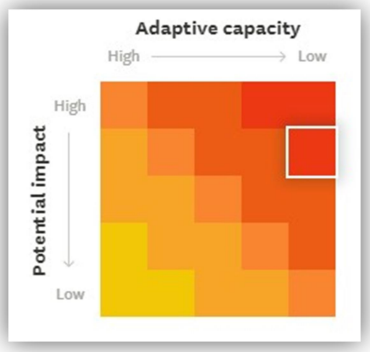


FEMA updated flood maps in the region, which led to the Town and Village updating its land use code to prevent development in high-risk areas. Although this will certainly prevent housing from being built in the high flood hazard areas, this does not address existing housing. Furthermore, the FEMA maps do not take evolving risk into consideration; the flood maps might be underestimating geographical extent and flood depths.

A variety of flood mitigation solutions have been considered by previous leaders and recommended by the EPA, but it is unknown if any have been implemented and particularly to protect the most vulnerable populations in the floodplain. In a future where flood-program buyouts are made for homes with repeat exposure to floods, it likely low-income populations with a high percentage of renters will not benefit and instead face displacement.

Drought & Health

Potential impact on public health: Moderately high



Sixty-four percent of survey respondents reported their drinking water coming from a well. Prolonged and recurring drought could cause many wells to dry up and create the need to purchase water from an external source, which would disproportionately burden low-income families. Some climate models predict upwards of 15 dry spell periods per year in New Paltz within 80 years. In these severe scenarios, drought will also impact food prices for local options and could negatively affect the New Paltz Gardens For Nutrition's growing capability. In extreme drought events that produce wildfire conditions, there is heightened risk of nearby fires that can lead to respiratory ailments.

Adaptive capacity: Low

The Town and Village of New Paltz do not have any specific plans or programs to address drought's disproportionate impact on low-income families.

4 Recommendations

The following sections describe potential strategies for the Town and Village of New Paltz to address vulnerability of each of the top three community systems. Many of these strategies have been adopted by other communities on the east coast, including Albany, NY; Keene, NH; Baltimore, MD; and Dorchester County, MD.

4.1 Agriculture & Open Space

Encourage sustainable, small scale, and organic food production on public, residential, and commercial property.

- Create incentives for backyard, rooftop, and community gardens.
- Update the municipal code to be more conducive to residential food production
- Adopt a preservation ordinance for productive agricultural lands, including vacant urban land.
- Develop a residential growers guide that will identify appropriate crops under projected seasonal changes.
- Include climate considerations for street trees—noting current species type and need—in a current or future update to New Paltz tree inventory or natural resources inventory.

Build the capacity of regional farmer networks to implement proactive measures that address the impacts of extreme weather events and changing seasonal patterns on agricultural productivity

- Initiate a regional partnership to create and distribute educational resources to local farmers on resilient agriculture practices, particularly heat- and drought-tolerant crops and the importance of diversification. For example, tepary beans are adapted to desert-like conditions while beans in the cowpea family excel under higher temperatures. Deep-rooted squash, tomatoes and melons withstand drought. Farmers may find income security with diversified systems.
- Assess the current status of farmer networks, formal and informal. Farmer networks exist in the area, but it is unknown to what extent these networks are being proactive in forming or implementing a strategy to prevent future losses from uncertainty and extremes.
- Assess the soil carbon sequestration and urban tree sequestration potential to show the full value of working, well managed farmland for climate action. This activity is useful to make the case for preserving farm lands and enhancing regenerative practices, while also positioning the community and its farmers to be ready for a carbon-payment schemes. This activity may best be pursued in collaboration with Ulster County and SUNY New Paltz.

4.2 Infrastructure

Develop a climate adaptation plan for critical infrastructure.

- Prepare backup water-delivery systems for homes served by drought-depleted wells.
- Ensure that power line transformer capacity is rated to withstand temperatures up to 110 degrees Fahrenheit.
- Create redundancy in emergency service vehicles and their routes, to ensure that all areas of the community can be reached during double the numbere of flood events. Move garages and facilities to flood-proofed zones.
- Ensure that pumping stations and underground pipelines can withstand flood events occuring at double today's number.

Incorporate climate risk and resilience into capital improvement process

- Incorporate climate risk into criteria for prioritizing infrastructure needs
- Purchase new asset management software that incorporates risk and vulnerability into assessment of value, useful life, and depreciation

Support local, distributed energy resources, such as rooftop solar plus battery storage, to provide resilient backup power.

- Pursue DOE SolSmart designation or otherwise lower permitting, zoning, and educational barriers to solar uptake in New Paltz.
- Continue NYSERDA Clean Energy Communities commitments to increase the proporotion of resilient solar electricity used by New Paltz government facilities.
- Partner with Community Solar partners and advocate for Community Choice Aggregation to be made available to Ulster County.

4.3 Vulnerable Populations

Address climate change-induced stress and anxiety as an important aspect of mental health in the community.

- Utilze the Institute for Disaster Mental Health at SUNY New Paltz as a key community resource. Do so by including disaster mental health and long-term trauma treatment in emergency planning. The Institute recommends to avoid referring peopl to a hotline and instead expand access to the large number of mental health providers in Ulster County.
- Prepare for increased instances of aggression as temperatures rise.
- Prepare for community conflict as resources, such as food, water, and access to quality housing (such as those with air conditioning) become scarcer.

Undertake a public climate education campaign.

- Develop strong, consistent communications around climate-related risks.
- Differentiate among the services provided to address various climate-related risks and provide information for how residents can connect to these services
- Support a "Climate Ambassadors" program to train youth or other interested members of vulnerable groups to serve as neighborhood trainers. Door-to-door programs and regular community meetups that provide food and childcare have been successful in other communities.

Develop a climate refugee strategy.

- With its rich agricultural history and clean drinking water, will New Paltz be a haven for migrants coming from less fortunate states and countries? Duluth, Minn., and Buffalo, N.Y., are among those considering this future role. Meanwhile, New York communties from Albany to Ithaca and Westchester County have set a welcoming precedent through self-designated "sancturary city" status.

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6 Appendices

Appendix A. Raw TEMPERATE Data

Appendix B. Survey Results

Detailed Summary

Raw Results

Appendix C: Workshop Summary

Workshop #1

Workshop #2

Appendix D: Outreach Materials

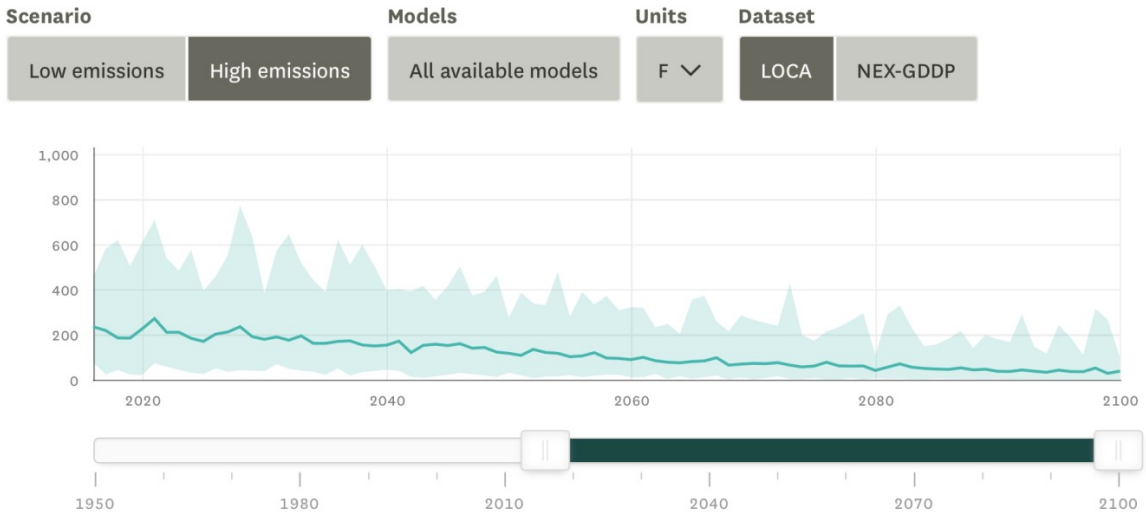
Village of New Paltz Website

Town of New Paltz Website

Appendix A. Raw TEMPERATE Data

The following graphs represent the projections of different climate indicators from 2019 to 2100, under (1) high and (2) low emissions scenarios.

Accumulated Freezing Degree Days

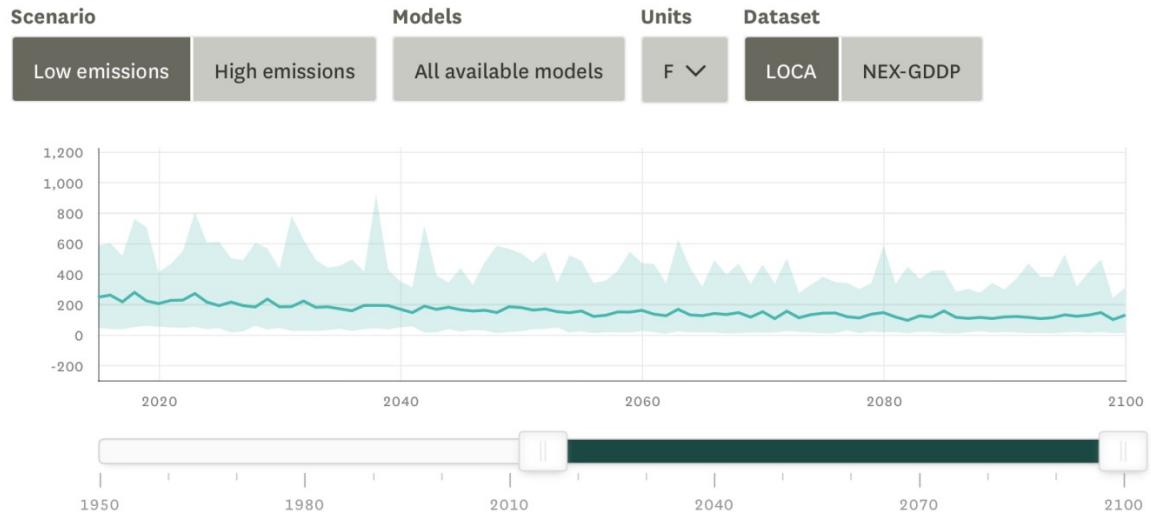


F Range between min/max of selected models

Maximum cumulative total of differences in average daily temperature and freezing for consecutive days across the aggregation period.

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Accumulated Freezing Degree Days



F Range between min/max of selected models

Maximum cumulative total of differences in average daily temperature and freezing for consecutive days across the aggregation period.

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

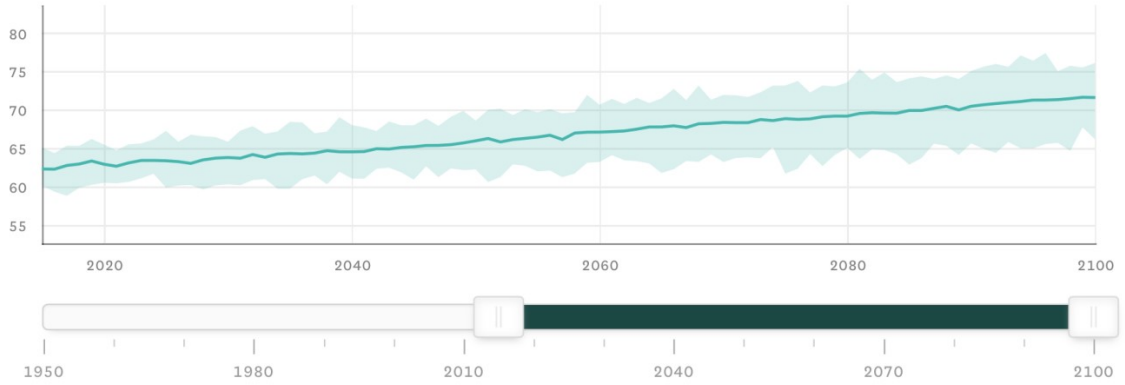
Average High Temperature

Scenario Low emissions | High emissions

Models All available models

Units F

Dataset LOCA | NEX-GDDP



F Range between min/max of selected models

Aggregated average high temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

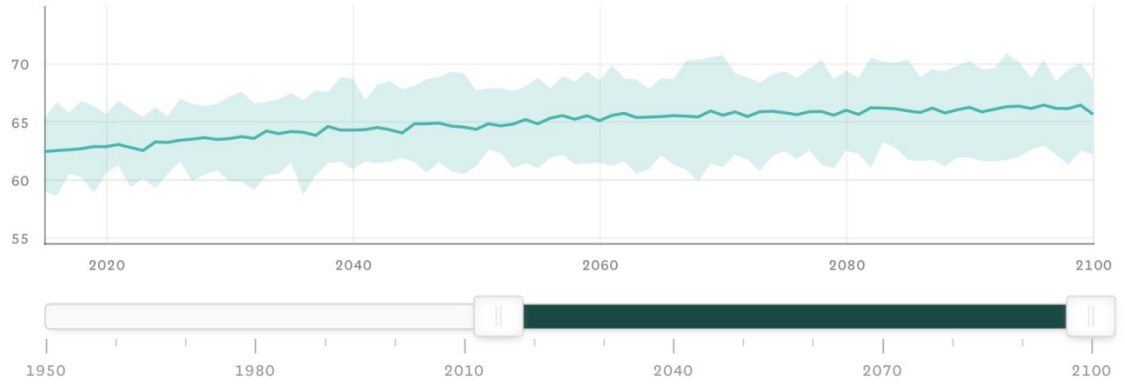
Average High Temperature

Scenario Low emissions | High emissions

Models All available models

Units F

Dataset LOCA | NEX-GDDP

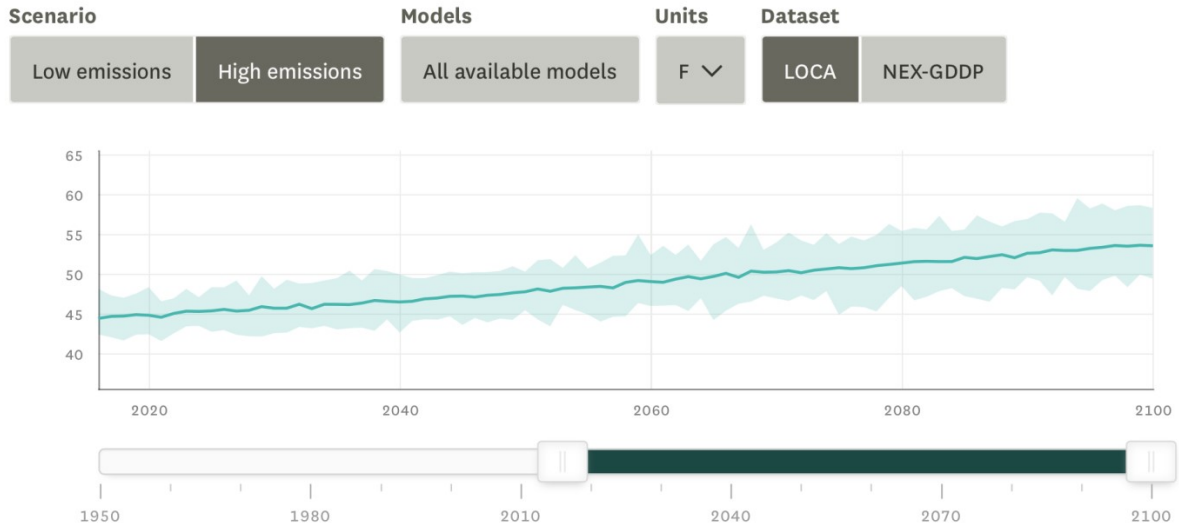


F Range between min/max of selected models

Aggregated average high temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Average Low Temperature

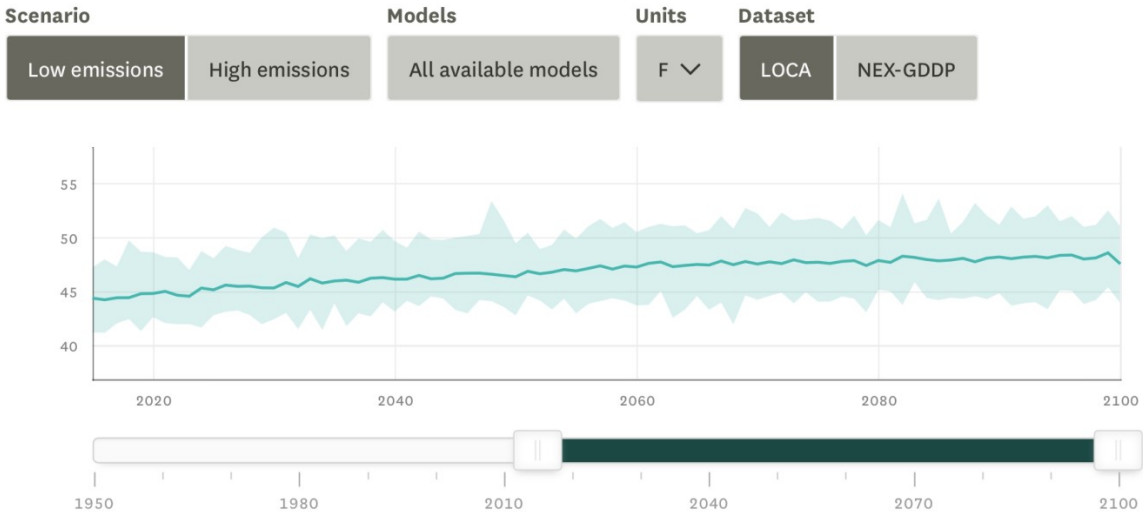


F Range between min/max of selected models

Aggregated average low temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Average Low Temperature



F Range between min/max of selected models

Aggregated average low temperature, generated from daily data using all requested models

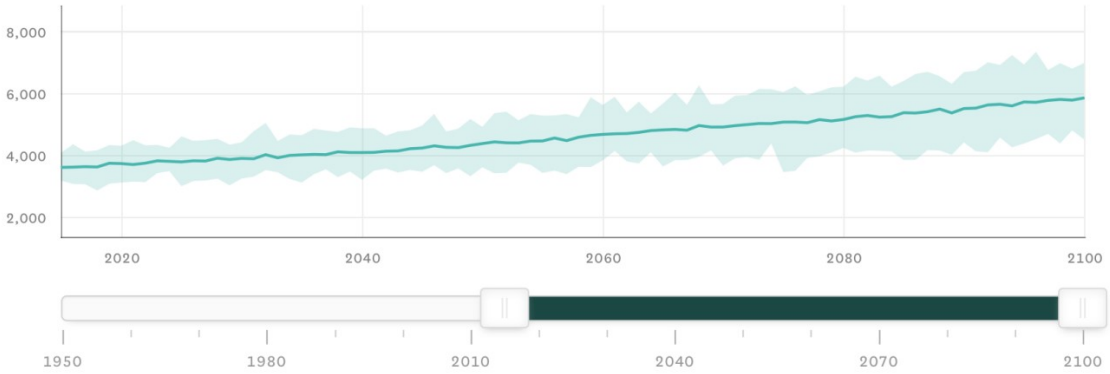
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Cooling Degree Days

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show cooling degree days with base temperature 50 Farenheit



F Range between min/max of selected models

Total difference of daily average temperature to a reference base temperature

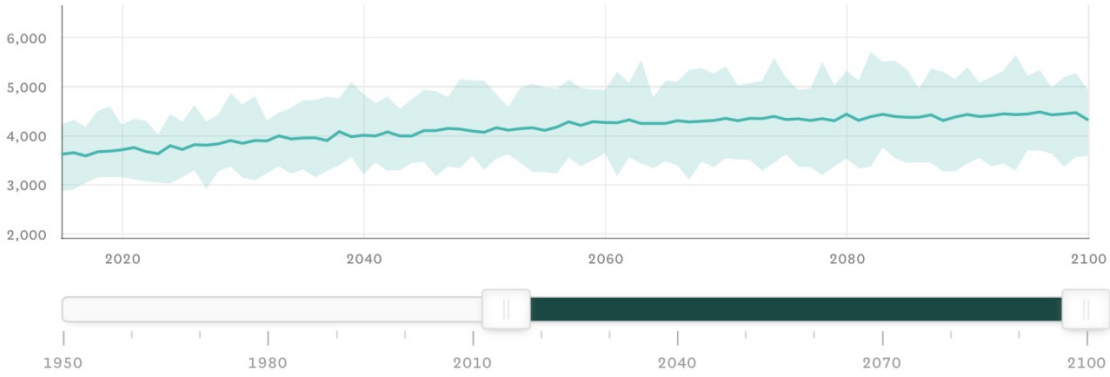
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Cooling Degree Days

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show cooling degree days with base temperature 50 Farenheit



F Range between min/max of selected models

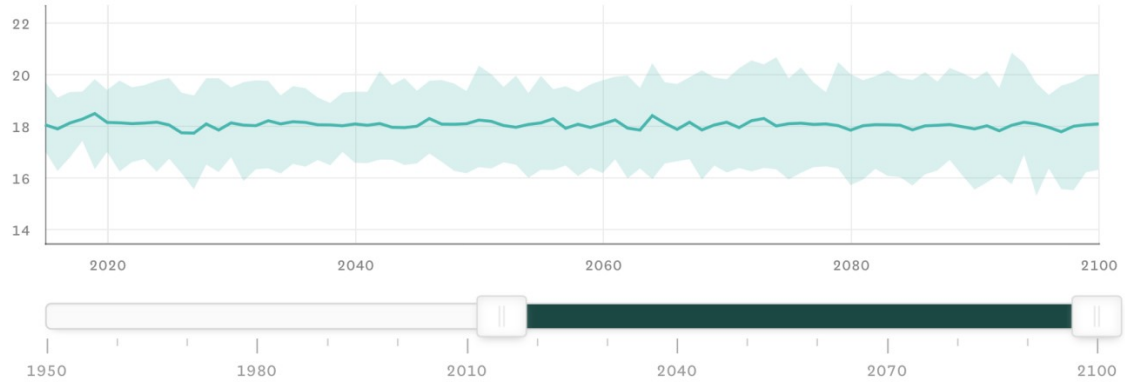
Total difference of daily average temperature to a reference base temperature

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Diurnal Temperature Range

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP



F Range between min/max of selected models

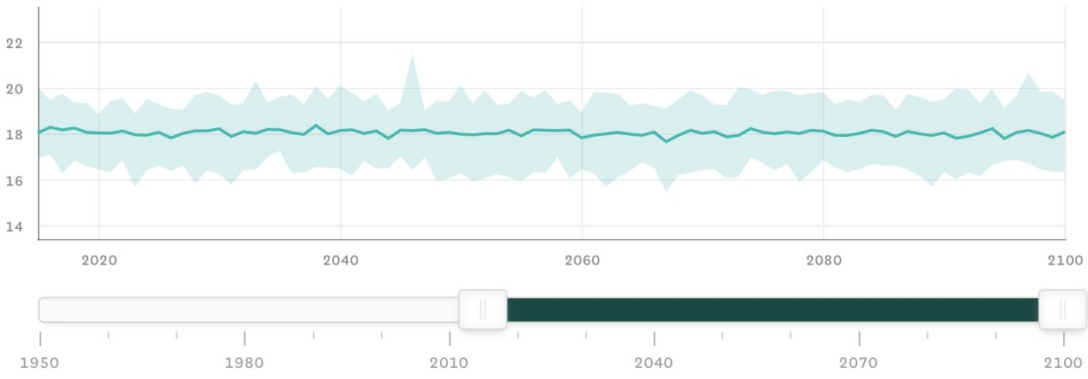
Average difference between daily max and daily min temperature

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Diurnal Temperature Range

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP



F Range between min/max of selected models

Average difference between daily max and daily min temperature

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

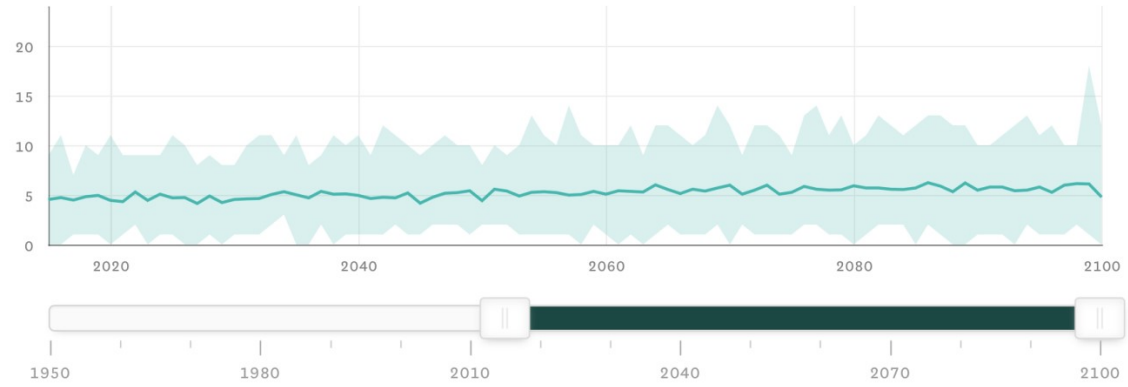
Dry Spells

Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP



count Range between min/max of selected models

Total number of times per period that there are 5 or more consecutive days without precipitation

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

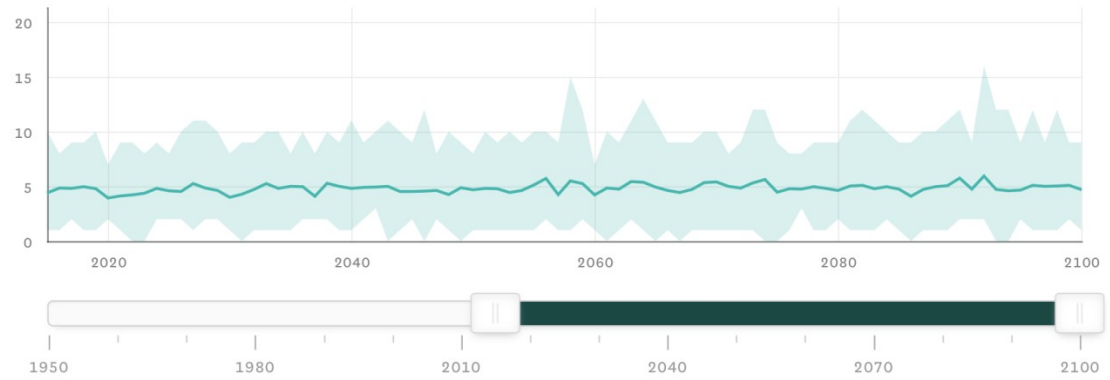
Dry Spells

Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP



count Range between min/max of selected models

Total number of times per period that there are 5 or more consecutive days without precipitation

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Extreme Cold Events

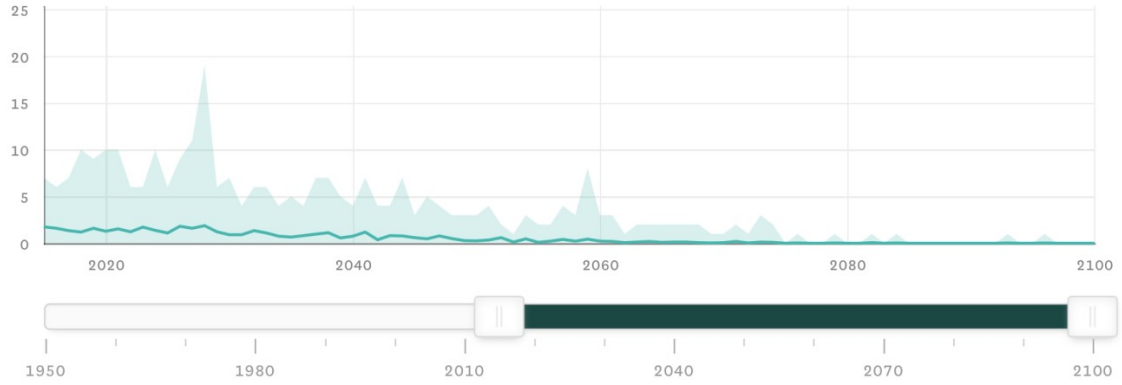
Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP

Show extreme cold events at percentile 1 **with historic base range year** 1971



count Range between min/max of selected models

Total number of times per period daily minimum temperature is below the specified percentile of historic observations

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Extreme Cold Events

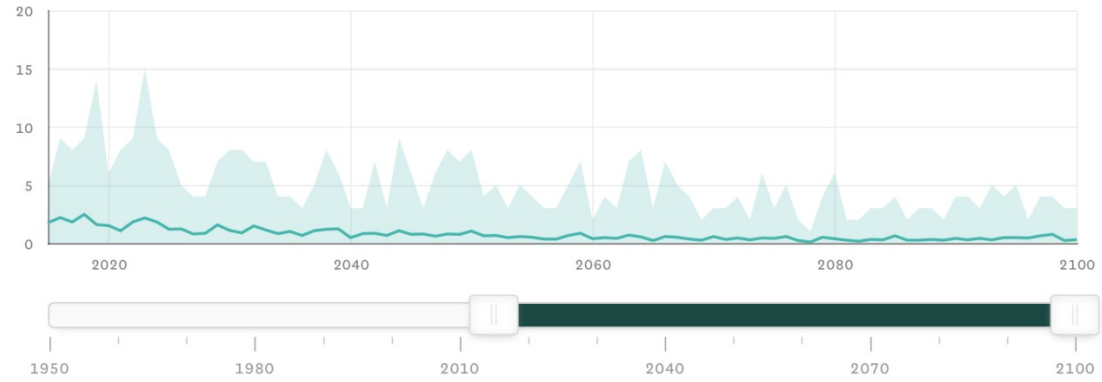
Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP

Show extreme cold events at percentile 1 **with historic base range year** 1971



count Range between min/max of selected models

Total number of times per period daily minimum temperature is below the specified percentile of historic observations

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Extreme Heat Events

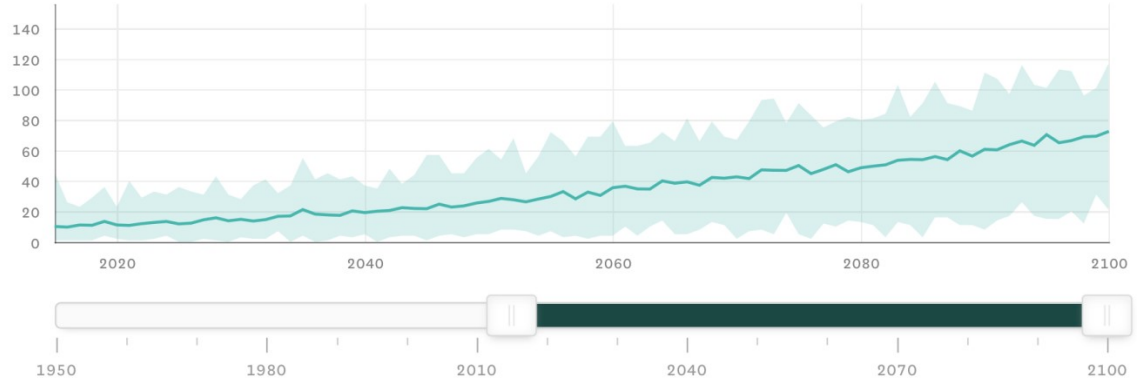
Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP

Show extreme heat events at percentile 99 **with historic base range year** 1971



count Range between min/max of selected models

Total number of times per period daily maximum temperature exceeds the specified percentile of historic observations

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Extreme Heat Events

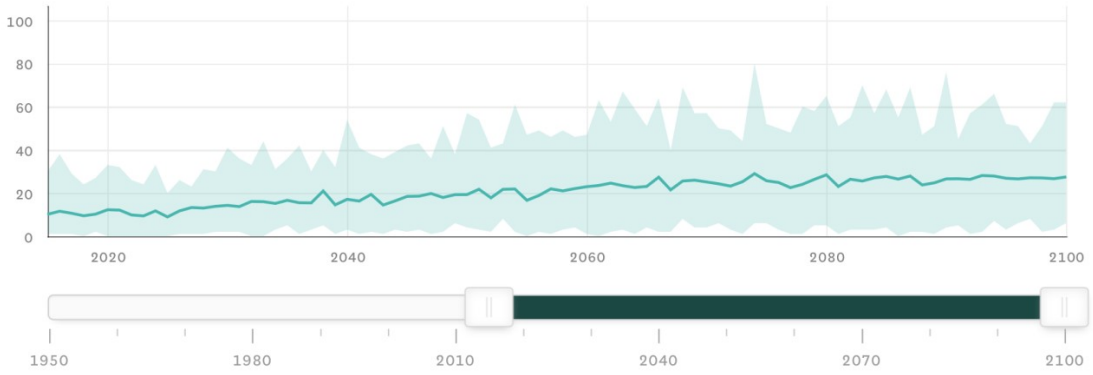
Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP

Show extreme heat events at percentile 99 **with historic base range year** 1971



count Range between min/max of selected models

Total number of times per period daily maximum temperature exceeds the specified percentile of historic observations

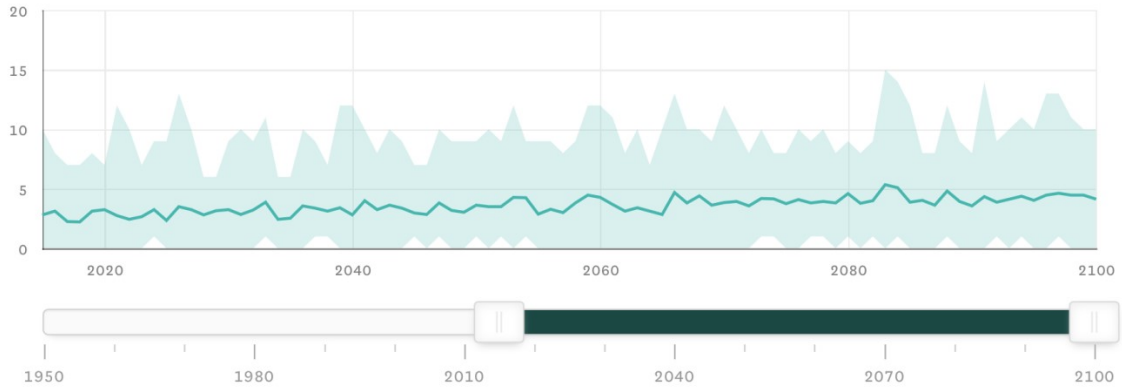
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Extreme Precipitation Events

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | count | LOCA | NEX-GDDP

Show extreme precipitation events at percentile 99 **with historic base range year** 1971



count Range between min/max of selected models

Total number of times per period daily average precipitation rate exceeds the specified percentile of historic observations

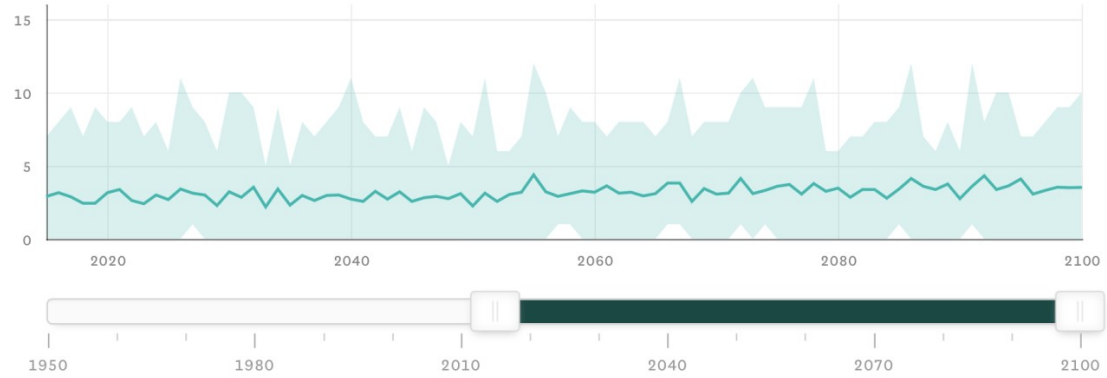
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Extreme Precipitation Events

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | count | LOCA | NEX-GDDP

Show extreme precipitation events at percentile 99 **with historic base range year** 1971



count Range between min/max of selected models

Total number of times per period daily average precipitation rate exceeds the specified percentile of historic observations

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

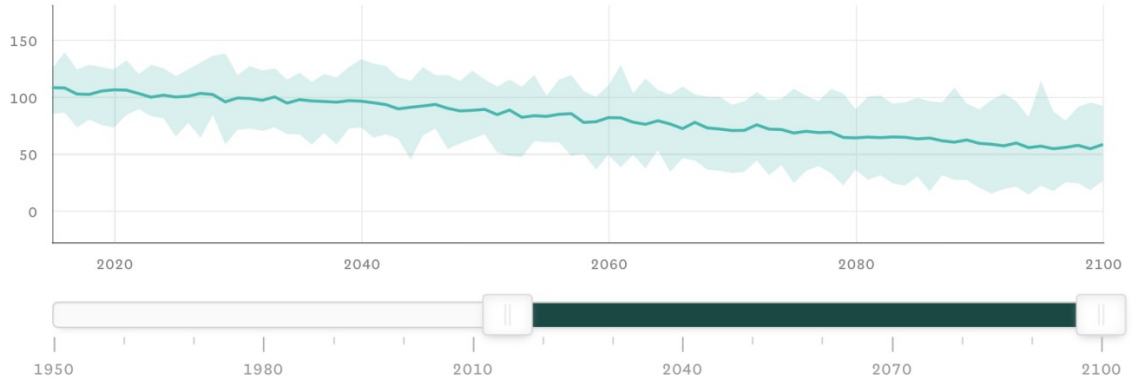
Frost Days

Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP



days Range between min/max of selected models

Number of days per period in which the daily low temperature is below the freezing point of water

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

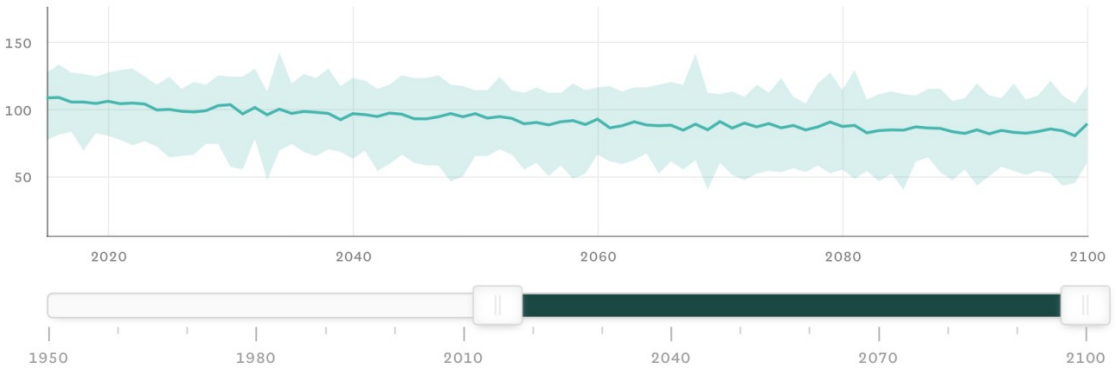
Frost Days

Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP



days Range between min/max of selected models

Number of days per period in which the daily low temperature is below the freezing point of water

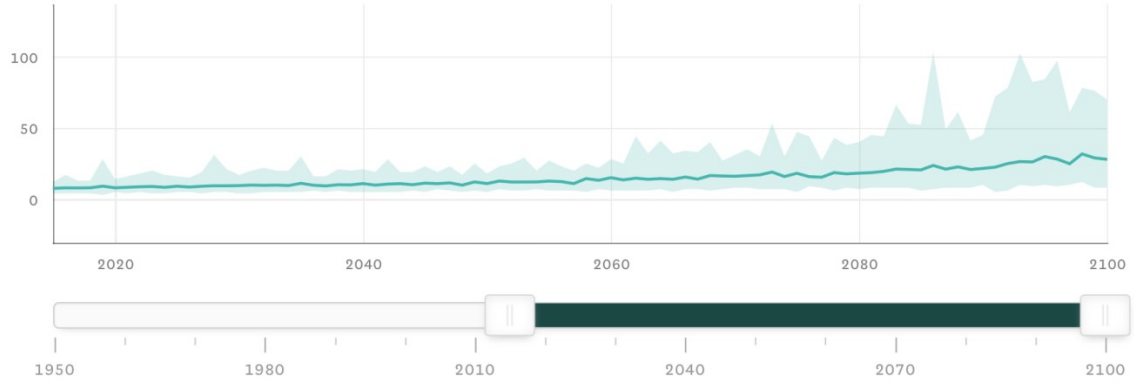
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Heat Wave Duration Index

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | days | LOCA | NEX-GDDP

Show heat wave duration index with historic range base year 1971



days Range between min/max of selected models

Maximum period of consecutive days with daily high temperature greater than 5C above historic norm

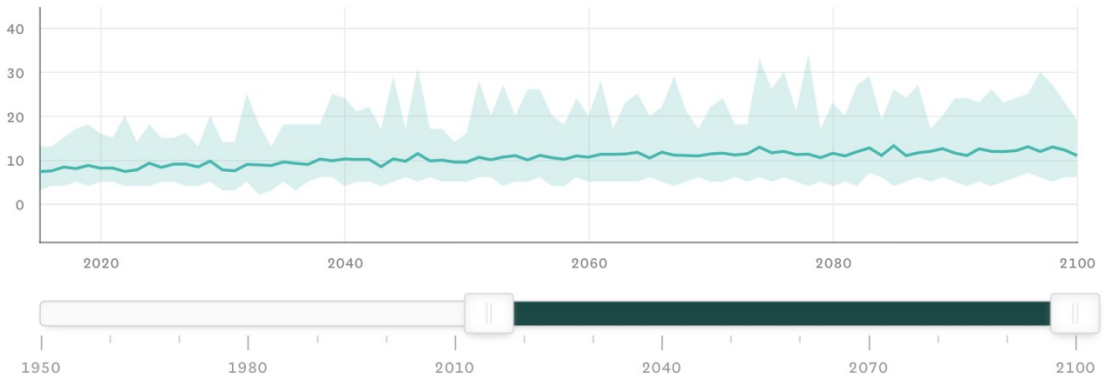
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Heat Wave Duration Index

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | days | LOCA | NEX-GDDP

Show heat wave duration index with historic range base year 1971



days Range between min/max of selected models

Maximum period of consecutive days with daily high temperature greater than 5C above historic norm

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Heat Wave Incidents

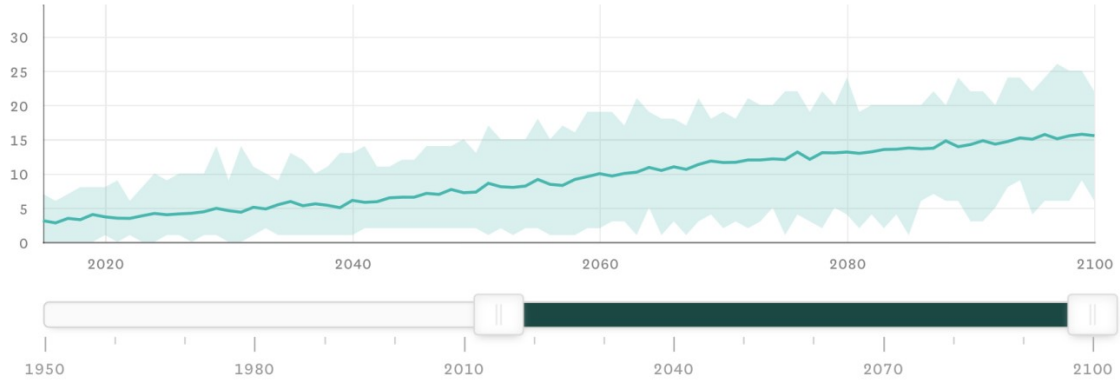
Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP

Show heat wave incidents with historic range base year 1971



count Range between min/max of selected models

Number of times daily high temperature exceeds 5C above historic norm for at least 5 consecutive days

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Heat Wave Incidents

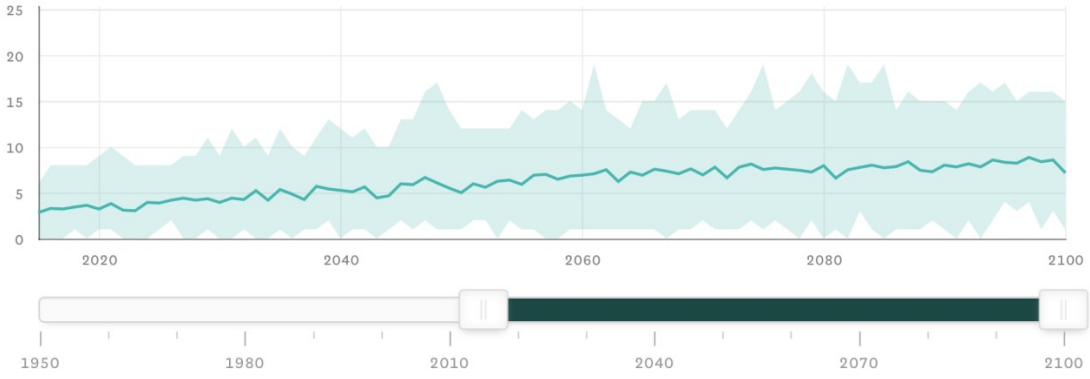
Scenario Low emissions | High emissions

Models All available models

Units count

Dataset LOCA | NEX-GDDP

Show heat wave incidents with historic range base year 1971



count Range between min/max of selected models

Number of times daily high temperature exceeds 5C above historic norm for at least 5 consecutive days

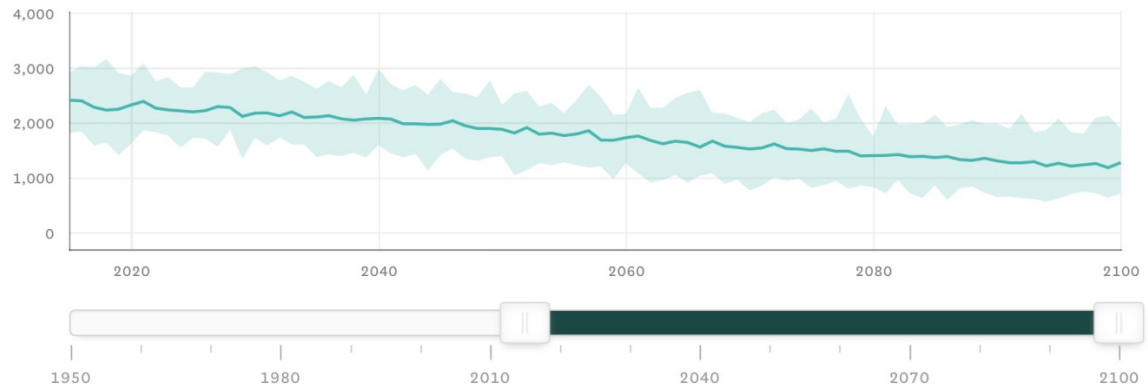
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Heating Degree Days

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show heating degree days with base temperature 50 Farenheit



F Range between min/max of selected models

Total difference of daily average temperature to a reference base temperature

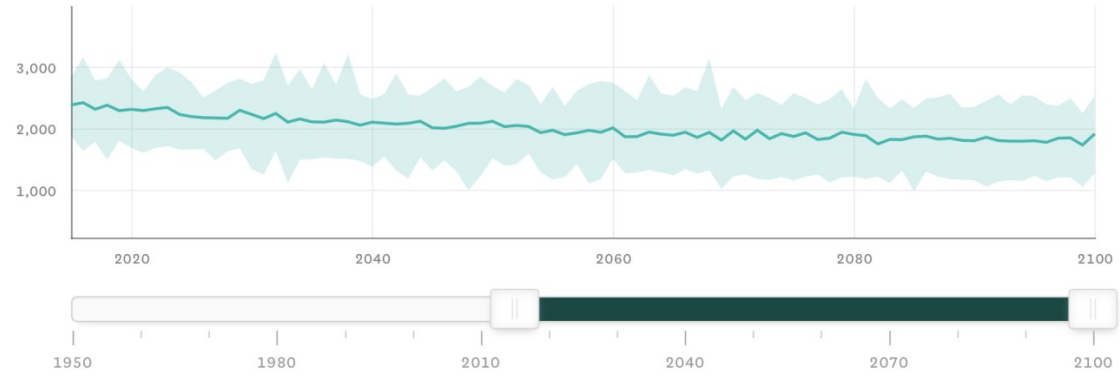
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Heating Degree Days

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show heating degree days with base temperature 50 Farenheit



F Range between min/max of selected models

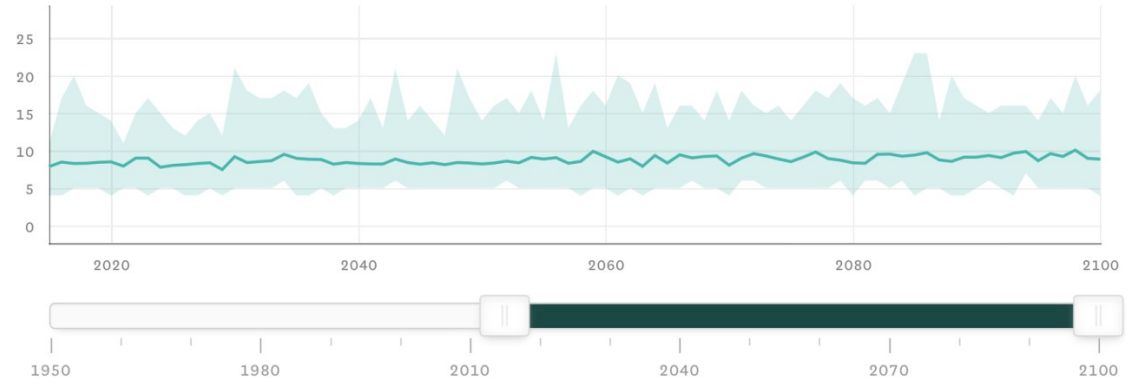
Total difference of daily average temperature to a reference base temperature

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Max Consecutive Dry Days

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | days | LOCA | NEX-GDDP



days Range between min/max of selected models

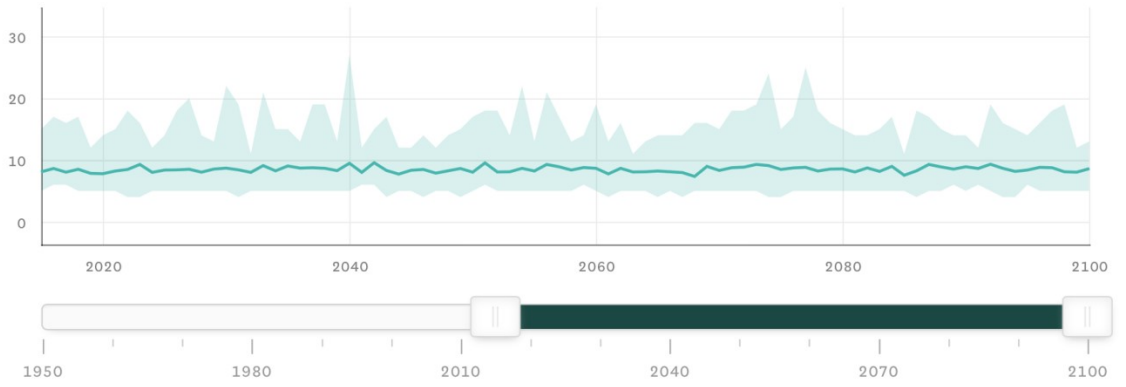
Maximum number of consecutive days with no precipitation

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Max Consecutive Dry Days

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | days | LOCA | NEX-GDDP



days Range between min/max of selected models

Maximum number of consecutive days with no precipitation

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

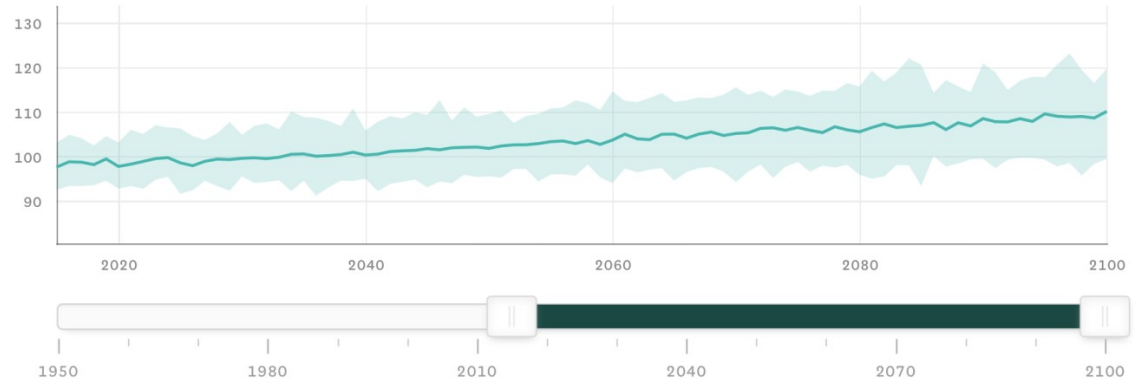
Maximum High Temperature

Scenario Low emissions | High emissions

Models All available models

Units F

Dataset LOCA | NEX-GDDP



F Range between min/max of selected models

Maximum high temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

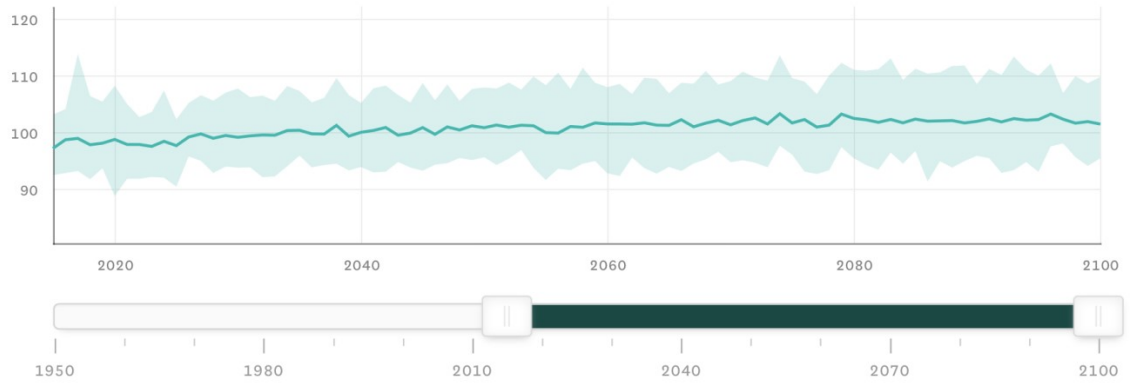
Maximum High Temperature

Scenario Low emissions | High emissions

Models All available models

Units F

Dataset LOCA | NEX-GDDP



F Range between min/max of selected models

Maximum high temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Max Temperature Threshold

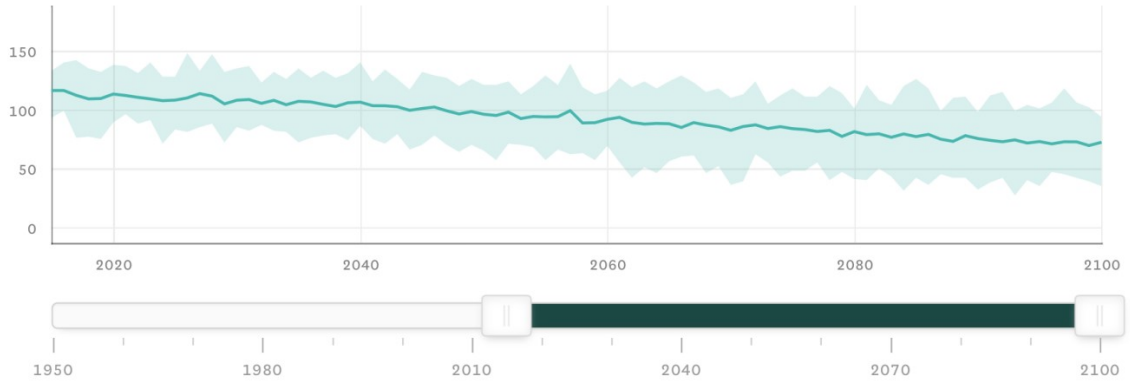
Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP

Show days where max temperature threshold is less than or equal to 50 Farenheit



days Range between min/max of selected models

Number of days where high temperature, generated from daily data using all requested models, fulfils the comparison

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Max Temperature Threshold

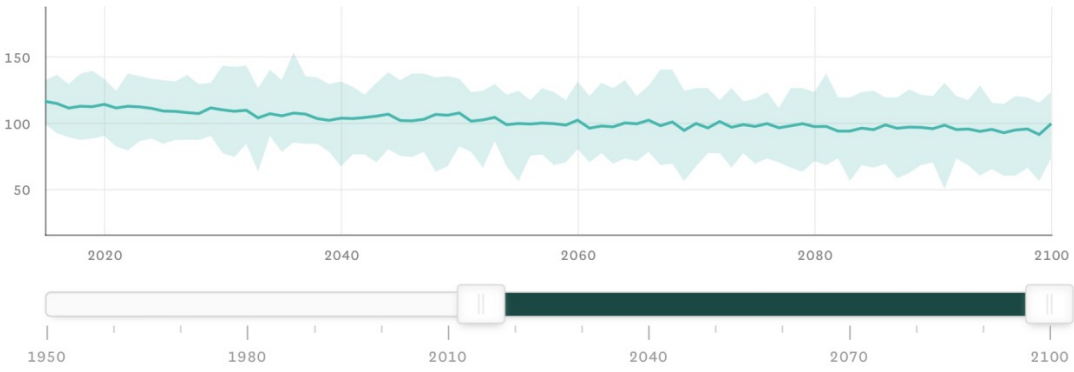
Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP

Show days where max temperature threshold is less than or equal to 50 Farenheit

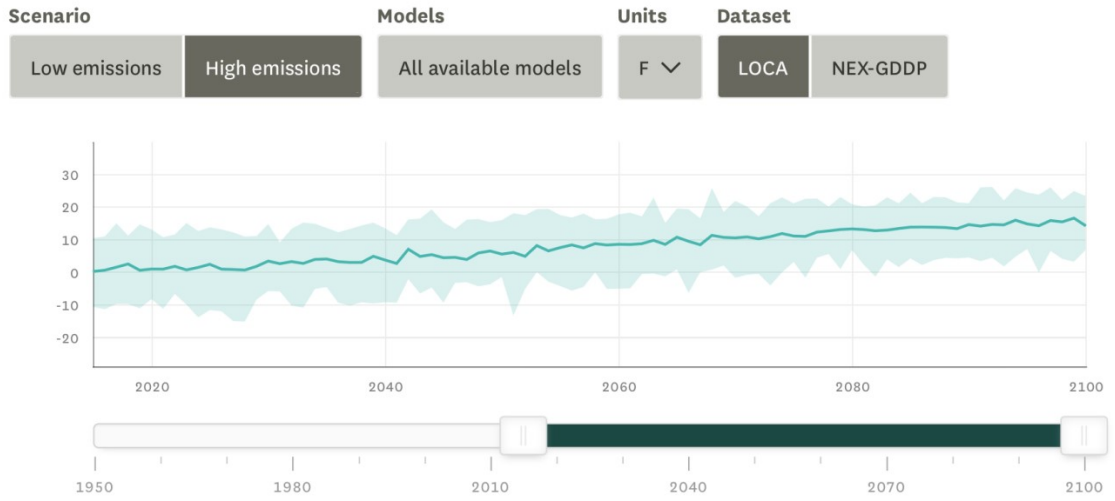


days Range between min/max of selected models

Number of days where high temperature, generated from daily data using all requested models, fulfils the comparison

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Minimum Low Temperature

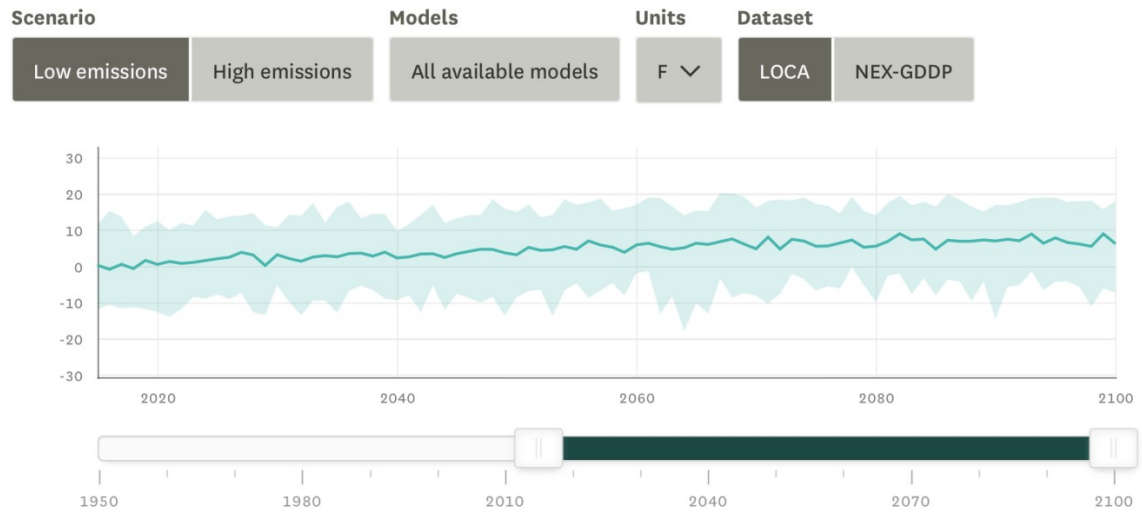


F Range between min/max of selected models

Minimum low temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Minimum Low Temperature



F Range between min/max of selected models

Minimum low temperature, generated from daily data using all requested models

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Min Temperature Threshold

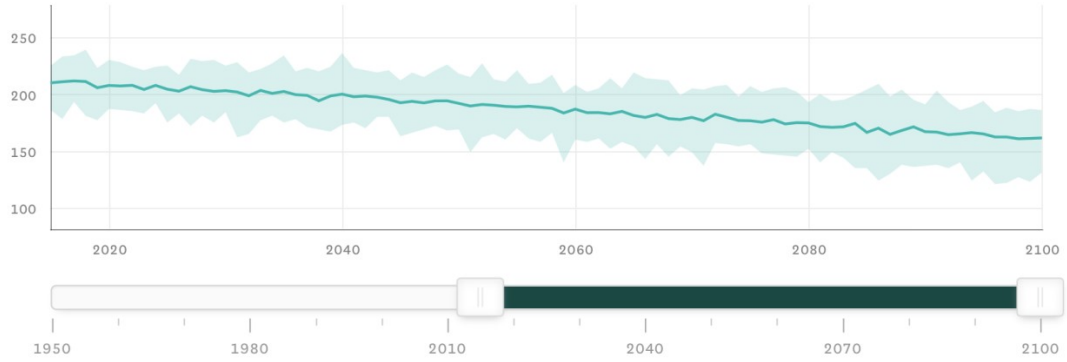
Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP

Show days where min temperature threshold is less than or equal to 50 Farenheit



days Range between min/max of selected models

Number of days where min temperature, generated from daily data using all requested models, fulfils the comparison

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Min Temperature Threshold

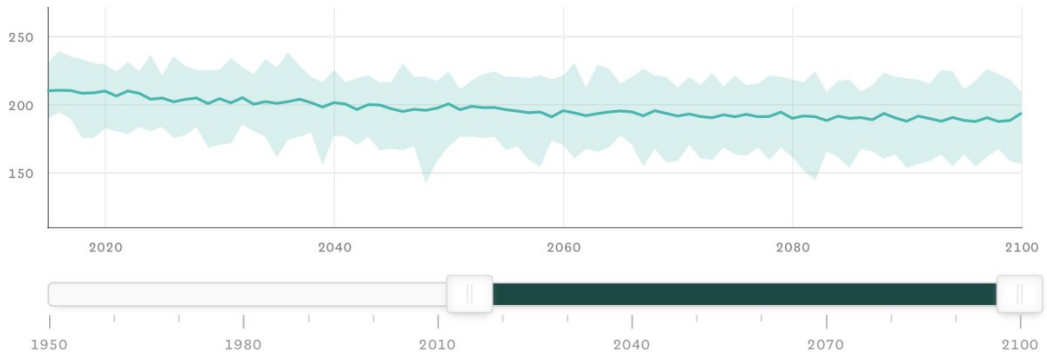
Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP

Show days where min temperature threshold is less than or equal to 50 Farenheit



days Range between min/max of selected models

Number of days where min temperature, generated from daily data using all requested models, fulfils the comparison

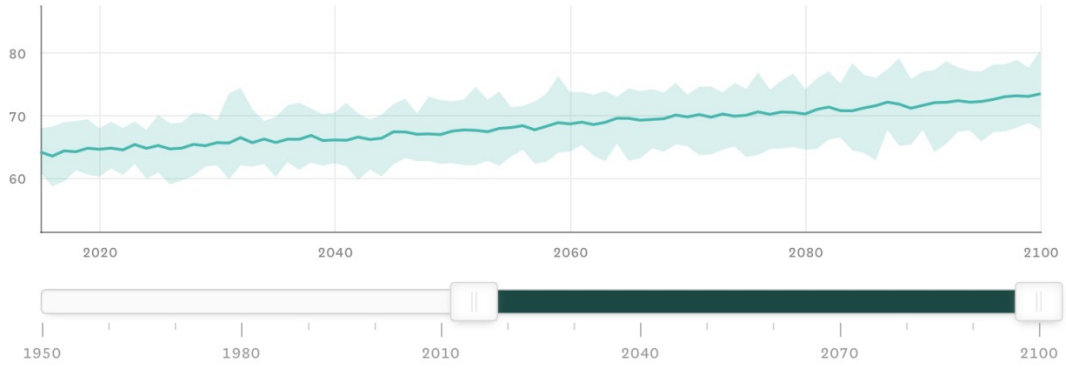
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Percentile High Temperature

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show percentile high temperature at percentile 50 **of projections.**



F Range between min/max of selected models

The specified percentile of high temperature for each timespan. Defaults to 50th percentile (Median)

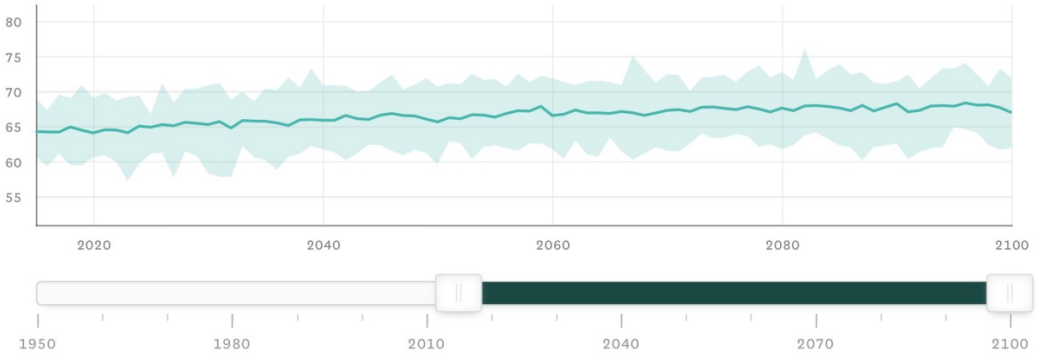
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Percentile High Temperature

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show percentile high temperature at percentile 50 **of projections.**



F Range between min/max of selected models

The specified percentile of high temperature for each timespan. Defaults to 50th percentile (Median)

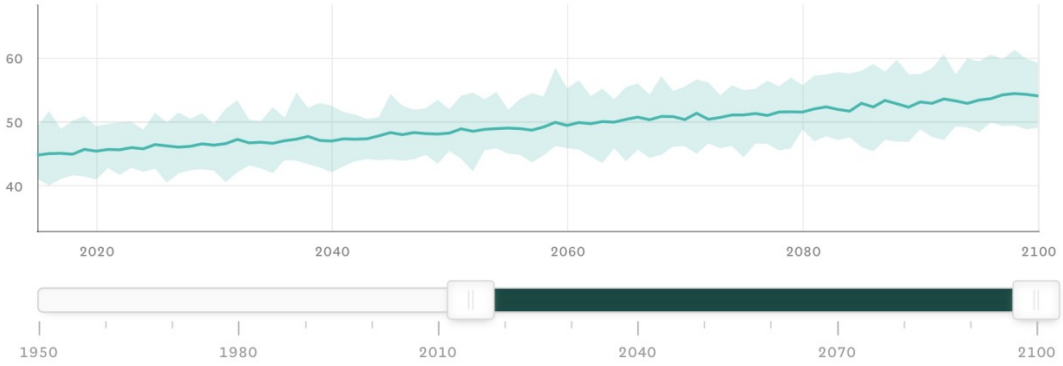
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Percentile Low Temperature

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show percentile low temperature at percentile 50 **of projections.**



F Range between min/max of selected models

The specified percentile of low temperature for each timespan. Defaults to 50th percentile (Median)

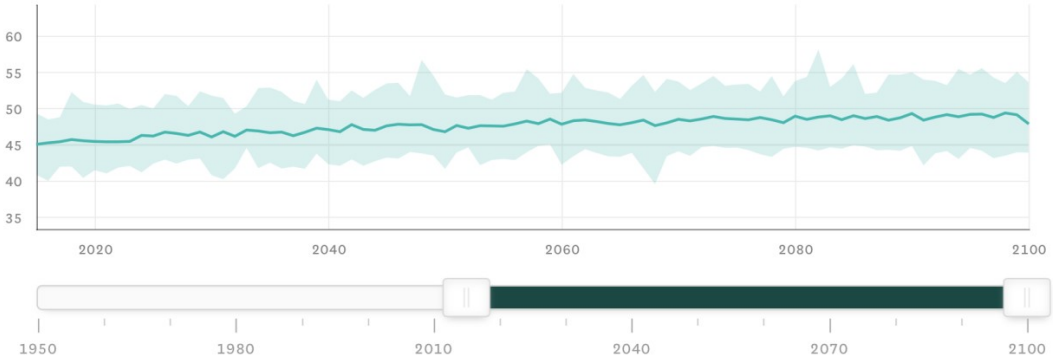
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Percentile Low Temperature

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | F | LOCA | NEX-GDDP

Show percentile low temperature at percentile 50 **of projections.**



F Range between min/max of selected models

The specified percentile of low temperature for each timespan. Defaults to 50th percentile (Median)

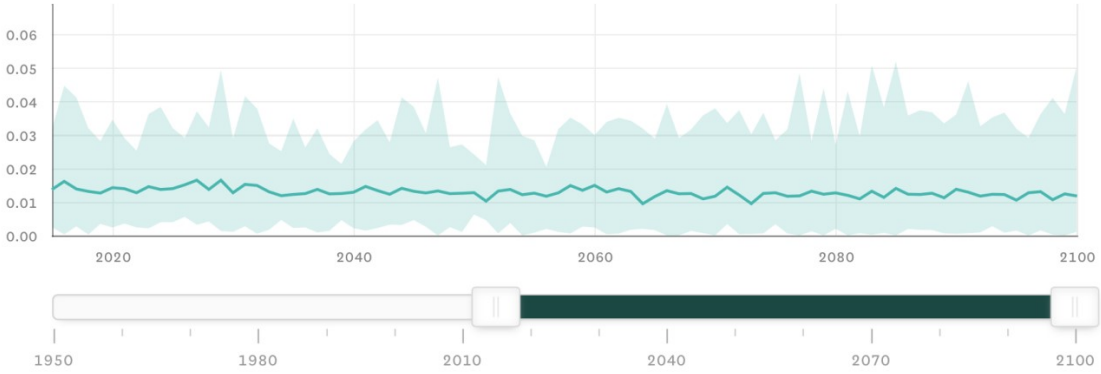
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Percentile Precipitation

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | in/day | LOCA | NEX-GDDP

Show percentile precipitation at percentile 50 **of projections.**



in/day Range between min/max of selected models

The specified percentile of precipitation rate for each timespan. Defaults to 50th percentile (Median)

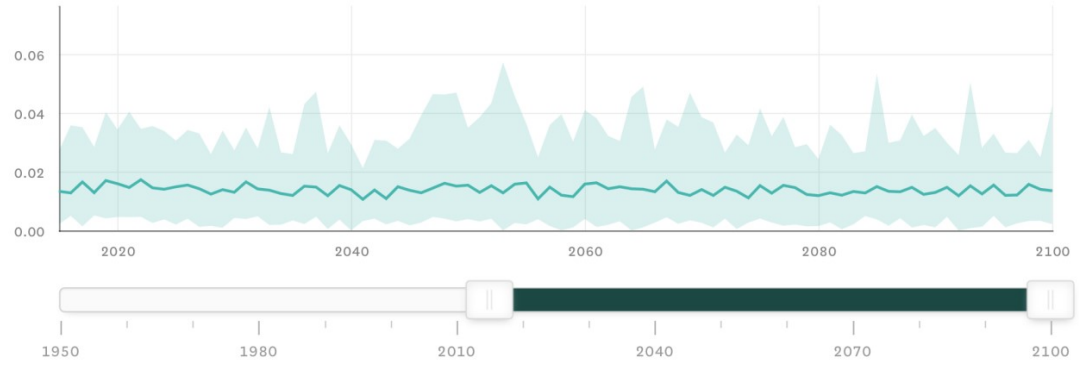
Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Percentile Precipitation

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | in/day | LOCA | NEX-GDDP

Show percentile precipitation at percentile 50 **of projections.**



in/day Range between min/max of selected models

The specified percentile of precipitation rate for each timespan. Defaults to 50th percentile (Median)

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Precipitation Threshold

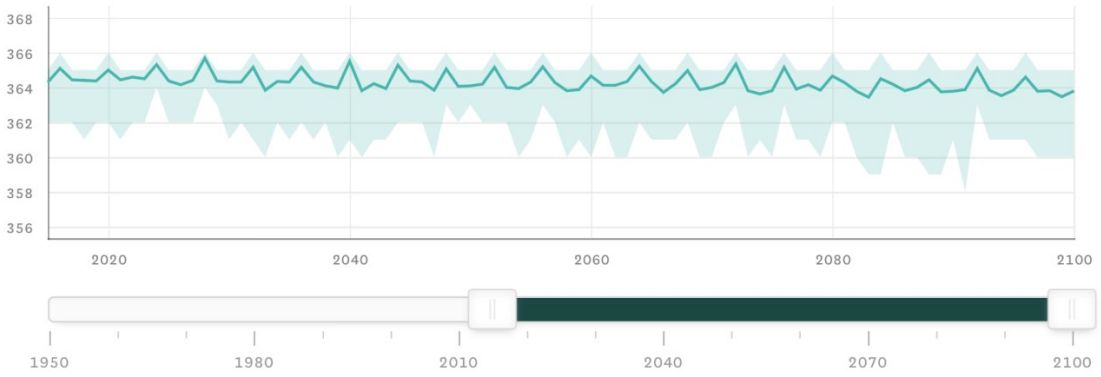
Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP

Show days where precipitation threshold is less than or equal to 50 millimeters per day



days Range between min/max of selected models

Number of days where precipitation rate, generated from daily data using all requested models, fulfils the comparison

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Precipitation Threshold

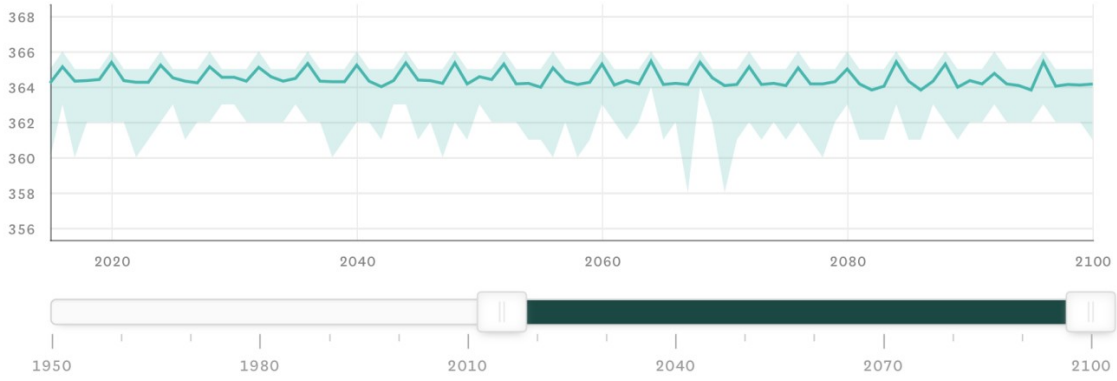
Scenario Low emissions | High emissions

Models All available models

Units days

Dataset LOCA | NEX-GDDP

Show days where precipitation threshold is less than or equal to 50 millimeters per day



days Range between min/max of selected models

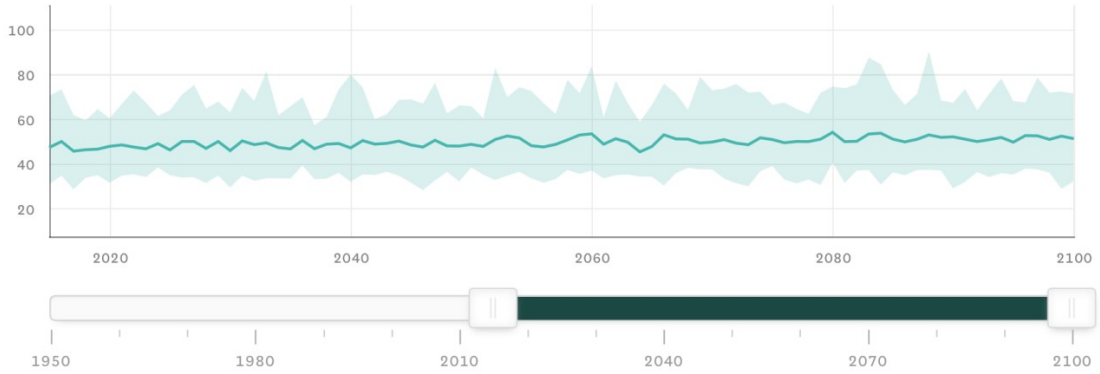
Number of days where precipitation rate, generated from daily data using all requested models, fulfils the comparison

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Total Precipitation

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | in | LOCA | NEX-GDDP



in Range between min/max of selected models

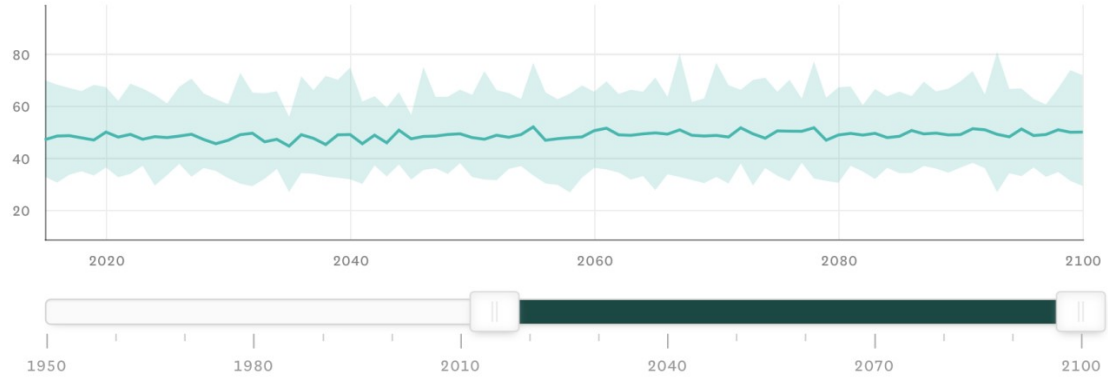
Total precipitation

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Total Precipitation

Scenario | **Models** | **Units** | **Dataset**

Low emissions | High emissions | All available models | in | LOCA | NEX-GDDP



in Range between min/max of selected models

Total precipitation

Downscaled from CMIP5, using the Localized Constructed Analogs (LOCA) statistical technique. Data available at loca.ucsd.edu.

Appendix B. Survey Results

Detailed Summary

	Statement	Avg. Ranking	# Marked "I don't know"
Food Systems			
1	All residents in our community currently have enough to eat, regardless of income or race.	3	41
2	Fresh, healthy food is convenient and affordable for everyone in the community, regardless of income or race.	3	24
3	The majority of my food is currently grown locally or regionally (within the Northeast).	3	15
4	Our community currently has a strategy to ensure local agriculture production, even in emergencies.	2	90
5	New Paltz's local agriculture will be impacted by extreme climate events.	4	27
6	New Paltz's local agriculture, such as area farmers, has the capacity to adjust and respond to extreme climate events or other disruptions.	2.5	86
Water Systems			
7	Residents in our community currently have enough water to meet everyone's basic needs, regardless of income or race.	4	49
8	My tap water is clean and safe.	4	20
9	Our community conserves as much water as possible.	2.5	69
10	New Paltz's local water systems will be impacted by extreme climate events.	4	48
Energy Systems			
11	Residents in our community have enough energy to meet basic needs, regardless of income or race.	3	50
12	Our energy supply is stable, consistent, and can withstand natural disasters.	3	51
13	Our community conserves as much energy as possible.	2	51
14	Our community strives to use local renewable sources.	3	31
15	New Paltz's local energy systems will be impacted by extreme climate events.	4	62
16	New Paltz's local energy systems have the capacity to adjust and respond to extreme climate events or other disruptions.	2.5	90

Transportation & Housing

17	Those who wish to live in our community can find quality affordable housing near jobs and schools, regardless of income or race.	2	13
18	Neighborhoods in our community have access to jobs, schools, open space, fresh produce, and key services via walking, biking, and public transit.	3	11
19	Our transportation systems are powered by local renewable energy sources.	2	65
20	New Paltz's local transportation and housing will be impacted by extreme climate events.	4	65
21	New Paltz's local transportation and housing has the capacity to adjust and respond to extreme climate events or other disruptions.	2	86

Jobs and Economy

22	Majority of residents of our community across all race/ethnicities have access to sufficient income to sustain a household.	2	38
23	The Town or Village actively seeks economic development opportunities that support the creation of full-time local jobs.	2.5	60
24	Our community's economy is based on sustainable use and re-use of our region's resources.	2.5	57
25	Extreme climate events would interrupt the job that you do in New Paltz.	3	39
26	Our community has effective public strategies to secure local employment opportunities.	2	75
27	New Paltz's local jobs and economy will be impacted by extreme climate events.	4	58
28	New Paltz's local jobs and economy has the capacity to adjust and respond to extreme climate events or other disruptions.	2.5	83

Civic Preparedness and Social Services

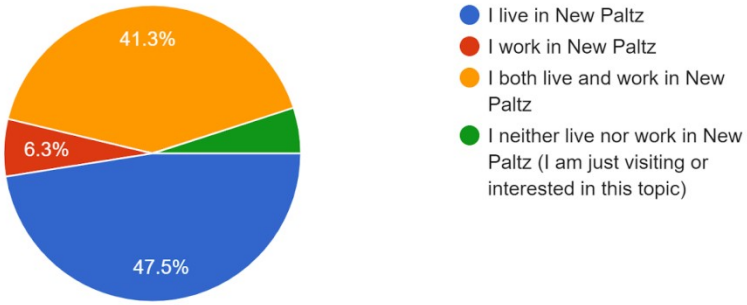
29	Neighbors in our community are well organized to help each other in times of need.	3	22
30	My Town or Village government is adequately prepared for climate change, rising costs, and natural disasters.	2	65
31	Our local government services are funded from sources that are sustainable as energy prices rise.	2	93
32	Our local government responds effectively to natural disasters.	3	53
33	If no climate adaptation occurs, New Paltz's local government services will be impacted by climate change.	4	51
34	New Paltz's local government has the will and ability adjust and respond to	3.5	51

	extreme climate events or other disruptions over time.		

Raw Results

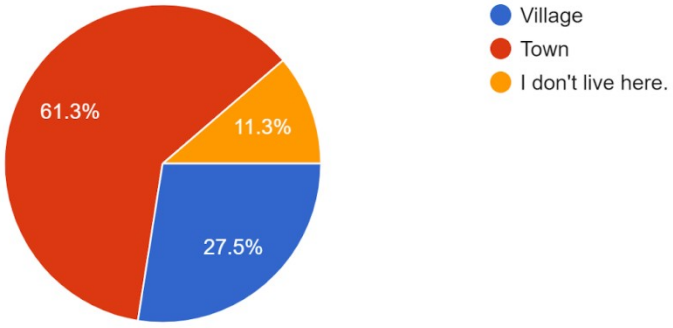
Do you live or work in New Paltz?

160 responses



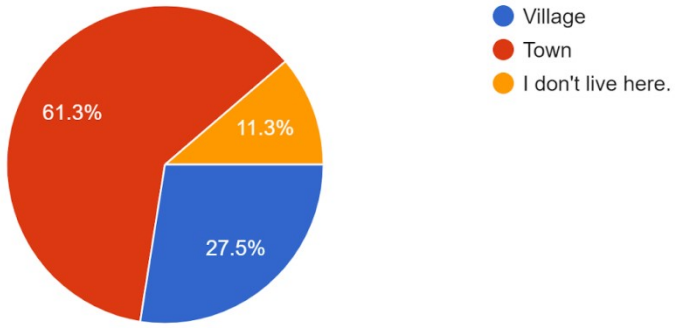
If you live in New Paltz, do you live in the Village or the Town?

160 responses



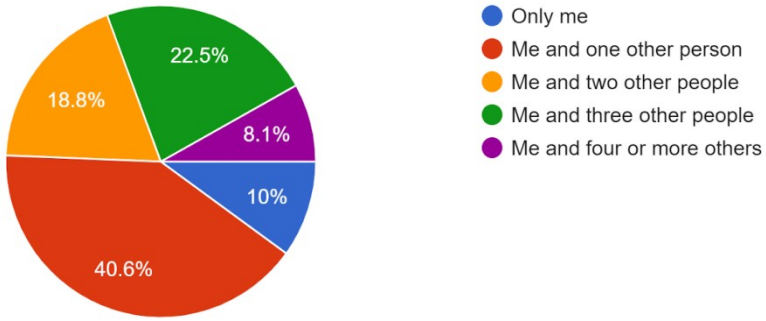
If you live in New Paltz, do you live in the Village or the Town?

160 responses



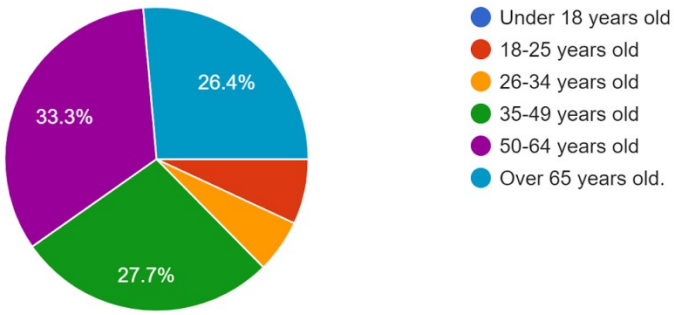
How many people live in your household?

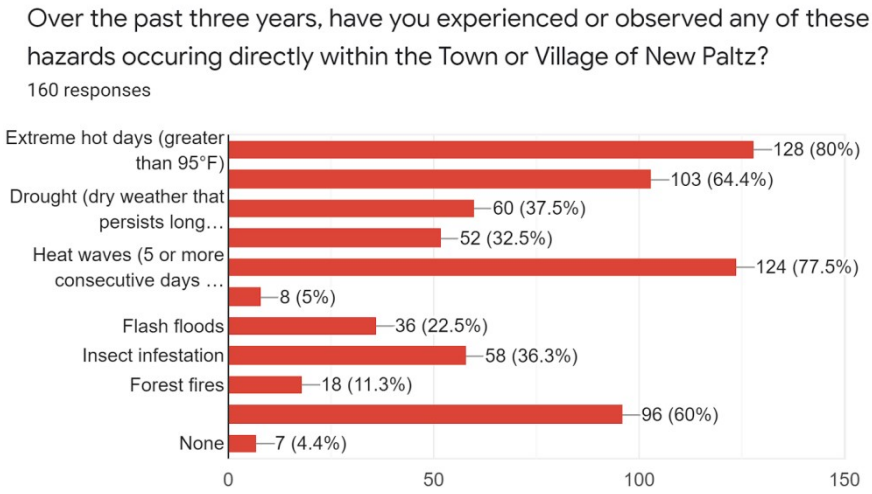
160 responses



What is your age range?

159 responses





Are there other climate-related hazards that you have experienced or observed in New Paltz?

56 responses

- No
- I don't know
- Days of extreme cold
- Wind damage, extreme humidity, short Fall and Spring
- Increase in ticks and tick-borne illness. This in turn creates a less healthy population, especially children, whose parents are afraid to let them play/hike outside. Mold/mildew on houses, roofs from increased rain/moisture. Storm related damage. Increased anxiety regarding the future of the planet and those living on it, especially among children/youth. Increased energy costs from cooling/heating creates a burden/stress on residents.
- Ticks
- No, only inconveniences, so far.
- Poor air quality caused by extreme heat
- Extreme cold from polar vortexes and such, as the weather patterns shift.
- Urban heat island effect, harmful algae blooms
- Changes in invasive plant species.
- Increase in ticks, increase in poison ivy, decrease in fireflies, decrease in butterflies, decrease in bats etc. etc. etc.
- Not very observant
- Not that I'm aware of
- Extreme precipitation, polar vortex
- Hurricane

- I think of invasive species as being part of climate change. We definitely have invasive species on our property.
- Trees are dying
- Algal blooms in the Wallkill
- -Orchard/maple tree/annual plant damage due to premature winter thaws.
- -worsening pot holes/road conditions due to extreme thaw/freeze cycles in winter
- -excessive humidity and rainfall similar to Southeastern US climate
- Unusual cold from polar vortex damaging normally winter-hardy plants.
- New invasive species such as Japanese silk grass
- Not in the past 3 years.
- FEWER FLYING BUGS IN 2019
- Extreme weather events like Hurricane Irene.
- Unprecedented number of microbursts that have led to tree-fall , which in turn has affected power outages.
- Ticks
- Yes
- Ice and freezing colds spells
- Invasive tree pests (hand-written survey response #1)
- Ulster county roads DESPERATELY need a fresh coat of asphalt. Every winter, a new generation of potholes is born.
- increased rain storm events and strength
- Climate change has negatively impacted local agriculture
- Toxic algae bloom in the Wallkill (2018?)
- I've noticed, in my garden, that there are changes in the growing season due to either hot weather early/late in the season or extended cold.
- More extreme temperature changes maybe, not certain. 85 yesterday, 50 next
- Pond not safe for skating. Lyme vector overpopulation. Overuse of antibiotics.
- General winter warming - Recent winters have had snowstorms, but no extended periods of well-below freezing. (Have lived here 15 years - experienced a real cold winter about 13 yrs. ago.)
- This is hand written survey #2
- Damaging winds
- Local wild life is changing
- More fungus on the apples in the orchard, therefore more spraying of pesticide or fungicide which may or may not go into the ground water. We have two wells.
- I'm not sure if this related, but I do think that I've noticed more people with allergies,

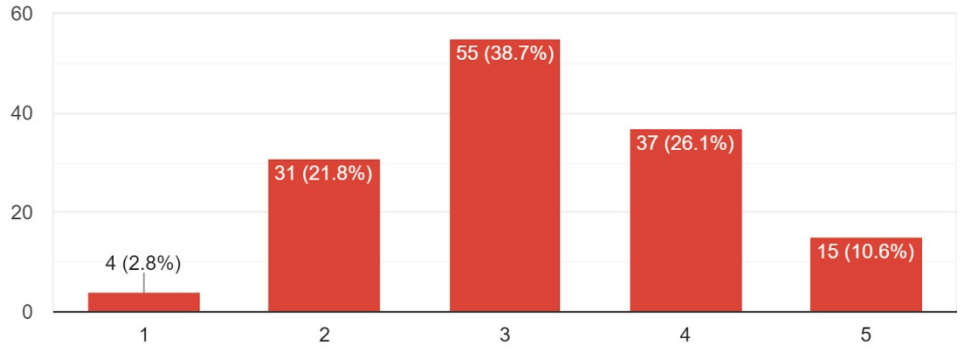
especially seasonal allergies, as well as more people affected by Lyme disease.

- Increase in frequency and intensity of storms
- Algal blooms on the Wallkill
- Trees falling down (we need to plant more trees to combat global warming)
- Both river and lakes, even college pond, water level lower than it should be
- Flooding on Springtown Road has actually been better since 2011 - no huge storms, and better communication with Central Hudson

Food & Agriculture

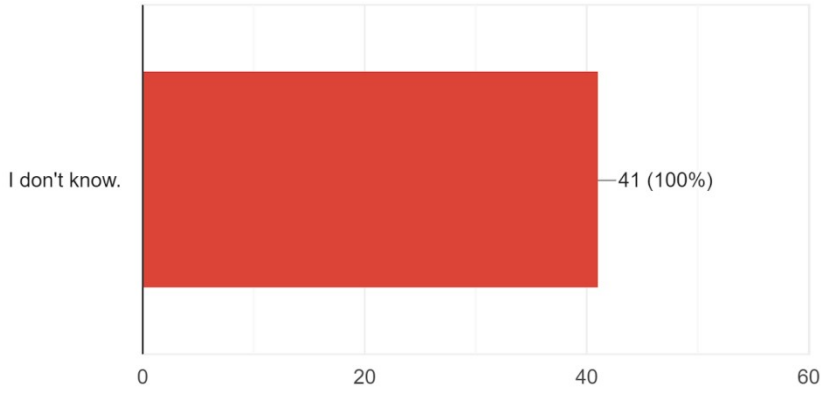
On a scale of 1-5, rate New Paltz: All residents in our community currently have enough to eat, regardless of income or race.

142 responses



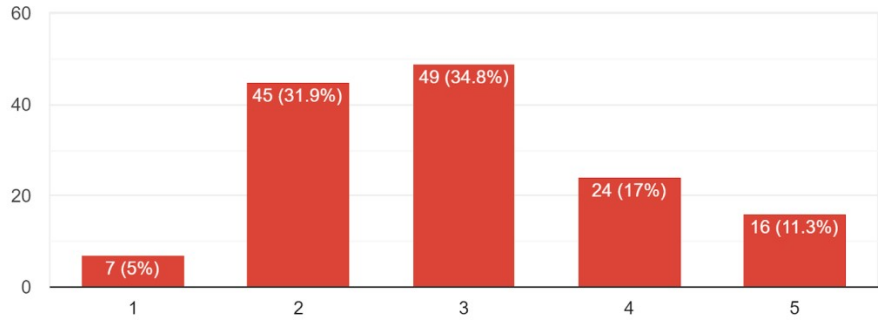
Mark below if you do not know or need more information.

41 responses



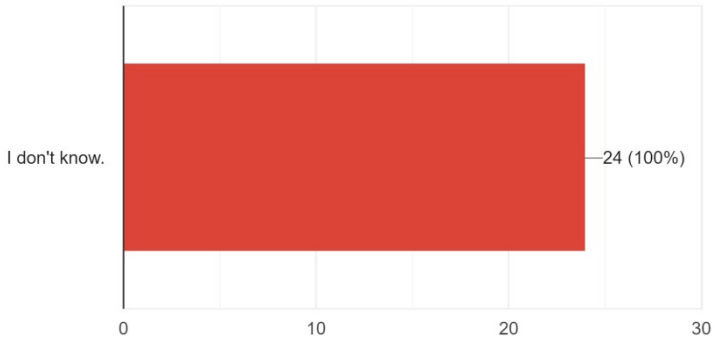
On a scale of 1-5, rate New Paltz: Fresh, healthy food is convenient and affordable for everyone in the community, regardless of income or race.

141 responses



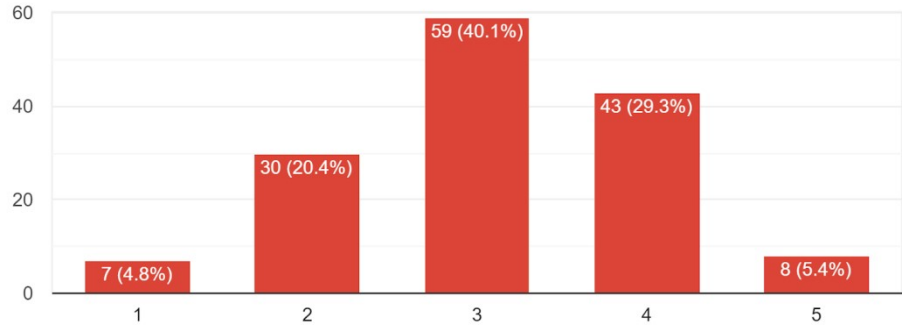
Mark below if you do not know or need more information.

24 responses



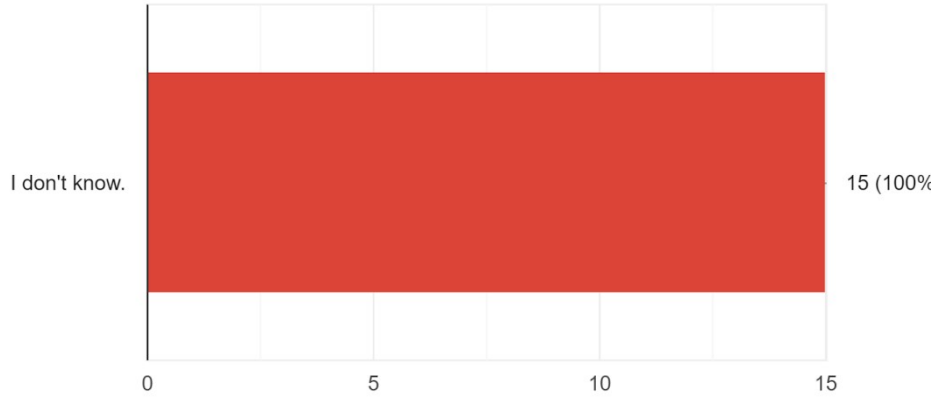
On a scale of 1-5, rate New Paltz: The majority of my food is currently grown locally or regionally (within the Northeast).

147 responses



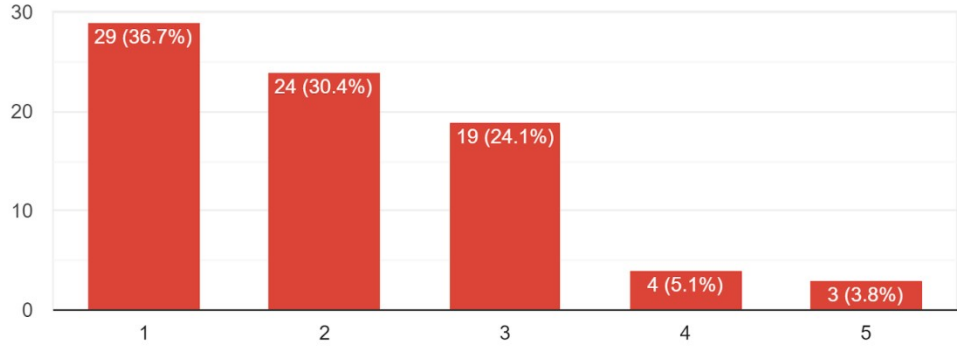
Mark below if you do not know or need more information.

15 responses



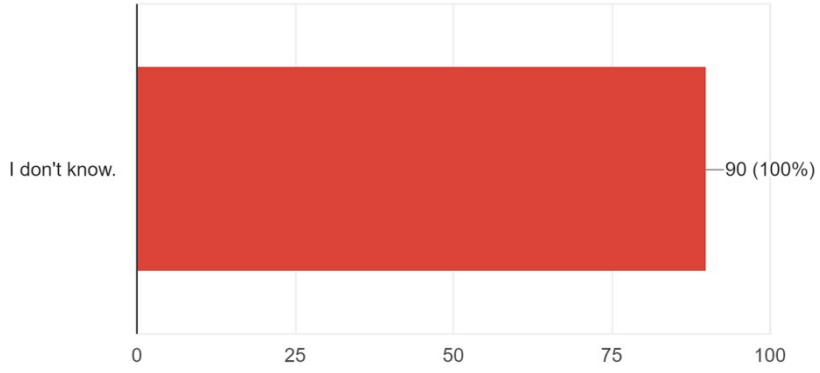
On a scale of 1-5, rate New Paltz: Our community currently has a strategy to ensure local agriculture production, even in emergencies.

79 responses



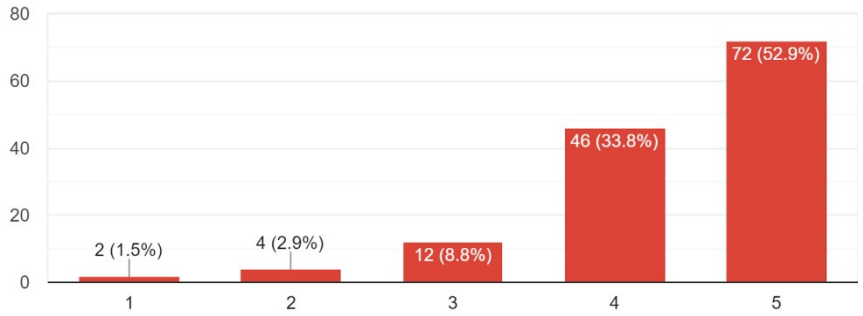
Mark below if you do not know or need more information.

90 responses



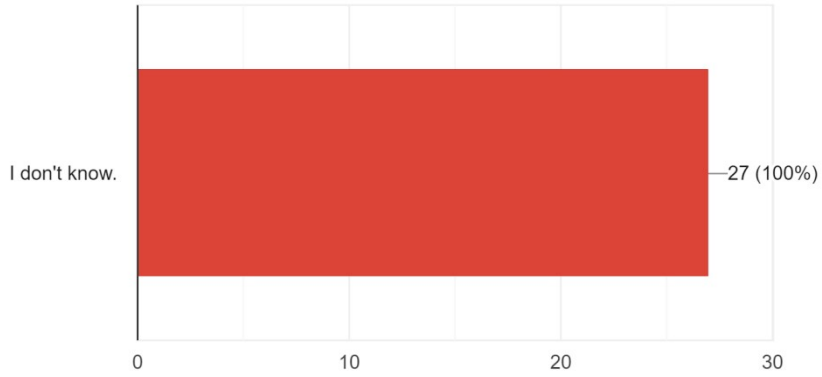
On a scale of 1-5, how impacted will New Paltz's local agriculture be to extreme climate events?

136 responses



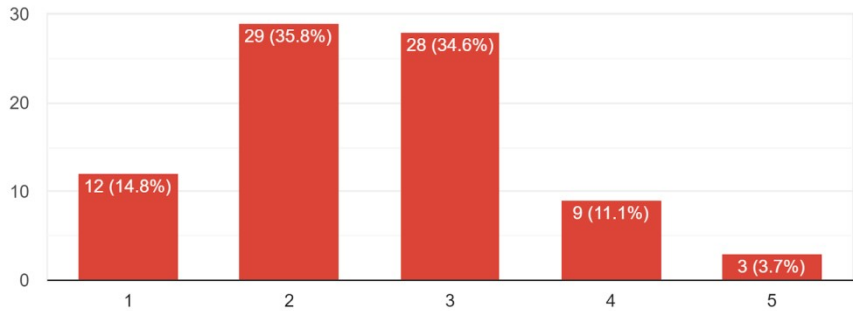
Mark below if you do not know or need more information.

27 responses



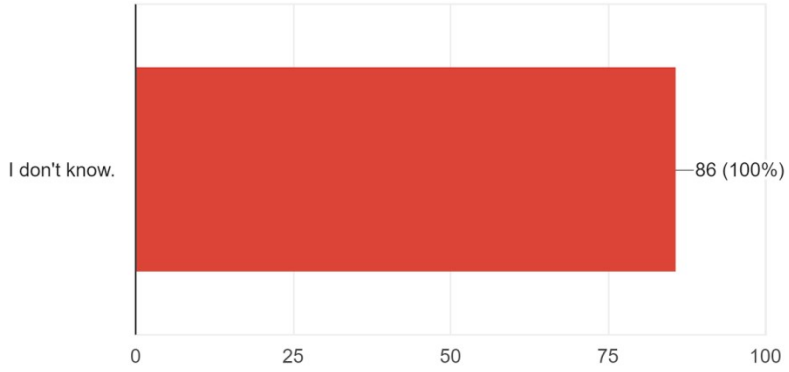
On a scale of 1-5, what is the capacity of New Paltz's local agriculture, such as area farmers, to adjust and respond to extreme climate events or other disruptions?

81 responses



Mark below if you do not know or need more information.

86 responses



Provide any additional information relating to climate change and New Paltz's food systems or agricultural production (or skip to next section). 29 responses

- Organic food is already expensive and difficult to get
- The response options (1 to 5 scale) don't fit some of the questions you ask. Be more careful about how you ask the question so that the response option makes sense.
- I personally have great access to local food, but I own a car to drive to farms. Not everyone does. Our health food store has limited local food. I've seen other towns do SO MUCH BETTER in their health food stores. Also, I think our farms are very vulnerable as they do not have unlimited resources to come back from extreme drought, and or floods.
- I am a long time CSA member and try to eat as locally as possible year round. Much harder here in the winter months and winter CSAs are more likely to be in Kingston which requires driving. I am surprised at how much I know about how to access the best local foods and how little I know about how capable my farms are re responding to climate crisis. I know the hurricanes of years past have ruined local farmers and CSA is a wonderful insurance policy.
- I think we must also be mindful of the Trump administration's immigration policy, in addition to climate, and how rounding up undocumented migrant workers would affect our local (and national) food supply.
- Memories of all those pumpkins in the river from recent storm floods leads me to worry very much about where our local ag is located -- nothing in the high lands, everything is in the low lands.
- Prepared food delivery from businesses like Blue Apron are hurting local farmers.
- The key words to my responses are "all" and "everyone"
- During Hurricane Irene, local farms were flooded and crops destroyed. There was an obvious farmer network in the region that worked together to move through that time, but it is a self-created and self- sustained network that is not supported or known about from the outside.
- I'm concerned that our agri-based tourism (leaf peepers) will ultimately be negatively impacted. More importantly, our farm-to-table food systems will be stressed as irregularities

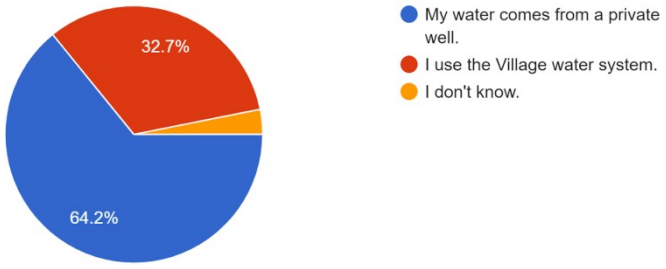
and warming trends continue

- Farmers are at risk
- Being a farmer is important and hard to make a living, climate change is the factor that may end up driving them out of business
- Obviously products such as apples would be very susceptible to climate change.
- I have worked on local farms in the New Paltz/Kingston area for 6 years and each year the erratic weather patterns worsen. More periods of too much rain when its detrimental and then little to no rain when its most needed. The tomato/pepper/eggplant season has been shortened sometimes by a week sometimes by almost 2. There has been every increasing issues with bugs, and diseases like downy mildew. Spikes of unusually hot weather in spring and fall have lead to crops bolting and spikes of unusually cold weather like late frosts in the spring and early frosts in the fall have increased. When i first started farming May 15th was the generally accepted last frost date. Now most growers are hesitant to put anything in the ground until after May 30th.
- The community garden is in a flood plain. While there is cost to rent, it's how some get fresh food.
- Those are interesting questions. More food farming would be excellent either way
- Would like to see more farmers use greenhouse growing for local production of greens year round. If Canada can do it, why can't we.
- I was a participant in Health and Nutrition garden when it was flooded
- The climate changes, it's a fact of life. Extremes occur. 85 degrees in summer is NOT an extreme!
- We get our food from a local CSA and independent local providers, but do not know the studies or science to answer the above questions for this section.
- Shift away from animal agriculture
- Don’t allow Danskammer to kill us!!
- I love that the local government is thinking about these things!
- Food insecurity is an issue that is not well addressed by the community
- Member of a CSA
- Develop farm to table systems that are AFFORDABLE and not just trendy/for the wealthy
- New Paltz is fortunate to have local farms. Is there any organizing to get some local fresh produce to people with low incomes?

Water

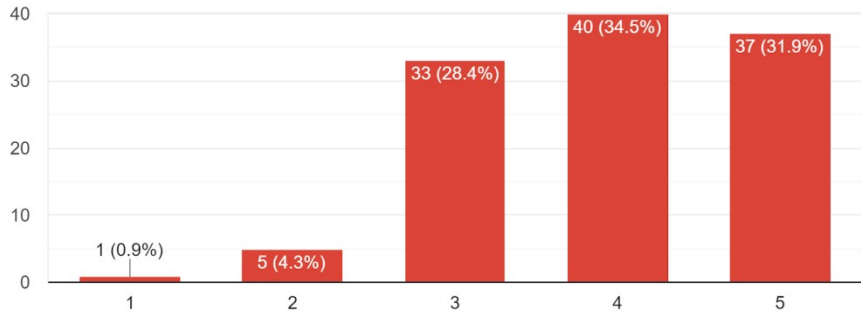
What type of water system do you have?

159 responses



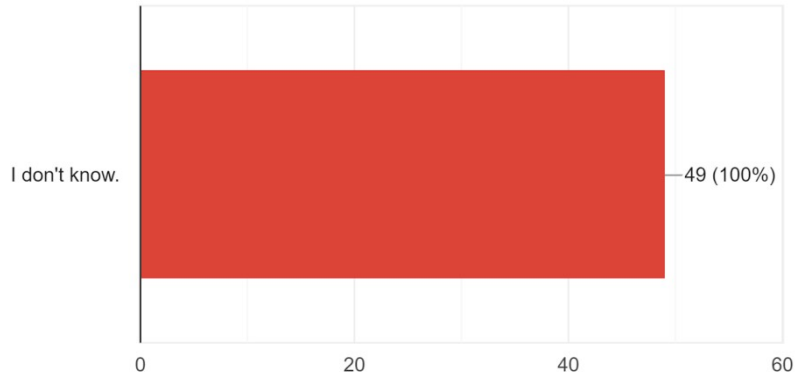
On a scale of 1-5, rate New Paltz: Residents in our community currently have enough water to meet everyone's basic needs, regardless of income or race.

116 responses



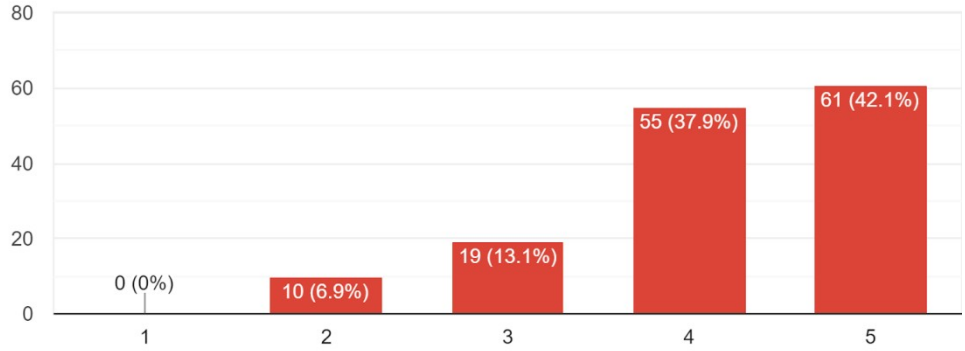
Mark below if you do not know or need more information.

49 responses



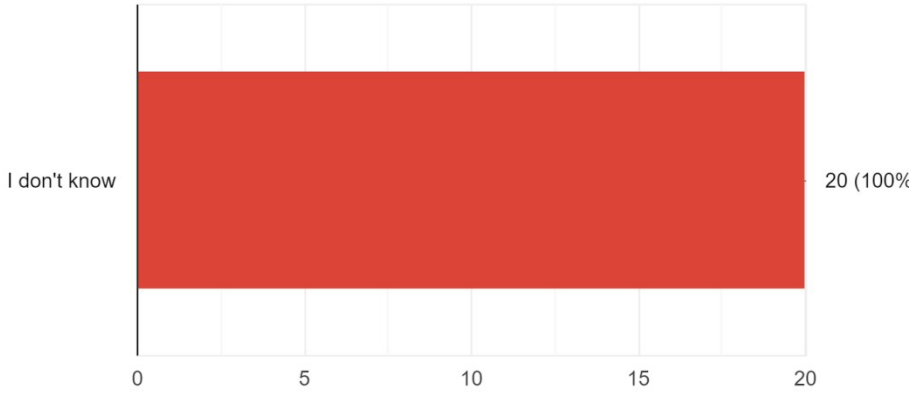
On a scale of 1-5, rate New Paltz: My tap water is clean and safe.

145 responses



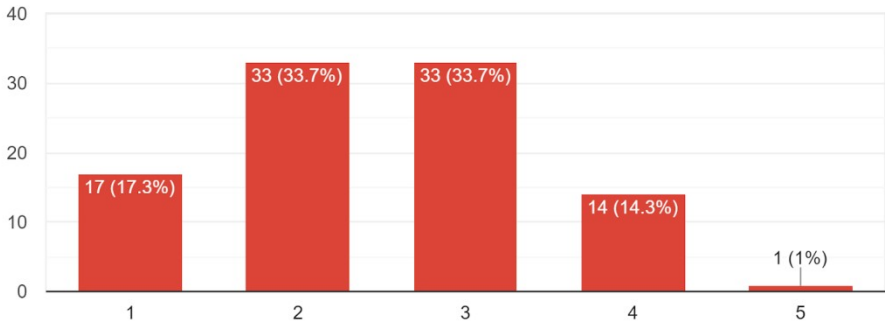
Mark below if you do not know or need more information.

20 responses



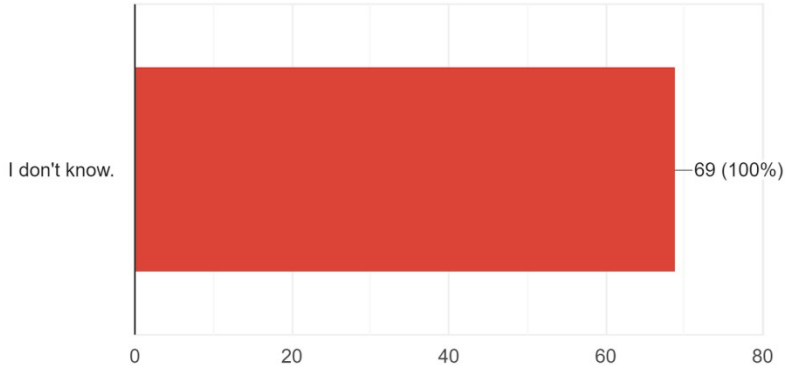
On a scale of 1-5, rate New Paltz: Our community conserves as much water as possible.

98 responses



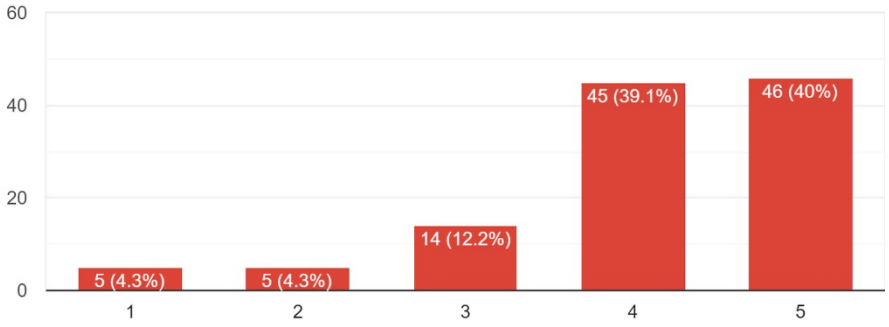
Mark below if you do not know or need more information.

69 responses



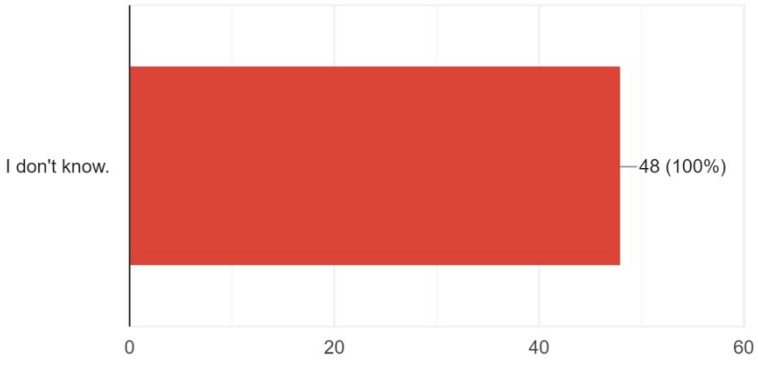
On a scale of 1-5, how impacted will New Paltz's local water systems be to extreme climate events?

115 responses



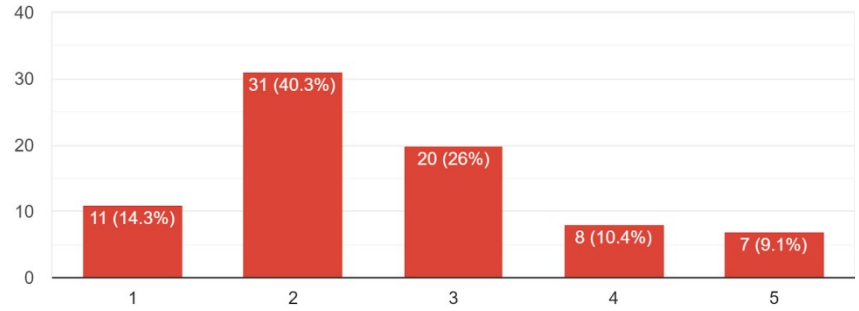
Mark below if you do not know or need more information.

48 responses



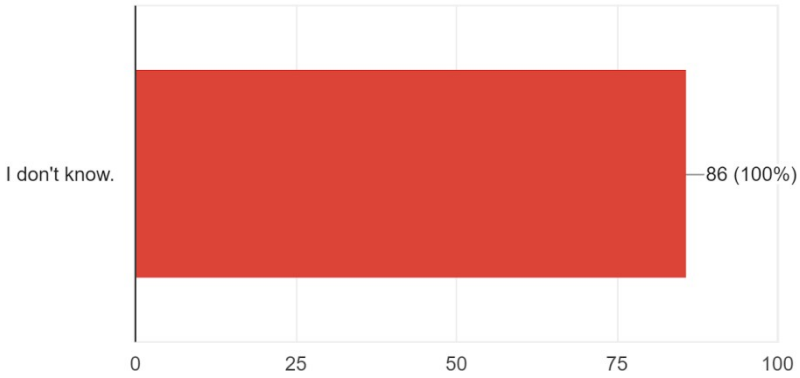
On a scale of 1-5, what is the capacity of New Paltz's local water systems to adjust and respond to extreme climate events or other disruptions?

77 responses



Mark below if you do not know or need more information.

86 responses



Provide any additional information relating to climate change and New Paltz's water systems (or skip to next section). 19 responses

- Muni system has access to NYC water supply, so unless we're denied this source, muni system users should be OK.
- Flooding from the Wallkill might inundate our water treatment plant.
- I wish the Wallkill was a safe water body. It is so sad that it is so toxic you must wear gloves to touch it.
- Because I have a well I am not as aware as I should be re our capacity to respond to climate crisis and our local newspapers aren't covering this enough.
- Our reliance on NYC does not bode well for us in the event of a severe water emergency. It is not in our control whether or not NYC provides us with water, regardless of what the contract says. I can only imagine what would happen if NYC cut off our access to the

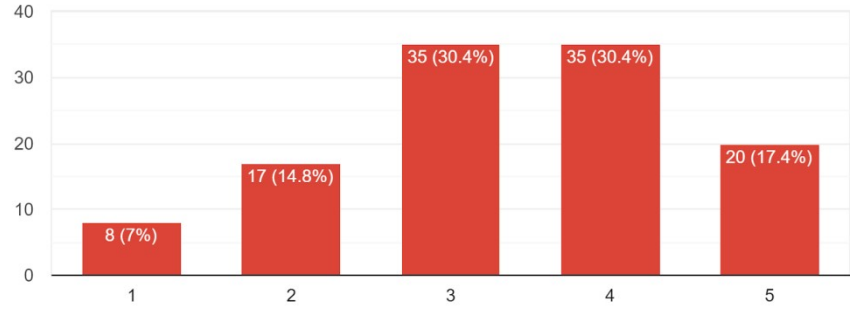
aqueduct. Our own supply is inadequate for our current usage. Add the doomsday scenario of many local resident's private wells no longer providing them with adequate water. That would be a mess. It's a shame we weren't able to take advantage of NYC's money to develop alternate water sources during the shutdown.

- NP village is currently upgrading its water filtration system
- Commercial growth will strain capacity
- Again - completely impressionistic.
- We are all in a water crisis as soon as the water table goes very low
- The issue is the pollution of the Wallkill River. It is crazy that the village and college is totally dependent on the NY City Aqueduct for its water when a River runs right by the town. Resources should have been directed to cleaning up our river
- NYC watershed partnership?
- Changes in access to fresh water on an individual and community level have to now rely on innovations and fresh water retrieval systems.
- Water is at risk
- We have an antiquated water treatment plant that has constant problems especially for those living in proximity to it near the river. There are constant threats of us being cut off from the aqueduct where we get a significant portion of our water from. An entire street's well water was ruined during experimental drilling done by a company contracted by the town to find water sources. We have little to no real plans on how to mitigate these problems and with the rate of climate change we are going to be in serious trouble. We have no code in village or town law that allows for gray water systems or composting toilets two things that could greatly reduce use of potable water if implemented into renovations and new development projects especially if there are incentives.
- NYC watershed partnership?
- “Extreme” is far ranging. Sudden desertification would suck
- Property owners need to stop mowing and raking so the street cleaner runs less often. This is recommended by the DEC
- I don’t think most people even think about water conservation much less practice it.
- New Paltz is far behind other similar communities on providing treated muni water for the entire town - the well-and-septic systems in the wider town are disasters waiting to happen. We need a thorough hydrogeologic study to identify areas of potential water, and then develop a comprehensive muni system to provide that.
- Unfamiliar with New Paltz' government plans for water during extreme events.
- Increasing traffic and pesticide use causes contamination of groundwater which will be exacerbated by flooding when sewers overflow. Let's make a plan to stop pesticide use.

Energy

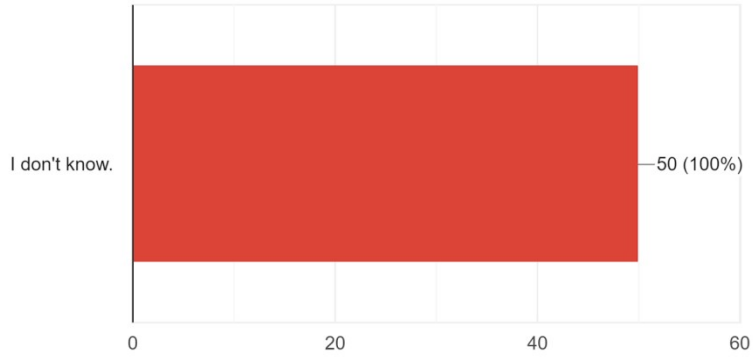
On a scale of 1-5, rate New Paltz: Residents in our community have enough energy to meet basic needs, regardless of income or race.

115 responses



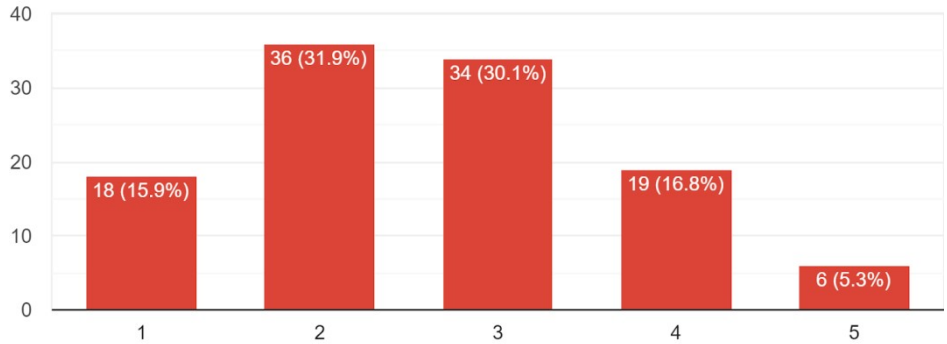
Mark below if you do not know or need more information.

50 responses



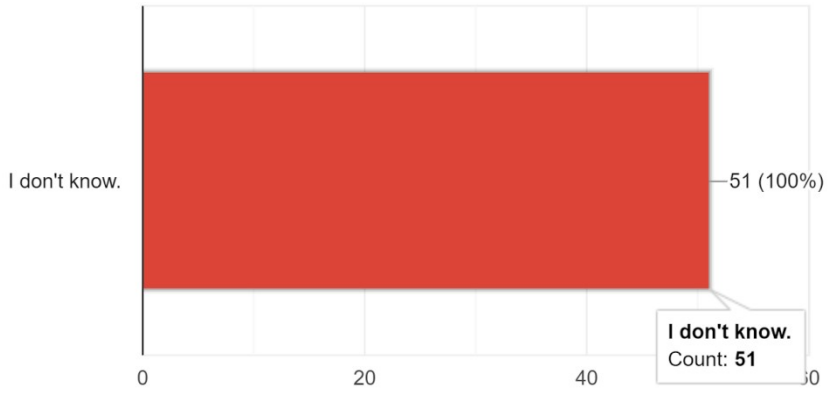
On a scale of 1-5, rate New Paltz: Our energy supply is stable, consistent, and can withstand natural disasters.

113 responses



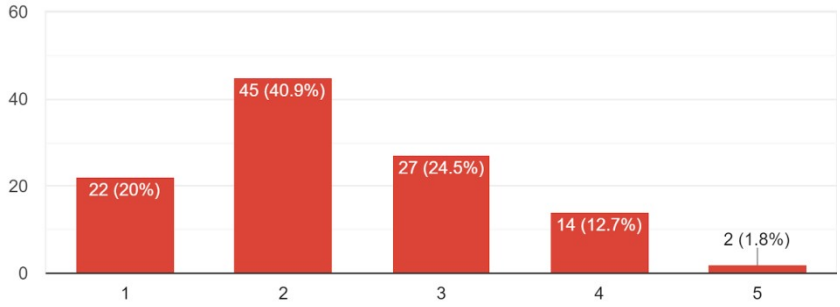
Mark below if you do not know or need more information.

51 responses



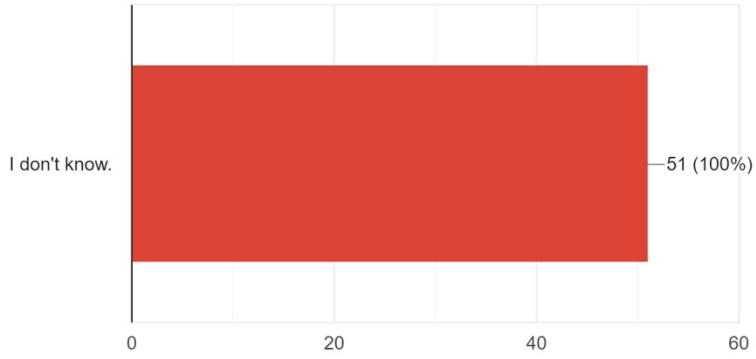
On a scale of 1-5, rate New Paltz: Our community conserves as much energy as possible.

110 responses



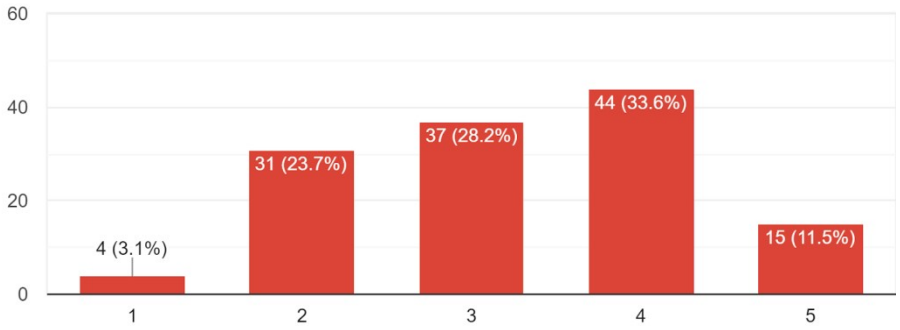
Mark below if you do not know or need more information.

51 responses



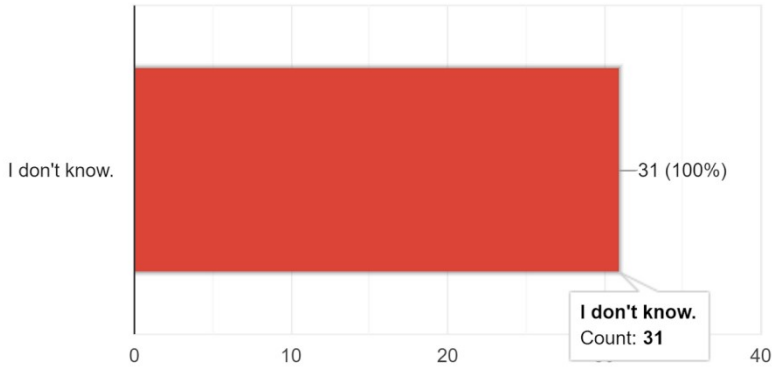
On a scale of 1-5, rate New Paltz: Our community strives to use local renewable sources.

131 responses



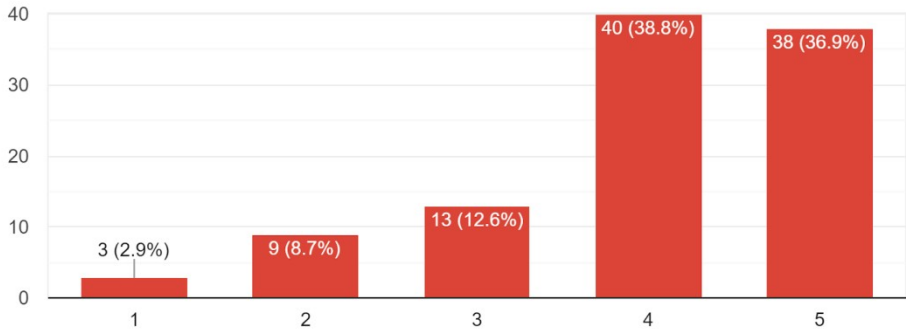
Mark below if you do not know or need more information.

31 responses



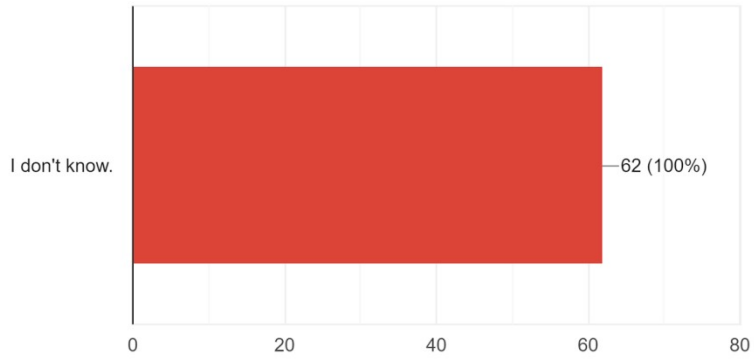
On a scale of 1-5, how impacted will New Paltz's local energy systems be to extreme climate events?

103 responses



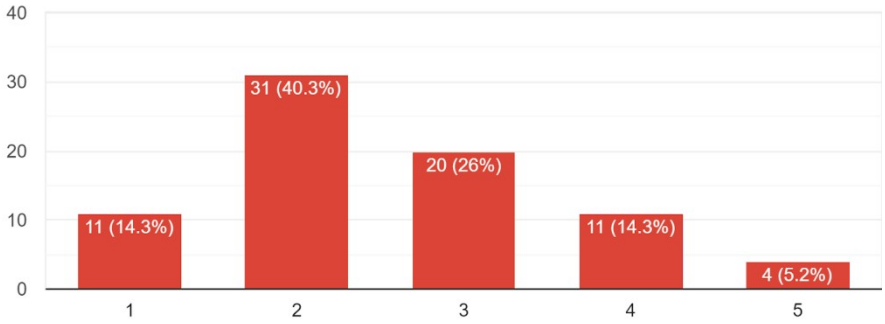
Mark below if you do not know or need more information.

62 responses



On a scale of 1-5, what is the capacity of New Paltz's local energy systems to adjust and respond to extreme climate events or other disruptions?

77 responses



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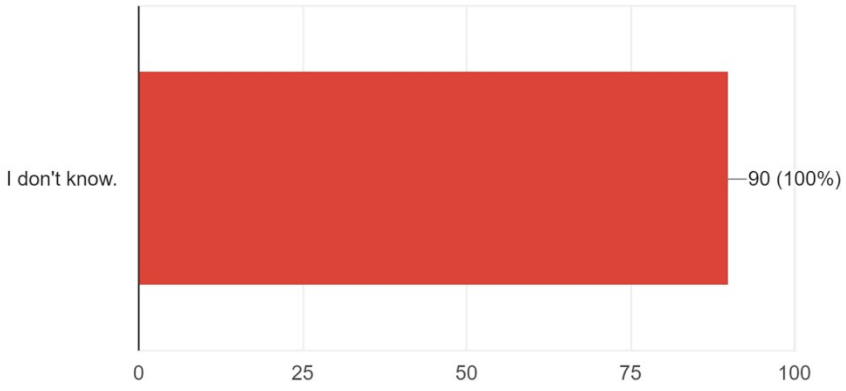
90 responses



Provide any additional information relating to climate change and New Paltz's energy systems (or skip to next section). 20 responses

- Without electricity 2x in 2 years due to wind and above ground power lines
- This addresses generation, but not a storage component, i.e., energy storage systems, with generation or stand-alone.
- The majority of my energy concerns relate to the widespread use of propane and oil in our community, especially in the village where natural gas would be cleaner and more efficient. We need more standardized energy sources that don't necessitate truck deliveries to every house in town. We could avoid increased traffic, needless expenditures of fossil fuels for the trucks, and limit fuel spill related accidents.
- Storms frequently cause power outages from downed trees and this will only increase with climate change.
- The CCA will help a lot on this, but we still often have power outages during these extreme weather scenarios.
- I feel like I saw something about community solar and NP but I haven't seen further info. I would love it if we had something for solar like we have for garbage hauling. I have a slate roof so I cannot have solar and find choosing green energy through Central Hudson very confusing and $$$.
- Does "community" mean individuals or government, gov't policies, etc? Found myself questioning this for this section.
- The Village government gets renewable electric energy through an ESCO and the town & village has committed to joining a CCA which will provide 100% renewable electrical energy to the community.
- My perception is that you are seeking to educate me and raise areas that should be of concern to me by providing some introductory information and then asking directive questions.
- Many have solar panels, but immediately when there is a disruption to the power grid, solar is also cut off because our solar systems are integrated with the overall Con Ed system. This makes us, and me more vulnerable to disruptions
- Energy at risk
- I'm glad we are in a CCA now.
- We are all using fracked gas or oil to heat our homes and although there is some houses with solar etc. by and large we are all getting energy from fossil fuels. Right now we have black outs seasonally but usually power is restored in a reasonable amount of time but as things worsen, as hundred degree days increase and people are running their ACs, as people keep using fossil fuels to heat their homes in the winter and we do not have a critical mass of people reducing their usage, it's going to get worse and those black outs will be more frequent. We have already seen spikes in utility price rates, already a struggle for working families. And those not economically challenged have no incentive to reduce their consumption. It's not looking good.
- I am very fortunate to own a zero-net energy home so I make the energy I need. But I'm

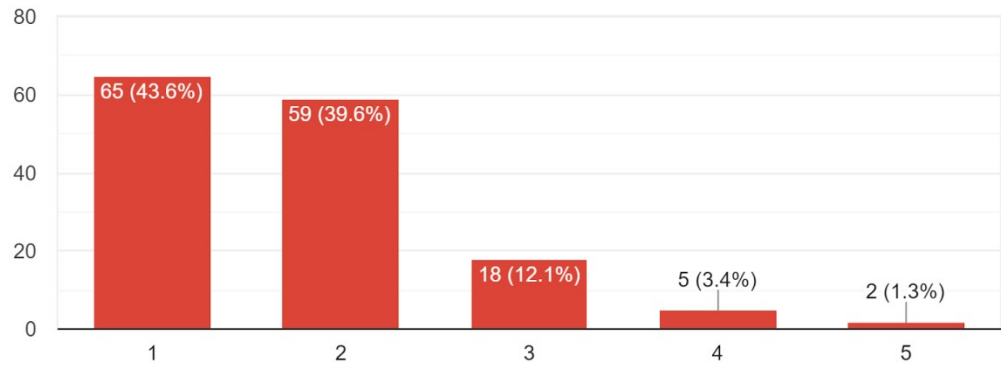
unsure of how the rest of our community is affected &/or able to make their own energy.

- This is a very long survey. My block switched to fracked gas, I was the only one who said no. I still have oil. I want to change but my credit isn't good enough. I have no idea what others are doing but they appear short sighted
- Central Hudson has responded to the natural weather extremes (which occur naturally) in a timely and efficient manner, maintaining the power grid for the New Paltz users. While solar may be nice, it is not economically feasible for some.
- We are concerned that our apartment complex does not compost, nor does it use renewable energy. Both need to be legislated.
- I see a lot of solar panels around, but Central Hudson has a monopoly on energy in this area, and it is VERY EXPENSIVE. Not everyone can afford solar panels.
- Add government sponsorship/rebates for converting homes to non-CO2 producing heating/cooling (weaning ourselves from oil, propane and electricity generated from fossil fuels). Currently there are offers, but people don't want to switch because they don't see incentive or cost savings in the short term.

Housing and Transportation

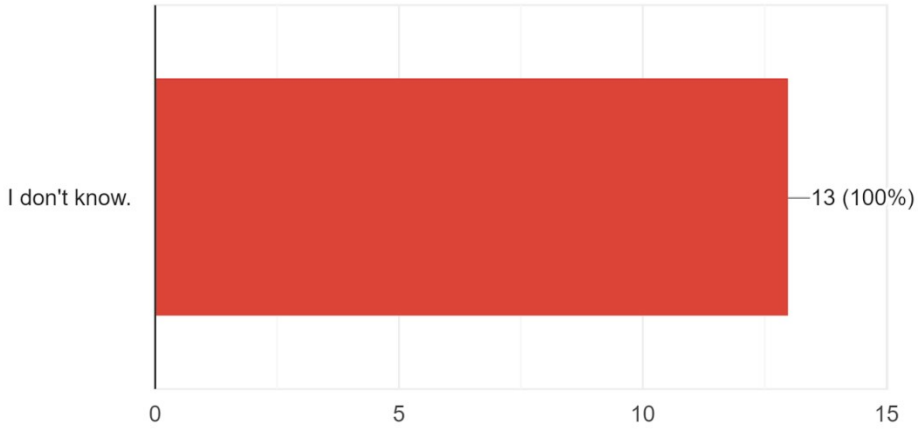
On a scale of 1-5, rate New Paltz: Those who wish to live in our community can find quality affordable housing near jobs and schools, regardless of income or race.

149 responses



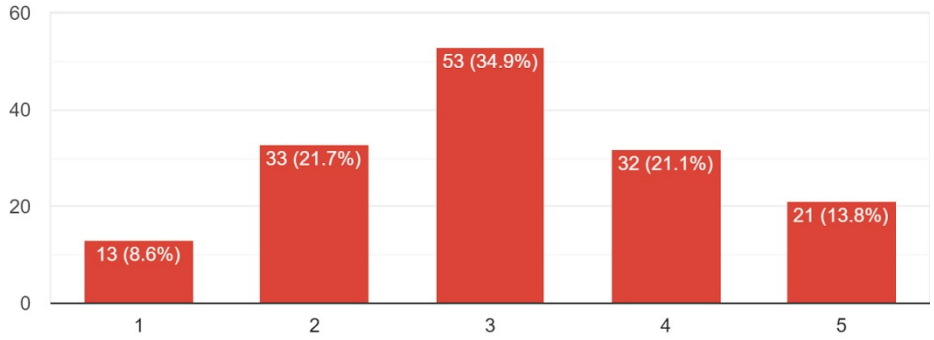
Mark below if you do not know or need more information.

13 responses



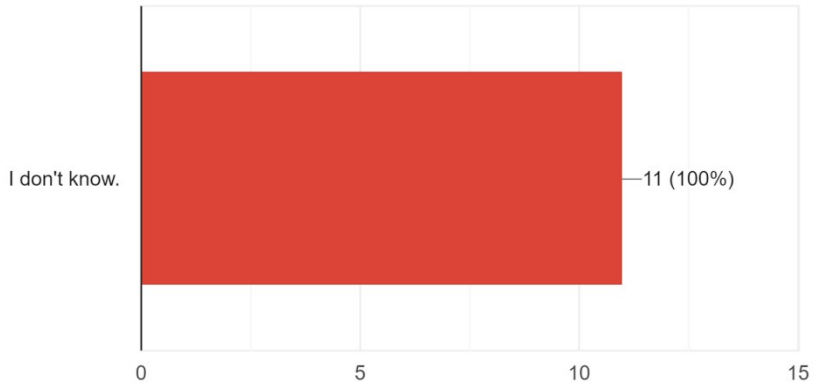
On a scale of 1-5, rate New Paltz: Neighborhoods in our community have access to jobs, schools, open space, fresh produce...s via walking, biking, and public transit.

152 responses



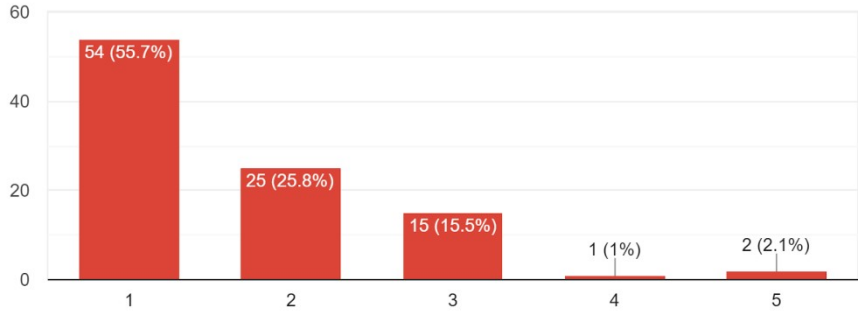
Mark below if you do not know or need more information.

11 responses



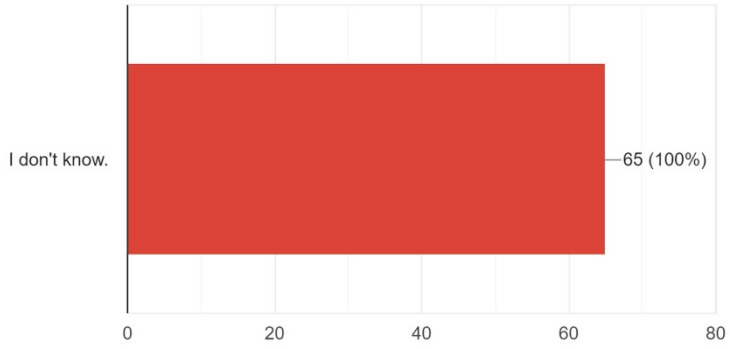
On a scale of 1-5, rate New Paltz: Our transportation systems are powered by local renewable energy sources.

97 responses



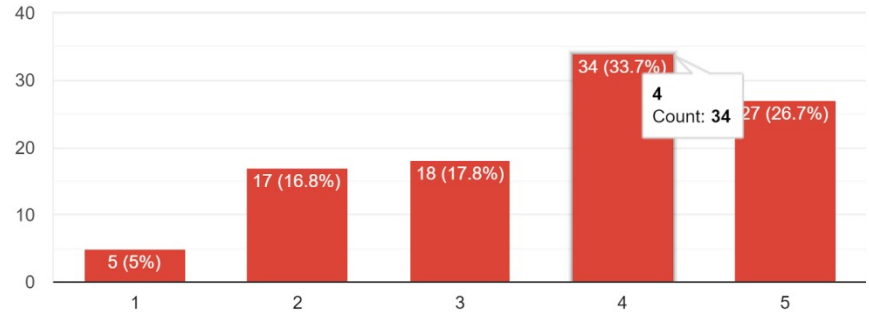
Mark below if you do not know or need more information.

65 responses



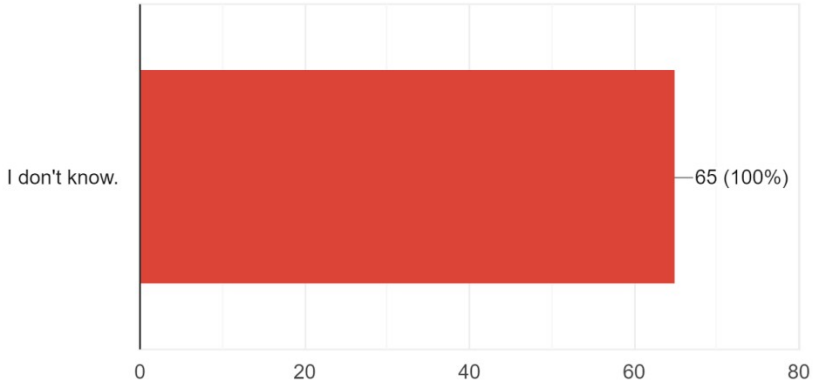
On a scale of 1-5, how impacted will New Paltz's local transportation and housing be to extreme climate events?

101 responses



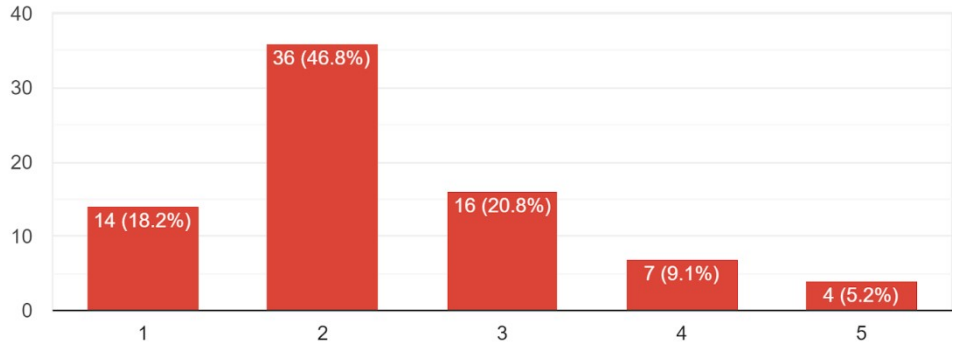
Mark below if you do not know or need more information.

65 responses



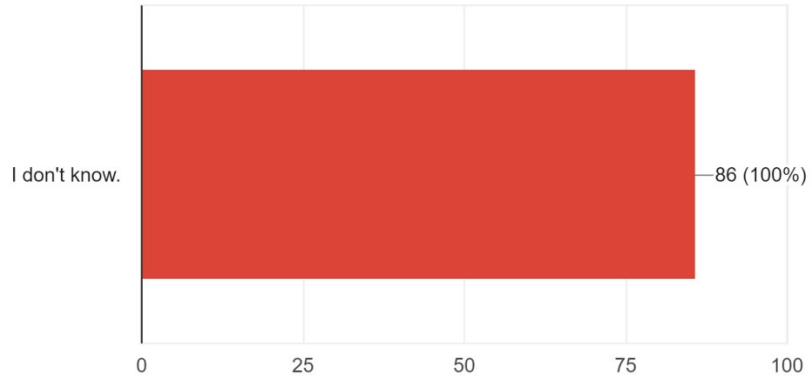
On a scale of 1-5, what is the capacity of New Paltz's local transportation and housing to adjust and respond to extreme climate events or other disruptions?

77 responses



Mark below if you do not know or need more information.

86 responses



Provide any additional information relating to climate change and New Paltz transportation and housing (or skip to next section).22 responses

- This is not a green community. Our public transportation is a joke and it certainly doesn't connect people to local farms. We can and should do better. Our schools are also out of the way, except the Middle School. This is not a walkable solution.
- My retired mother-in-law struggles to find affordable housing within our community—she's on a waitlist for many many many months after having to give up an apartment due to a difficult neighbor. There seem to be only 2 relatively affordable communities
- I am a biker and I also drive in New Paltz. I think there should be better compliance to the rules of biking in NP i.e. don't blast through stop signs just because you don't want to stop or slow down. This is especially true of roads coming out of the College and streets like Pencil Hill and Mohonk Avenue.
- You provide the "I don't know" option but include - "or need more information". The latter is not the case. Please do not send me lots of emails with information about the items I marked "I don't know". Thank you.
- The presence of the college drives up prices on our rental housing. Student rentals dominate village housing availability.
- If you live in the Village, walking, biking, and public transportation is more of an option, but as soon as you are outside of the downtown area, New Paltz becomes unwalkable sprawl that lacks safe places for cyclists and pedestrians.
- Housing at risk
- We need more vehicle share programs, bikes, electric bikes, trikes, etc.
- Failure to plow shoulders in the winter virtually eliminates bicycling.
- There is no affordable housing in New Paltz for those on fixed or moderate incomes. We are all struggling to pay for in many cases poorly maintained and small living spaces. Yes we have access to schools and rail trails but not to affordable housing and our transit system is barely adequate. As far as key services it's hard to get to a place that sells underwear, towels,

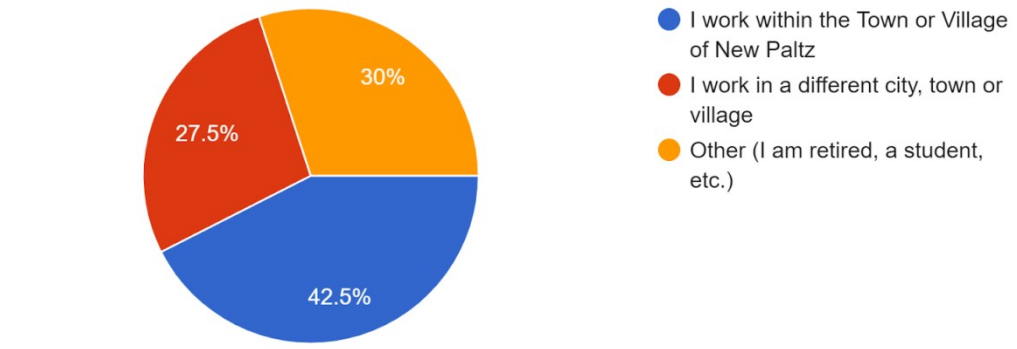
sheets etc. Most shops in town are catering to tourists and not serving needs of locals. And all of those things should have has separate responses and not been all lumped in together. And there are no jobs. There are very poor paying retail and food service jobs and that is mostly it. We have people with masters degrees working behind counters for $10/hr who are paying $600 a month in rent for a small room in a shared apartment with 2- 3 housemates. And it's getting worse fast.

- NYC getting flooded "extreme"? Get ready for a migration.
- These questions are written in such a way that nobody could possibly know the answers. The property tax is what kills the place for individuals without money. I am over charged thousands of dollars every year and can't afford to fight it. They disregard individuals. There are CSAs but I save up to do that and make choices some would find difficult. The market will become less restrictive when enrollment goes down at the college. There are always help wanted signs in the shop windows. The worst environmental culprits that would easily be solved by changes in behavior are lawns and fast food. The village street cleaner uses 1000 gallons to remove leaves from the street that should have been be left on the ground.
- I'm glad to see improvements in bike-ped routes in our community.
- Public transportation is inadequate
- There is a dearth of affordable housing in New Paltz as well as a dearth of jobs that pay enough to live in New Paltz. Most people have to work outside of New Paltz to be able to afford to live here. (Housing?) and transportation are affected by snow and cold, again naturally occurring, and less so by summer weather. Bus and taxi service ALWAYS suffers in snow. Need better snow removal.
- We have rented houses in New Paltz since 2008. The landlords sometimes provided snow shoveling so that we could get out of our driveway to travel to work in the morning by car, but not always. Severe weather in the winter has impacted my ability to travel to my workplace -- in Westchester County -- by car more and more frequently over the years.
- New Paltz is a thriving little town with a lot to offer, but I don't know if there are jobs that can support a person here unless you work for SUNY, the school district, or own a business. As any rural area, transportation can be a problem if you don't own a car
- New Paltz is a small town and if you live close to town walking is possible to most places EXCEPT for the fact that whether you are on foot or on bike, you risk your life crossing the street. "Build it and they will come" has worked for the rail trails. Let's build more pedestrian/bike friendly roads and paths instead of letting the traffic take over. Also, the faster that motorized traffic goes, the more CO2 is emitted. (See Dutch Study results) At the same time we need to keep planting more trees instead of tearing them down to build new roads for cars

Economy

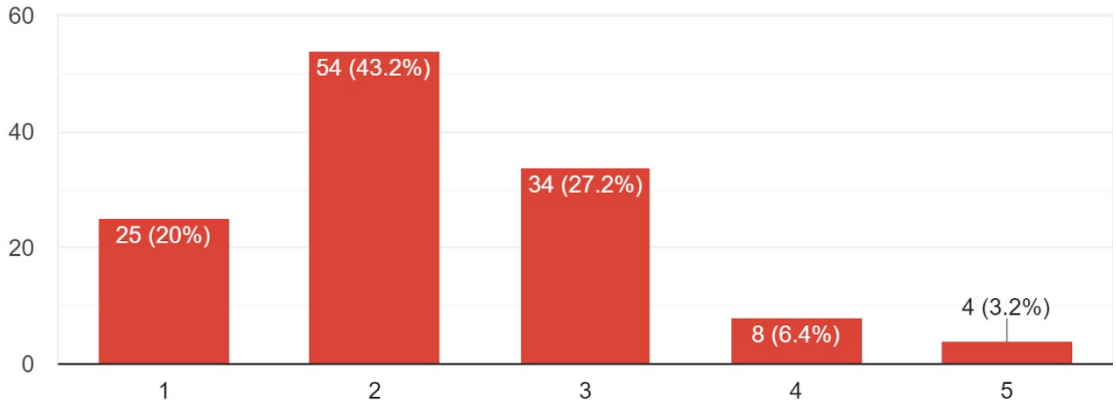
Do you work inside or outside of New Paltz?

160 responses



On a scale of 1-5, rate New Paltz: Majority of residents of our community across all race/ethnicities have access to sufficient income to sustain a household.

125 responses



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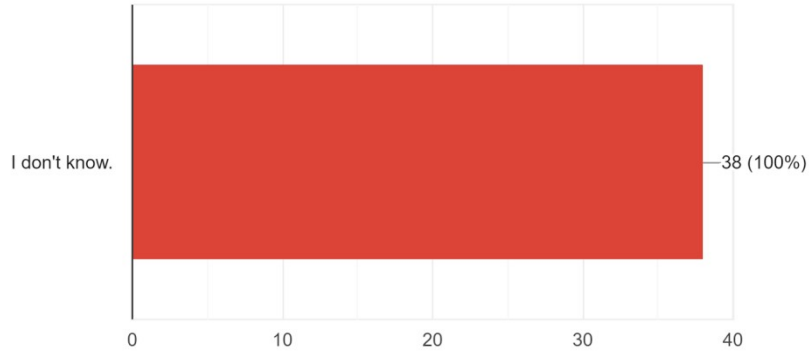
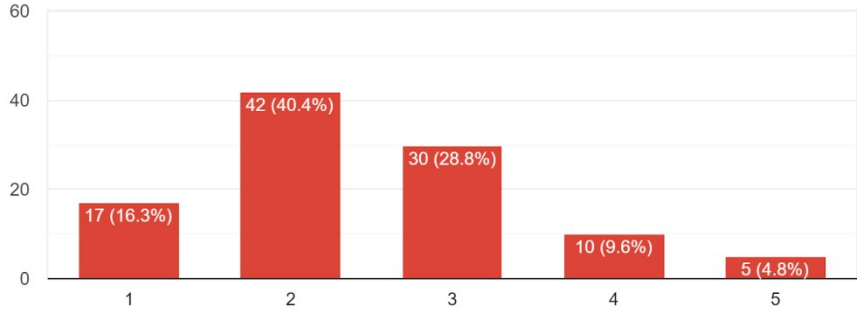
38 responses



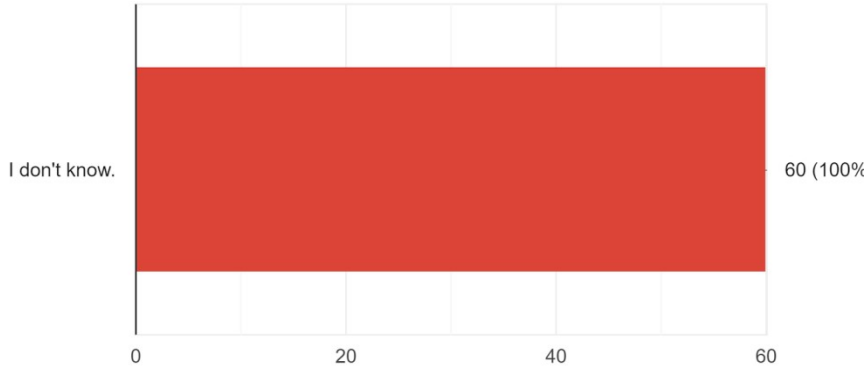
On a scale of 1-5, rate New Paltz: The Town or Village actively seeks economic development opportunities that support the creation of full-time local jobs.

104 responses



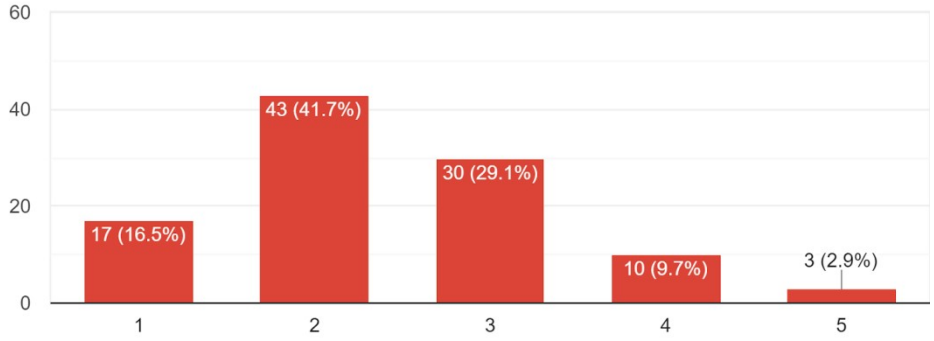
Mark below if you do not know or need more information.

60 responses



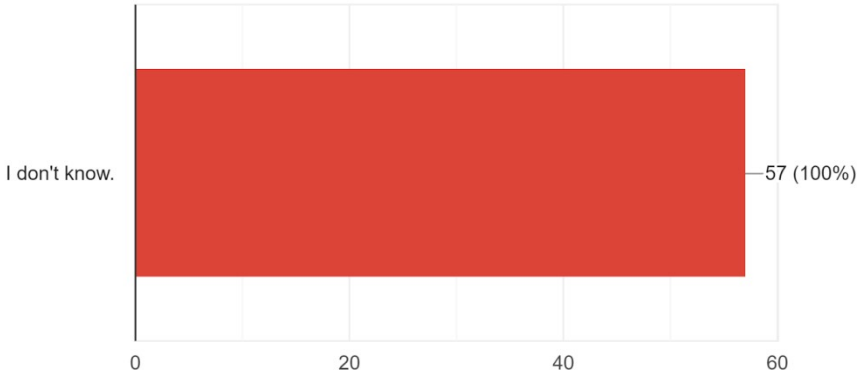
On a scale of 1-5, rate New Paltz: Our community's economy is based on sustainable use and re-use of our region's resources.

103 responses



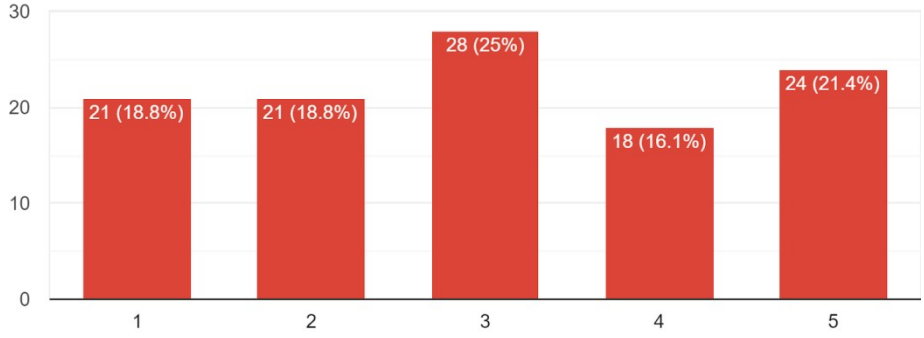
Mark below if you do not know or need more information.

57 responses



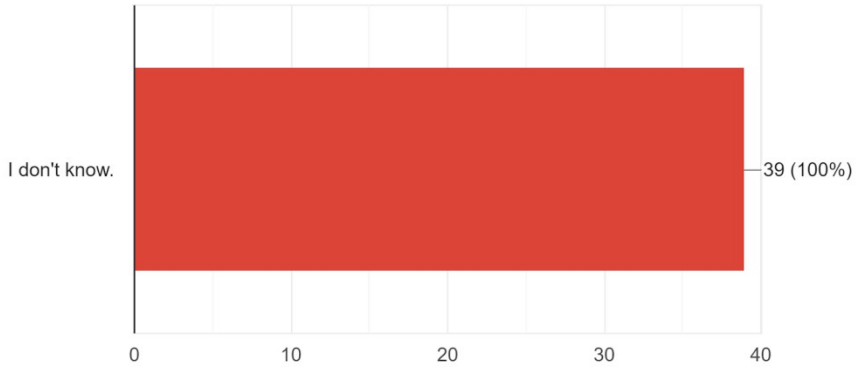
On a scale of 1-5, would extreme climate events interrupt the job that you do in New Paltz?

112 responses



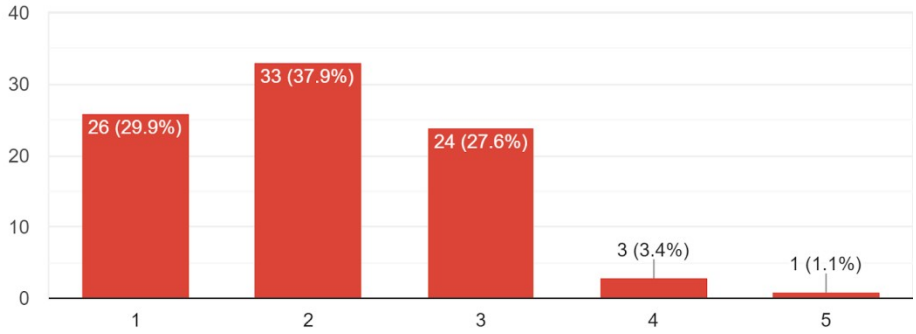
Mark below if you do not know or need more information.

39 responses



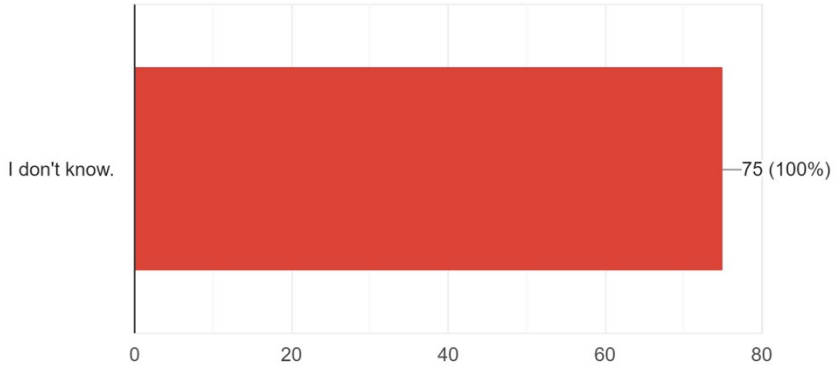
On a scale of 1-5, rate New Paltz: Our community has effective public strategies to secure local employment opportunities.

87 responses



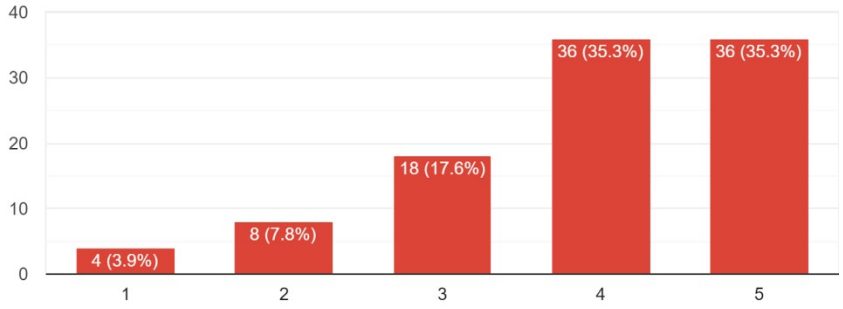
Mark below if you do not know or need more information.

75 responses



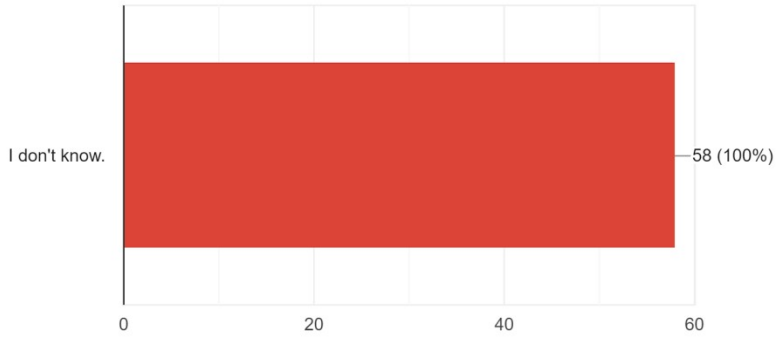
On a scale of 1-5, how impacted will New Paltz's local jobs and economy be to extreme climate events?

102 responses



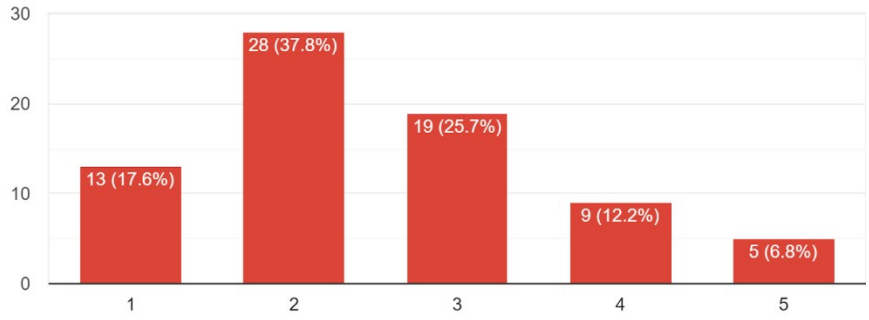
Mark below if you do not know or need more information.

58 responses



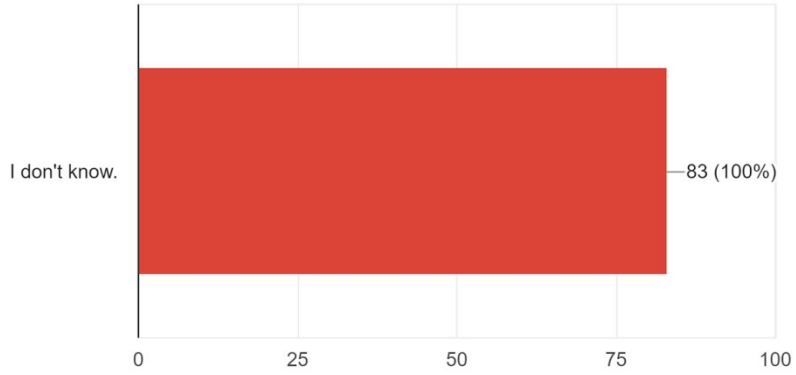
On a scale of 1-5, what is the capacity of New Paltz's local jobs and economy to adjust and respond to extreme climate events or other disruptions?

74 responses



Mark below if you do not know or need more information.

83 responses



Provide any additional information relating to climate change and New Paltz economy and jobs (or skip to next section).14 responses

- If the T and V wanted to create jobs, the T would address zoning in non-residential areas such as S. Putt Corners Road, making these areas more readily accessible to developers. This would include the village making water available to new users.
- The majority of my concerns economically relate to our water/sewer system and drainage, which is currently unable to keep up with the extreme amounts of rainfall we've received the past couple of years. There have been many days over the past year that I've seen the streets turn into a river in the blink of an eye. This most certainly has a negative impact on the local economy in terms of creating widespread logistical issues for the entire community.
- I work from home and only one of my clients is local (Stone Ridge, not New Paltz). Most of my income still comes from New York City. It's not sustainable to commute but the income I am offered up here versus what I can get from NYC clients is not even remotely in the same ballpark. Earning NYC money and living here is comfortable. Earning Ulster rates and living here would be a lot tighter. There just is not the same level of work available up here.

- In the Village, the average income can't afford the average rent (plus other living expenses/bills). But the figures for the Town outside the Village are a totally different scenario.
- The university jobs should be more resilient, which is a lot of local jobs
- Don't all the answers to these questions depend on the nature and location of the extreme event?
- Jobs at risk
- I assume New Paltz is similar to other places in terms of how much climate change will affect us, we don't really know yet, depends on how bad it gets.
- This is 2019, it is impossible to make a living in America unless you were born into a rich family. I work 60 hours a week, and I still can't afford health insurance, nor can I afford to move out of my parent's house. I have a college degree. Life is less-than enjoyable. It is not my intention to assign blame; only to explain my reality. Concern for the environment is touching; I love outdoor activities and will continue to be saddened by the degradation of our environment. However--and I urge you to please put yourself into my shoes, in this scenario-- How can you, as a government entity, invest significant amounts from the town/village budget into the environmental programs while many of our residents are fighting to survive? I, for example, would be in abject poverty if it wasn't for my familial support network. I think it is wonderful to see land being set aside for preservation, to see plastic bags banned, etc. But what does that matter to me or the majority of my generation if the town/village board would rather hand out ridiculous tax breaks to corporations and cooperate with the nefarious Ulster County Industrial Development Agency. How can you justify giving millions of dollars to affluent individuals/corporate entities? You don't really believe that the "full time" positions created as a result of these new businesses provide remotely livable working conditions, do you? I hope not. A dozen full time jobs paying 13-14$ an hour is a sad joke to our financially struggling residents, such as myself.
- R ambling aside, the main point here: I want to care about the environment, but I need to worry about making a living and not starving to death, first. I need to worry about how I am going to pay for my doctor's appointment when I get sick, first. Thank you for your time and have a nice afternoon/evening.
- I have worked in New Paltz up until this currant farm season. I still live in New Paltz. Professional jobs are limited compared to the amount of people who want to live here. A great deal of people who own homes and have a decent income actually work in the city. Aside from the college it is predominantly food service and retail jobs which pay terrible, no benefits. We have a ton of people overworked, underemployed, underpaid, living in crap way overpriced housing. Surrounded by people who have 2nd and some even 3rd homes. We make their lattes. That is the reality of it.
- Obviously torrential rains kill tourism. I didn't know it was my local government's responsibility to provide jobs. People choose where they live based on opportunities that suit them. If a million people moved here and all the trees were cut to make housing and Main Street a 4 lane highway would you still want to live here? How racist is New Paltz? Idk. There are some here, misogynists too. I guess a man wrote the survey. Does anyone get anything here regardless of money? Well the view is free and there is food not bombs on Wednesdays
- These questions do not address the difference among events of snow/cold or heat/rain. The

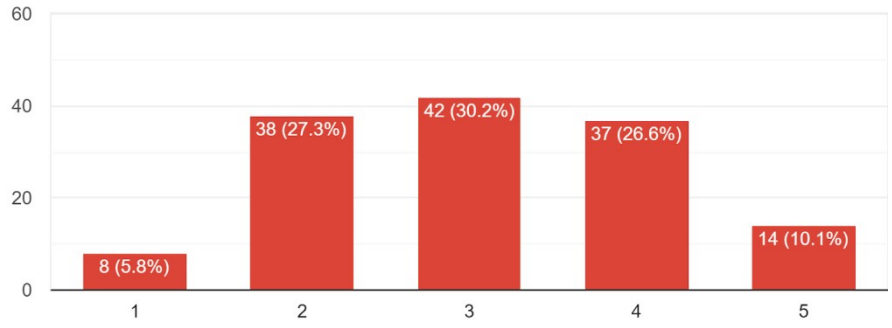
world will NOT end in 12 years. We WILL have snow this season, and traffic will be affected. We have been kept from going to our jobs by snowfall, not by 85 degree days!

- I wish that I was able to work in or closer to New Paltz. I live in New Paltz but commute to work in Westchester County. I would much rather work locally, and am open to opportunities to change jobs if possible.
- Let's create jobs that don't increase traffic (CO2) or tearing down trees to add pavement. This is the very thing that is causing global warming. Planning must first think of ways that people can get to their jobs without a motorized vehicle---in my conversations with the DOT, they informed us that is MUCH cheaper to plan for non-motorized trails (walking/ped) than planning for roads for cars/truck. And, it is very expensive to build walk/ped access AFTER the fact. That said, we can reduce CO2s and traffic plus money when we first plan how people can bike or walk to locations, instead of only thinking about how vehicles will get there.

Civic Preparedness and Social Services

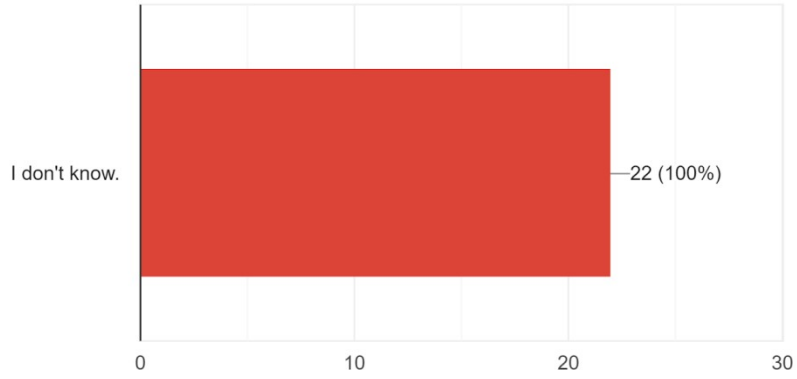
On a scale of 1-5, rate New Paltz: Neighbors in our community are well organized to help each other in times of need.

139 responses



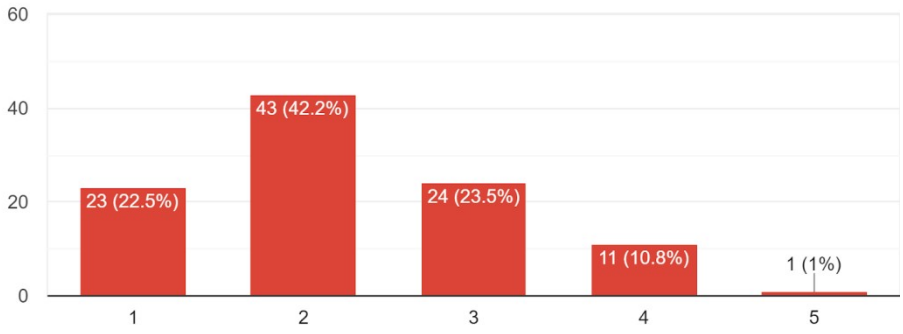
Mark below if you do not know or need more information.

22 responses



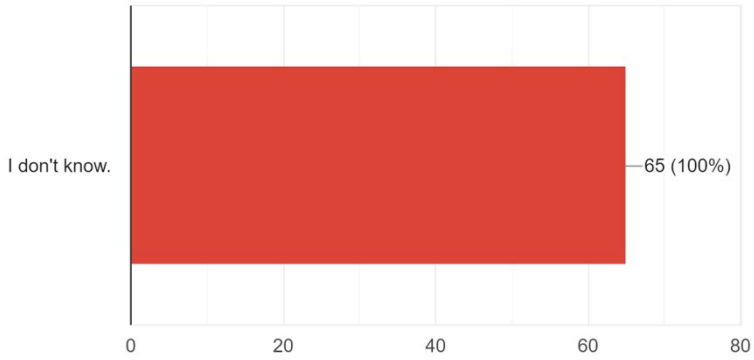
On a scale of 1-5, rate New Paltz: My Town or Village government is adequately prepared for climate change, rising costs, and natural disasters.

102 responses



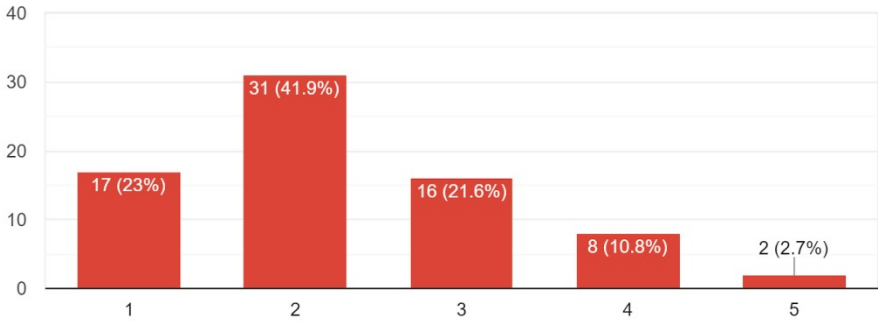
Mark below if you do not know or need more information.

65 responses



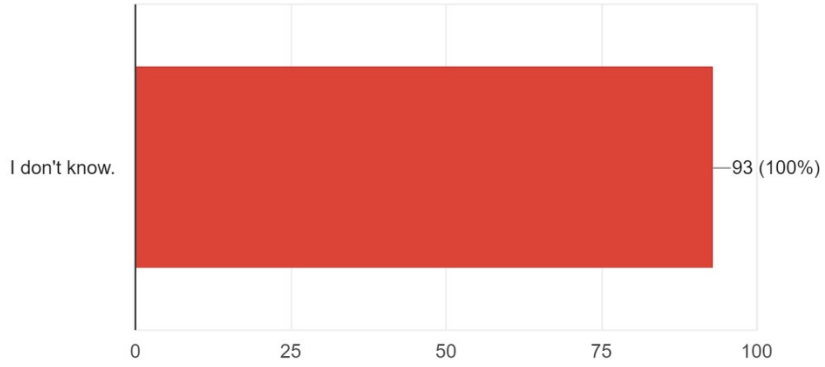
On a scale of 1-5, rate New Paltz: Our local government services are funded from sources that are sustainable as energy prices rise.

74 responses



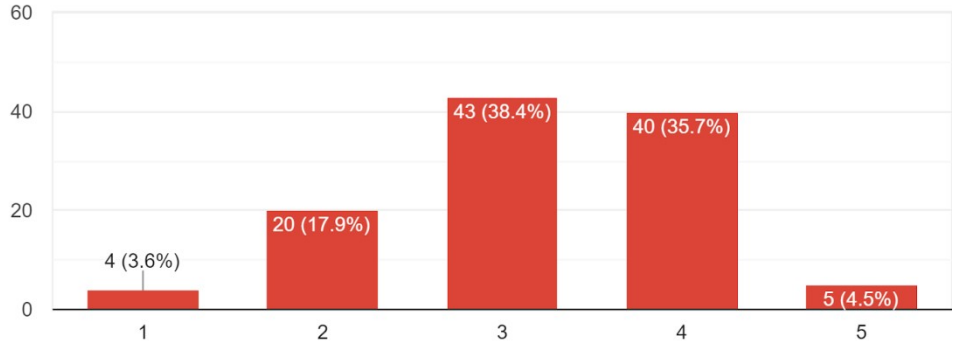
Mark below if you do not know or need more information.

93 responses



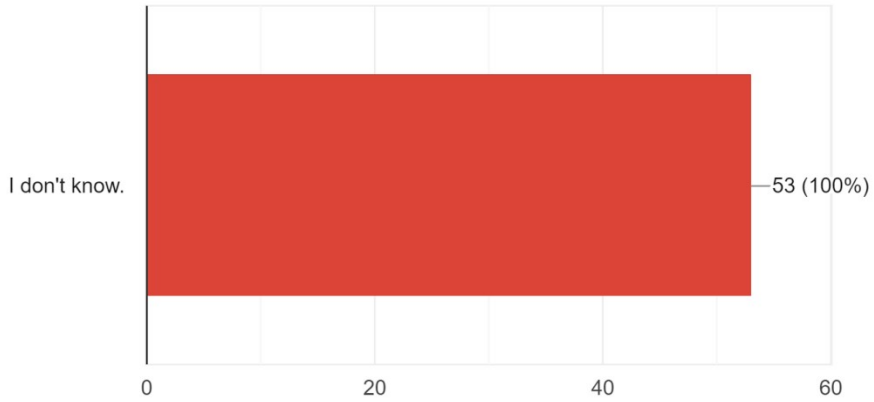
On a scale of 1-5, rate New Paltz: Our local government responds effectively to natural disasters.

112 responses



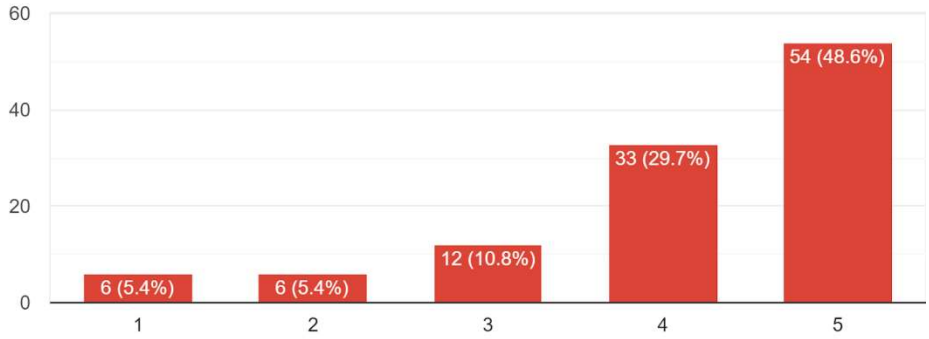
Mark below if you do not know or need more information.

53 responses



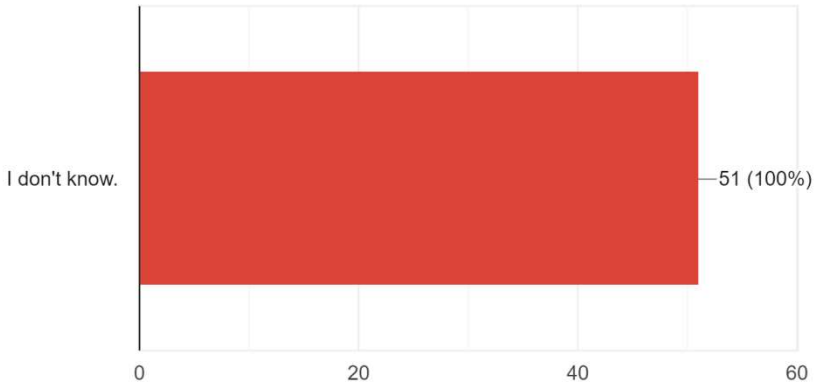
On a scale of 1-5, if no climate adaptation occurs, how impacted will New Paltz's local government services be by climate change?

111 responses



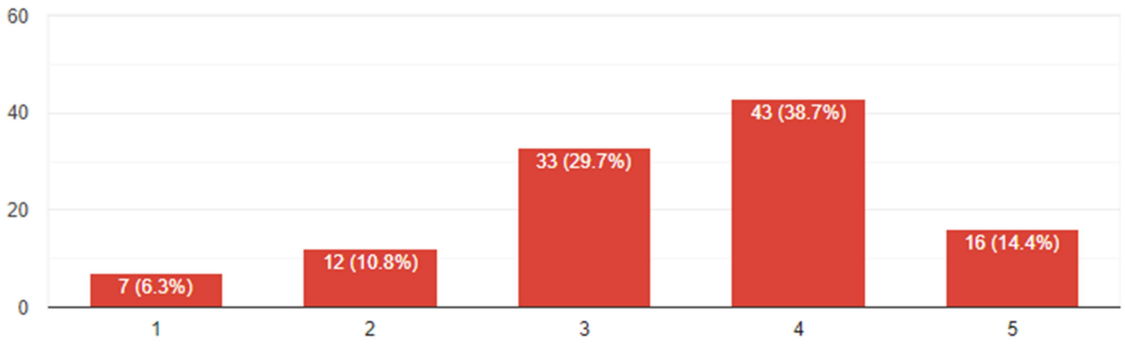
Mark below if you do not know or need more information.

51 responses



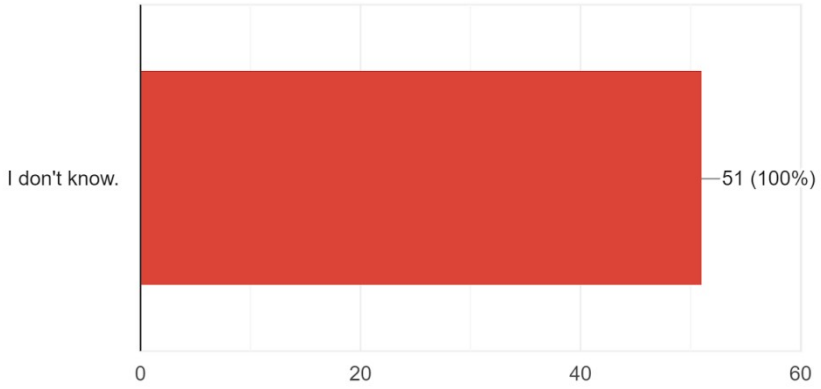
On a scale of 1-5, do you view New Paltz's local government as having the will and ability adjust and respond to extreme climate events or other disruptions over time?

111 responses



Mark below if you do not know or need more information.

51 responses



Provide any additional information relating to climate change and Town or Village services and community preparedness (or skip to next section). 18 responses

- I am in the local government. We are all informed and concerned, but we can do better to be proactive. There are many things we can do.
- I believe that our local government possesses both the will and ability to meet these challenges head on.
- I think they have the will but not the funding to adjust and respond.
- This is a poorly designed survey that solicits only opinion, easily overloaded by climate change disaster fanaticists. It will become a self-fulfilling prophesy.
- The Town should have a larger emergency fund to prepare for future climate disruptions. The reality is that certain local government services like road maintenance are likely to get more expensive in our changing climate, and that we can expect more frequent flooding and probably summer droughts. The time to start preparing is now!
- New Paltz is not an Island and climate change is far reaching so some of these questions are more complicated than rating them 1-5
- This survey alone suggests that there is a growing political will to face the challenges of climate change
- Thank you for raising awareness and organizing community feedback to guide what will hopefully be effective “next steps” or a five- and 10-year plan
- Government at risk
- So as to not throw the local government completely under the bus, although I think in many instances there are actions that can be taken that are not being prioritized andIi think most climate action taken has been symbolic at best. But in their defense I don’t think they currently have the resources to properly address these issues.
- I don’t know how organized anyone is but my neighbors are kind and I know we could run to each other at the last minute if need be. My neighbor removes my sidewalk snow and the DPW appear to do a good job when it snows. Vehicles especially school busses all on diesel

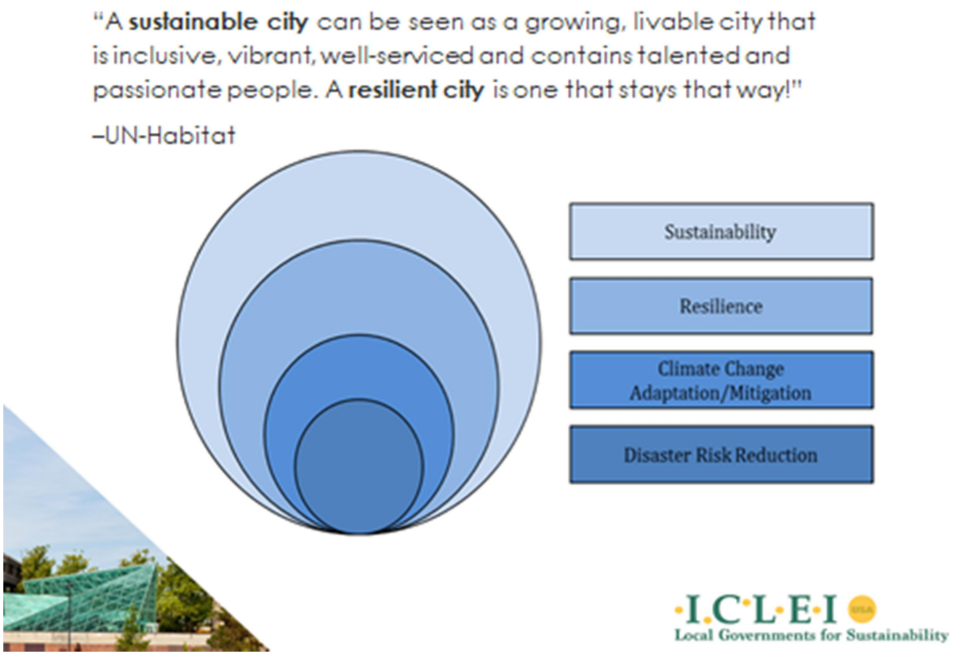
fuel regardless of who is in charge

- Once again, this survey makes no distinction between hot and cold/snow climate events. New Paltz does an adequate to good job of snow removal and dealing with cold weather events. They also responded well to the flooding on Rte 299 in the village more than 20 years ago. I have no idea how the government will respond to summer weather.
- We moved up from the city about 18 mths ago. So I am not certain.
- I think the local government has the will but is probably limited by budget and staffing levels
- Frustrating trying to answer these questions. I just don't know the answers. I'm glad you are taking climate change seriously, though. I expect we will have refugees arriving more and more.
- I think some of the questions are better answered via data and expertise, rather than opinion. I urge caution if the intention is to use these data to drive decision-making.
- If we are not moving to solar or wind, we are not preparing ourselves.
- Certainly in the flood of 2011 and previous floods, there was not much planning or help. Police yelled at us for using the rail trail when all roads were blocked. My "island" lacked access to emergency services and the way the rail trail bridge is now, it is unsafe for emergency vehicles. No pre-planning.

Appendix C: Workshop Summary

Workshop #1

Slide Deck



NYS advises to consider several community systems

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Five Milestones for Resilience Framework

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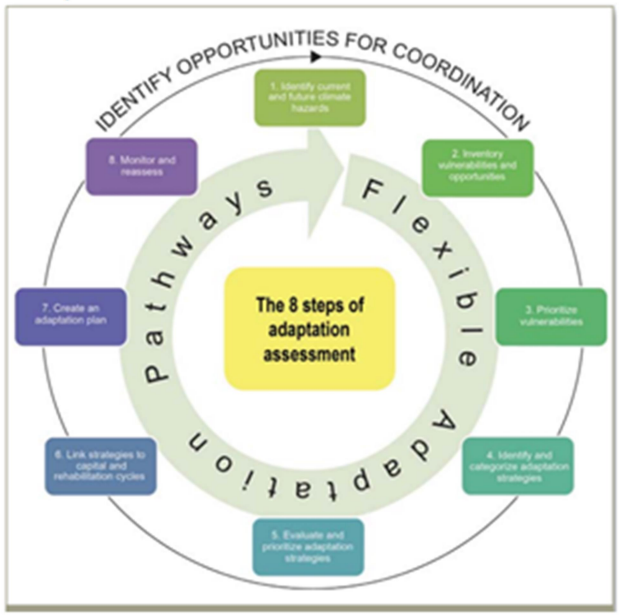
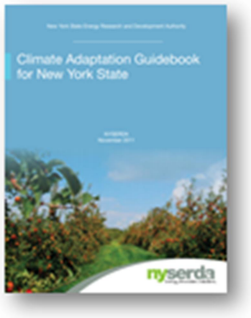
Local Governments for Sustainability

Five Milestones for Resilience Framework

ICLEI USA
Local Governments for Sustainability

Adaptation Frameworks: NYS Guidelines





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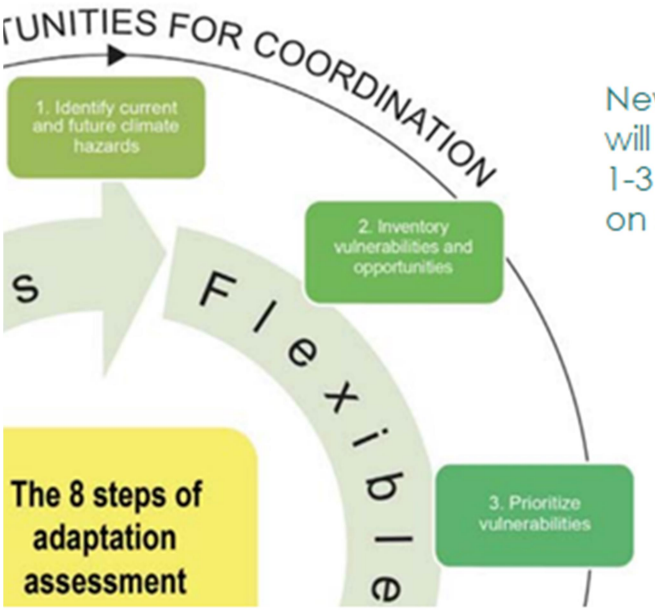

New Paltz project will achieve steps 1-3 & get started on steps 4-5

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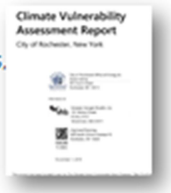
Regional Vulnerability Assessments

Rochester

- 2018: Vulnerability assessment includes infrastructure (transportation, energy/utilities, water, buildings), natural resources, socioeconomic (health, economy). Summary profile of regional impacts. Recommendations made.



Albany

- 2013: vulnerability assessment includes economic, social, health, infrastructure, natural resources. Risk profiles and recommendations developed for each sector

Hudson River Estuary Watershed

- 2009: stakeholder engagement workshop of 4 different scenarios and their associated potential actions, political climate, trends, economy. Final recommendations and findings from the stakeholder engagement shown

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Regional Vulnerability Assessments

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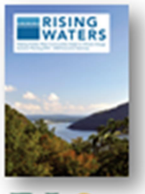

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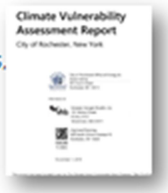

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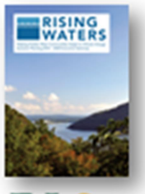

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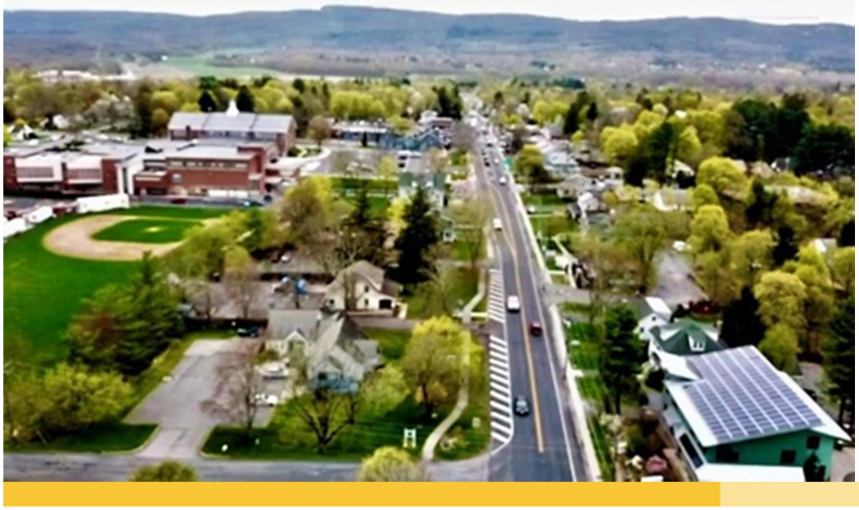
TEMPERATE
your adaptation planning companion

Climate data review



TEMPERATE

Methodology

Average data from 33 climate models

New Paltz's geographic location

Community systems

·I·C·L·E·I
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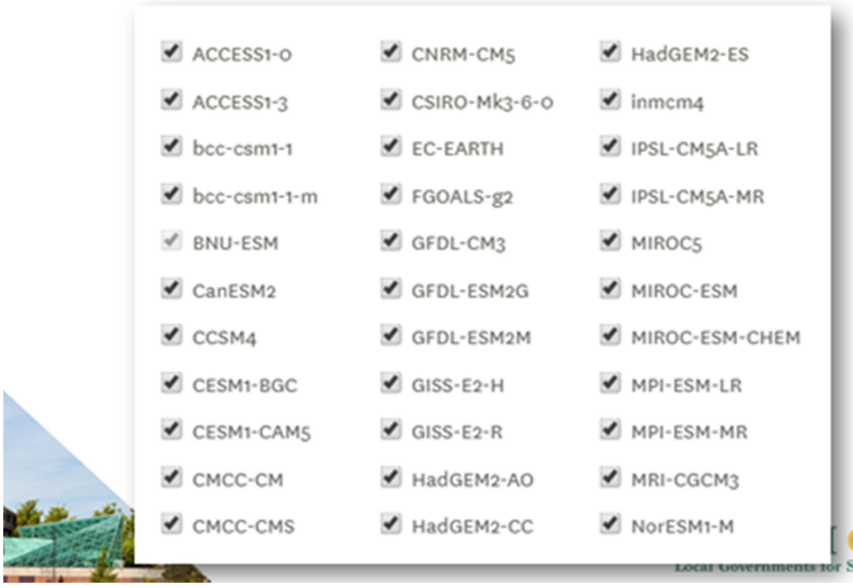
TEMPERATE

Available climate models are averaged for New Paltz



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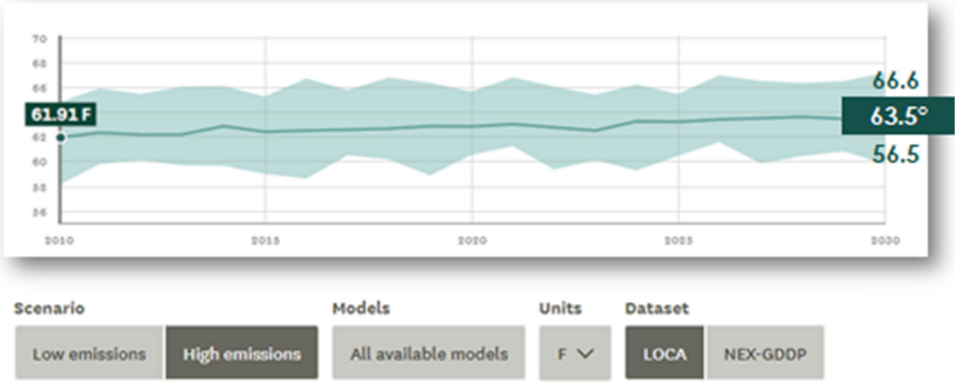
TEMPERATE

Data outputs example: Avg High Temperature

[Low-emissions scenario, 2030]



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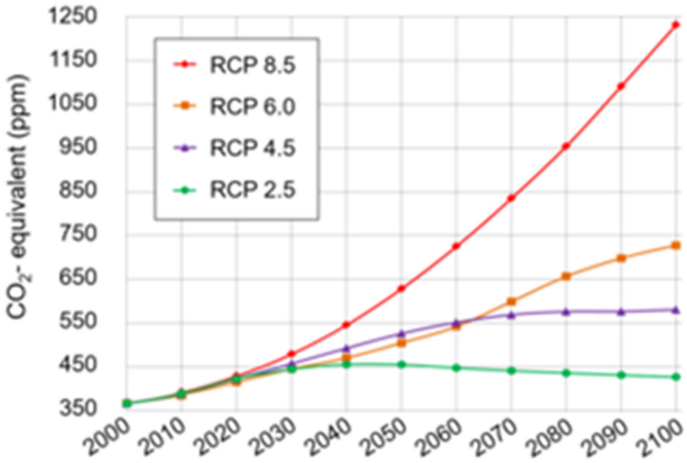
IPCC AR5 Greenhouse Gas Concentration Pathways

Representative Concentration Pathways (RCPs) from the fifth Assessment Report by the International Panel on Climate Change



The assessments considers what a **low-emissions future vs. high-emissions** future looks like

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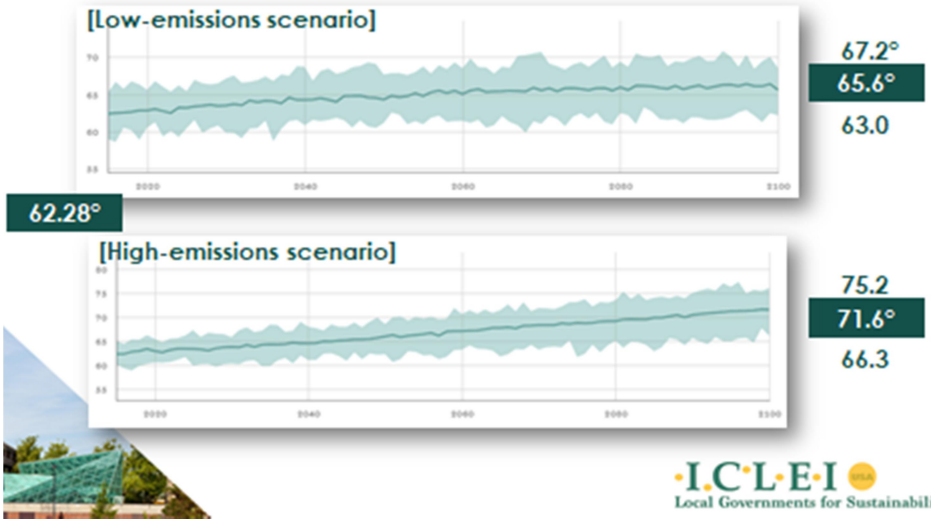
TEMPERATE

Climate data: Comparing high- vs. low-emissions scenarios [Avg high temp to 2100]



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…and Charlotte, N.C., within 80 years.

[Low-emissions scenario]

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New Paltz climate indicators overview

[High-emissions scenario over 100 years, compared to 1970s]

Significant change	Moderate Change	Some change
Avg & max high temp	Extreme cold events	Diurnal temp range
Avg & min. low temp	Extreme precipitation events	Dry spells
Freezing degree days	Heating degree days	Max consecutive dry days
Cooling degree days		Total precipitation
Extreme heat events		
Frost days		
Heat wave duration		
Heat wave incidents		

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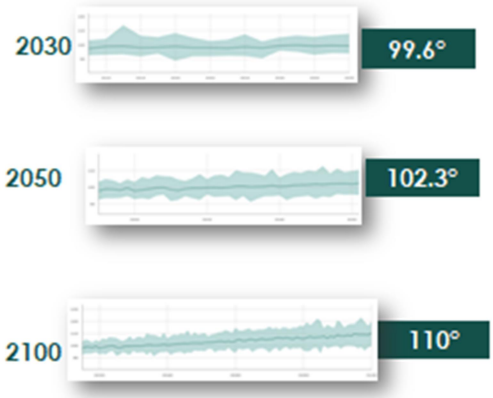
TEMPERATE

Climate data: Max High Temperatures



Within 20 years, **summer days will routinely begin to reach—and soon often surpass—100 degrees.**

Current max temperature average

97.2°

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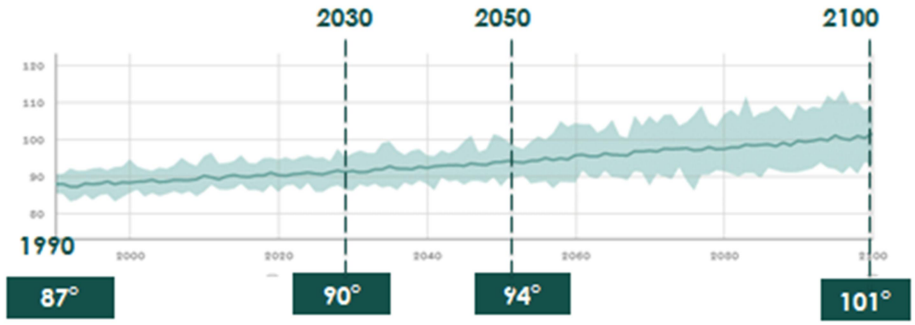
TEMPERATE

Percentile High Temperature

[Temp. at which 95% of days for that year are cooler, base year 1990]

>95
percentile



New Paltz in the 1990s rarely experienced temperatures over upper 80°s. Within 30 years, the **hottest days will be in the mid 90°s and greater.**

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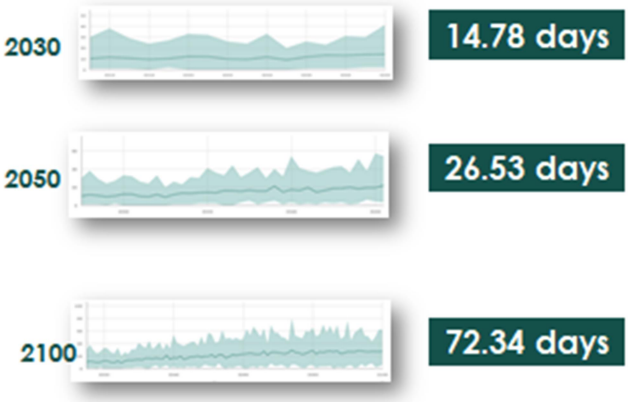
TEMPERATE

Climate data: Extreme Heat Events

[# days per year temps exceed historical highs]

In 2000s, New Paltz summer is hotter than the historical average **10 days** per year.

This trend is **increasing.**



1970 **average highs = mid-80s°**

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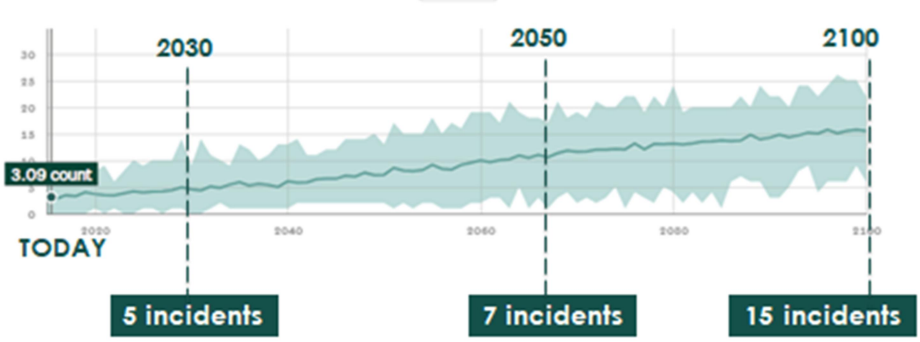
TEMPERATE

Heat Wave Incidents

[# of times high temps exceed historical for 5+ days]



New Paltz is likely to see **more frequent heat waves ….**

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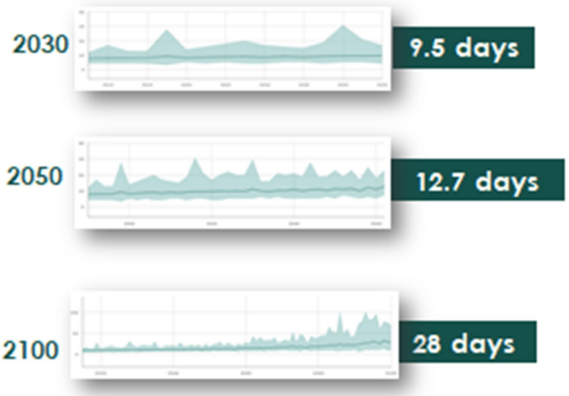
TEMPERATE

Climate data: Heat wave duration

[# consecutive days that temps exceed mid-80s°]

…and its projected those **heat waves will last longer.**



In 2000s, New Paltz topped mid-80s° no more than **7 consecutive days.**

The future could see **more consecutive heat days.**

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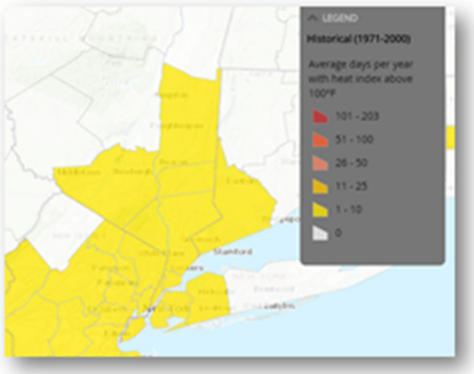
But how hot does it feel?
[Heat Index data for Ulster County, New York]

- Historically, there have been four days per year on average with a heat index above 90 degrees Fahrenheit. This would increase to 29 days per year on average by midcentury and 58 by the century's end.
- Historically, there have been zero days per year on average with a heat index above 100 degrees Fahrenheit. This would increase to eight days per year on average by midcentury and 23 by the century's end. Of the cities with a population of 50,000 or more in the state, Kingston, Middletown, New York City and Poughkeepsie would experience the highest frequency of these days. Limiting warming to 2 degrees Celsius above pre-industrial levels would cap the frequency of such days at three per year on average.
- By the end of the century, an estimated 15.2 million people would be exposed to a heat index above 100 degrees Fahrenheit for the equivalent of one month or more per year. By limiting warming to 2 degrees Celsius, all residents would avoid such days of extreme conditions.



Historically, **Ulster County** has experienced an average of **0 days per year with a heat index above 100°F.**

Source: Union of Concerned Scientists, 2019

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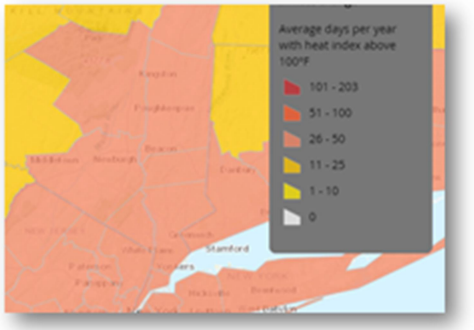
But how hot does it feel?
[Heat Index data for Ulster County, New York]

- Historically, there has been an average of zero days per year with a heat index above 105 degrees Fahrenheit. This would increase to three days per year on average by midcentury and 13 by the century's end. Limiting warming to 2 degrees Celsius above pre-industrial levels would cap the frequency of such days at one per year on average.
- By the end of the century, an estimated 400,000 people would be exposed to a heat index above 105 degrees Fahrenheit for the equivalent of a month or more per year. By limiting warming to 2 degrees Celsius, all residents would avoid such days of extreme conditions.
- Historically, the state as a whole has experienced zero "off-the-charts" heat days in an average year. This would increase to one day per year on average by the end of the century. Limiting warming to 2 degrees Celsius would limit the frequency of such days to zero per year on average.



If we fail to reduce heat-trapping emissions, by late century **Ulster County** would experience an average of **27 days per year with a heat index above 100°F.**

This includes:
- 16 days with a heat index above 105°F
- 1 days with an off-the-charts heat index

Source: Union of Concerned Scientists, 2019

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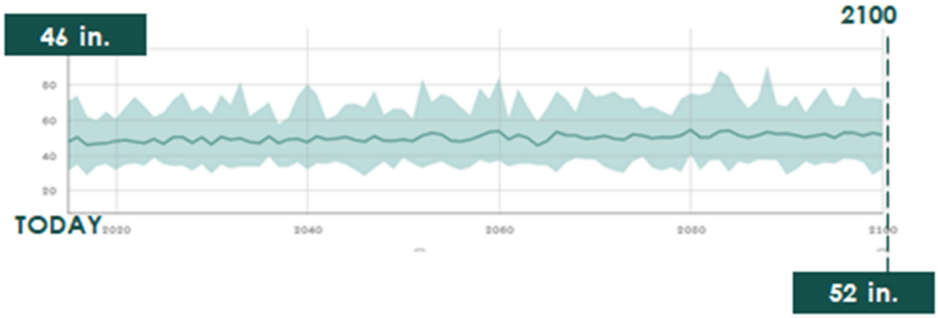
TEMPERATE

Climate data: Total precipitation



While total precipitation is anticipated to increase modestly...

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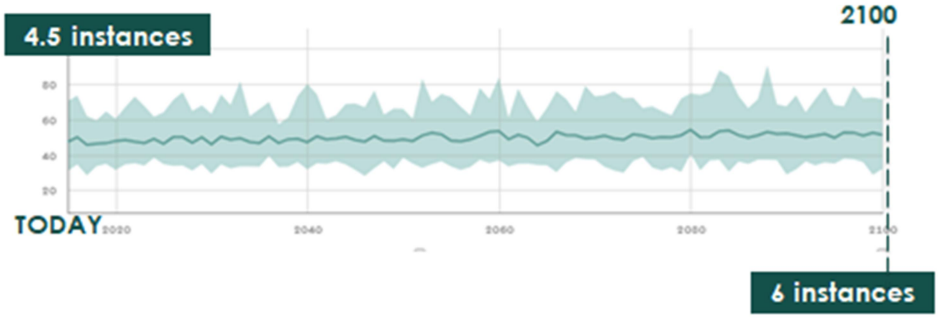
TEMPERATE

Climate data: Dry spells

[# times per year with 5+ days without precipitation]



…resulting in only a few more dry spells…

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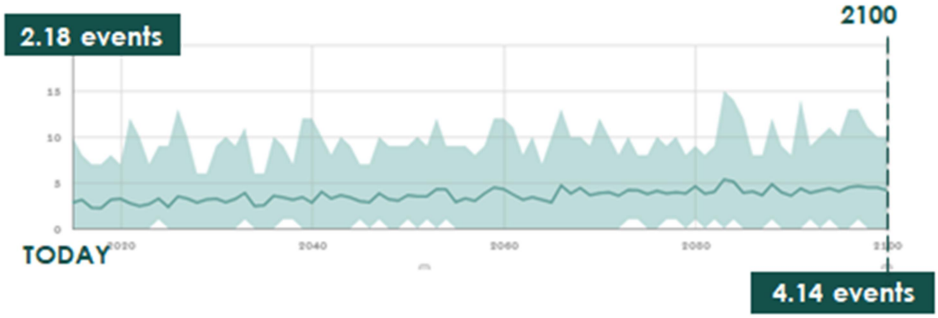
TEMPERATE

Climate data: Extreme precipitation events

[# times per year avg precip exceeds 99 percentile historic]



The number of extreme precipitation events could **nearly double** by 2100.

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TEMPERATE

Climate data: Min Temperatures

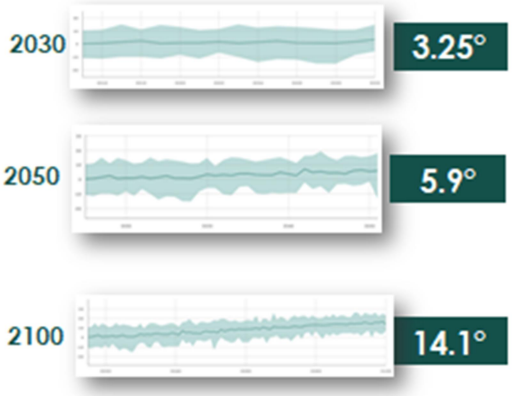
New Paltz winters are warming.

Current average low

0.23°

Average low in 1990

-2.5°



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TEMPERATE

Climate data: Frost days
[# of days below freezing]

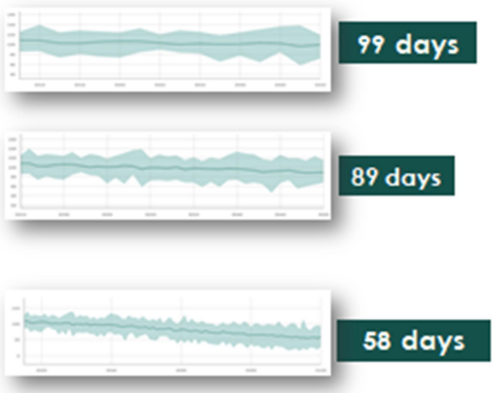
New Paltz **freezing days could decrease by half.**

Current average frost days

108 days

Frost days in 1990

115 days



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Climate data: Changes in Timing of Snowmelt

As Northeast winters warm, scenarios project a combination of less early winter snowfall and earlier snowmelt, leading to a shorter snow season.[104,105] The proportion of winter precipitation falling as rain has already increased and will likely continue to do so in response to a northward shift in the snow–rain transition zone projected under both lower and higher scenarios (RCP4.5 and RCP8.5).[106,107,108] The shift in precipitation type and fewer days below freezing[34,35] are expected to result in fewer days with snow on the ground; decreased snow depth, water equivalent, and extent; an earlier snowmelt;[105,109,110] and less lake ice.[111] Warming during the winter–spring transition has already led to earlier snowmelt-related runoff in areas of the Northeast with substantial snowpack (Figure 18.2).[112] Earlier snowmelt-related runoff and lower spring peak streamflows in these areas are expected in the 2041–2095 period compared with the 1951–2005 period.[105]

Source: National Climate Assessment [2019], Chapter 18]

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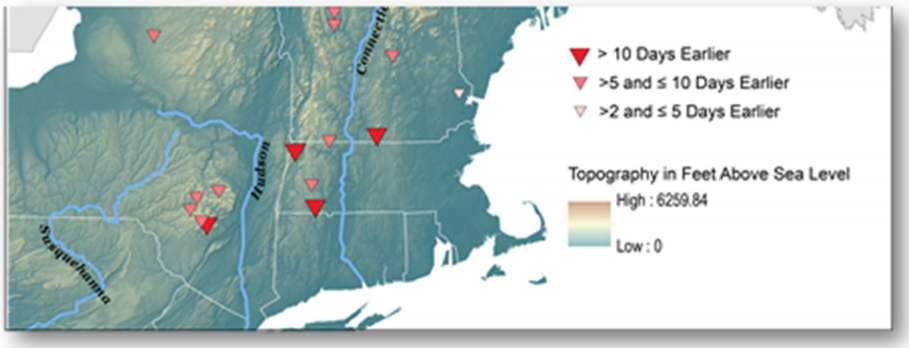
Climate data: Changes in Timing of Snowmelt



This map of part of the Northeast region shows consistently earlier snowmelt-related streamflow timing for rivers from 1960 to 2014. Each symbol represents the change for an individual river over the entire period. Changes in the timing of snowmelt potentially interfere with the reproduction of many aquatic species[113] and impact water-supply reservoir management because of higher winter flows and lower spring flows.[114] The timing of snowmelt-related streamflow in the Northeast is sensitive to small changes in air temperature. The average winter–spring air temperature increase of 1.67°F in the Northeast from 1940 to 2014 is thought to be the cause of average earlier streamflow timing of 7.7 days.[112]

Source: National Climate Assessment [2019], Chapter 18]

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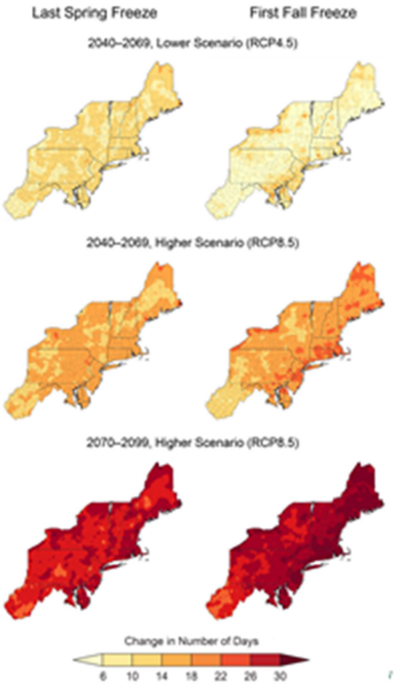
Climate data: Changes in Timing of Last Spring Freeze and First Fall Freeze

These maps show projected shifts in the date of the last spring freeze (left column) and the date of the first fall freeze (right column) for the middle of the century (as compared to 1979–2008) under the lower scenario (RCP4.5; top row) and the higher scenario (RCP8.5; middle row). The bottom row shows the shift in these dates for the end of the century under the higher scenario. By the middle of the century, the freeze-free period across much of the Northeast is expected to lengthen by as much as two weeks under the lower scenario and by two to three weeks under the higher scenario. By the end of the century, the freeze-free period is expected to increase by at least three weeks over most of the region. Source: adapted from Wolfe et al. 2018.[35]

Source: National Climate Assessment [2019], Chapter 18]



New Paltz climate indicators overview

[High-emissions scenario over 100 years, compared to 1970s]

Significant change	Moderate Change	Some change
Avg & max high temp	Extreme cold events	Diurnal temp range
Avg & min. low temp	Extreme precipitation events	Dry spells
Freezing degree days	Heating degree days	Max consecutive dry days
Cooling degree days		Total precipitation
Extreme heat events		
Frost days		
Heat wave duration		
Heat wave incidents		

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Workshop #2

Minutes

MEETING MINUTES

Community Stakeholder Workshop

New Paltz Climate Vulnerability Project 2019 - 2020

New Paltz Village Hall • December 5, 2019

Funder:

This project is funded in part by The Climate Smart Community Grant Program, Title 15 of the Environmental Protection Fund through the NYS Department of Environmental Conservation.

Workshop description:

As a regional leader taking proactive steps to reduce climate change-related risks, the Town and Village of New Paltz have committed to assessing their climate vulnerability as a first step to preparing for change. During Summer 2019, New Paltz worked with ICLEI-Local Governments for Sustainability USA (ICLEI) to review local climate data and reveal projected changes in New Paltz's temperature and precipitation patterns. Following this data review during Summer and Fall 2019, New Paltz conducted a survey to gather information on how residents and other stakeholders are preparing for climate change and which parts of their community they view as most at risk. Now, building on this climate data and survey responses, New Paltz and ICLEI are hosting a workshop with key stakeholders to discuss which community systems—be they social, environmental, or built infrastructure—are most vulnerable to climate change and to identify the top priorities for future climate action. New Paltz's Climate Vulnerability Assessment project will further the Town and Village's commitment as a New York State certified Climate Smart Community and continue to recognize its leadership role in the region and in the ICLEI network.

Intended outcomes:

Participants will develop a shared vocabulary for talking about climate change impacts and risks for New Paltz and will review anticipated climate-related changes for the Town and Village. Participants will be able to identify and prioritize community systems—including food, water, energy and critical infrastructure—and describe a number of climate-related vulnerabilities to each. Finally, participants will prioritize which community systems should be the focus of any future Town and Village action intended to reduce climate-related risks.

Invited attendees:

Town and Village Board Members

Climate Smart Communities Task Force

Climate Action Coalition members

Public

Workshop Agenda [2.5 hours]

Introduction [5 minutes]

- Background on New Paltz ICLEI membership and project background
- Climate Adaptation Frameworks
- Climate Vulnerability project scope and timeline review

Scene Setting [30 minutes]

- Definitions and concepts: Vulnerability, Risk and Adaptive Capacity
- Climate data review from first meeting
- Community Systems overview (from NYS Climate Smart Communities)

Activity 1: "Mapping Our Community Systems" [25 minutes]

- Identify and place important community systems (ie food supply, cultural sites)map of New Paltz
- Discussion: Community systems represented, missing, and priority

New Paltz climate survey responses [30 minutes]

- Presentation on survey results
- Presentation on survey analysis: How the community input informs the Vulnerability Assessment
- Discussion: survey insights and adjustments

Activity 2: Web of Climate Hazards [25 minutes]

- Overview of identified Temperate hazards
- Participants use string to connect each hazard to the community system most impacted community system

Prioritizing Action [15 minutes]

- Facilitated XY diagram discussion to prioritize community systems identified as most at risk from Activities 1 and 2
- Group vote on Top 3 systems to prioritize for climate action

Closing [5 minutes]

- Timeline review and next steps

Workshop Outcomes

Prioritizing vulnerable community systems

New York State Climate Smart Communities Program offers a list of community systems to consider climate vulnerabilities. Community systems include tangible services such as energy infrastructure, telecommunications, and public services, and also those systems with social implications, such as vulnerable populations, recreation and culture. Whereas the initial mapping exercise addressed all 18 community systems, in order to begin developing an action agenda to address climate vulnerability in community systems, workshop participants ranked a Top 8 list of systems for further discussion. The ranking mechanism involved considerations, including:

1. Local government jurisdictional control.
2. Implications for local economy.
3. Consideration for social justice.
4. Perceived degree of climate relevance.
5. Overlay with natural resource inventory.

With these guiding principles, workshop attendees identified these Top 8 systems:

Agriculture

Culture

Infrastructure

Open Space

Public Services

Recreation

Tourism

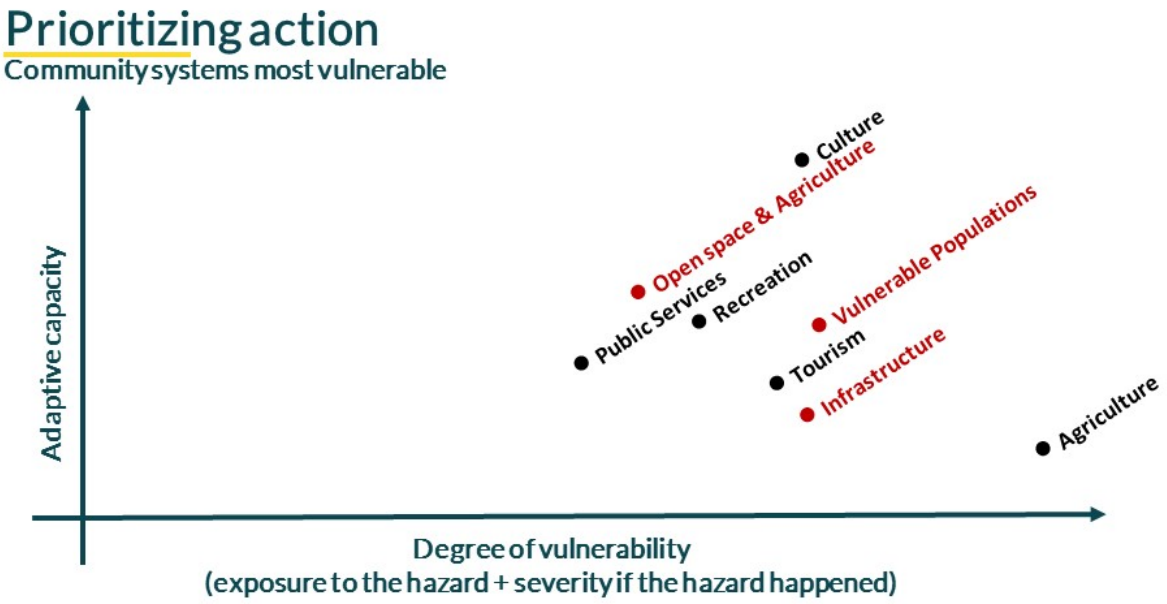
Vulnerable Populations

All 8 systems will be addressed in the Vulnerability Assessment Report and in subsequent, post-project climate adaptation planning. For purposes of maintaining an actionable final project outcome, three community systems will be prioritized for recommended actions. Workshop attendees chose a consensus-based approach to selecting a final three community systems for immediate action.

To reach facilitate this consensus, an X-Y Diagram plotting exercise called on attendees to plot each of the Top 8 systems according to (see diagram):

1. The Adaptive Capacity of each system (otherwise thought of how resilient a given system is in the face of change); and
2. The Degree of Vulnerability of each system, based on the perceived amount of exposure to climate hazards a given community system would face plus the severity of impact were that hazard to occur.

This plotting exercise yielded this final result:



Those community systems listed in red are those which will be prioritized for action recommendations in the final project report: Infrastructure, Open Space & Agriculture, and Vulnerable Populations.

Infrastructure. Participants reached agreement ahead of the plotting exercise to define the term "infrastructure" as a combined categorization for water delivery, wastewater treatment, energy-supply, and stormwater management systems. Each are critically important to underpinning economic vitality, public health, safety, and general quality of life in New Paltz, and therefore, participants elected to consider the disparate components as a singular, complete infrastructure system. And although the systems, considered separately, show varying degrees of climate exposure and adaptive capacity, each are perceived to be highly vulnerable to climate impacts and relatively non-resilient in their current configuration. This is true whether

the infrastructure components are considered in isolation or collectively and so were prioritized for recommended action.

Open Space & Agriculture. Note that Agriculture appears as a standalone system and as combined with community space. Participants founda agreement that Agriculture was both the most vulnerable of the Top 8 community systems and also that least adaptive to change. However, when the ranking consideration for "government jurisdictional control" was considered, participants felt there was low opportunity for New Paltz to influence agriculture to become more climate-adaptive—with the notable exception of farmer education outreach and some zoning opportunities, both of which participants identified to be included in the final recommendations report. In addition, New Paltz community sentiment tends to value the richness of the surrounding mountains and natural resources, as well as the viewsheds that an agricultural economy affords (both assets well represented in the Asset Mapping exercise, see below). For this reason Open Space will be prioritized, but to reach consensus, agriculture was combined with open space as overlapping and mutually influential systems that participants wish to prioritize.

Vulnerable populations. Seniors, children, low-income residents, and farm workers with limited English-speaking ability were identified by participants to be the most vulnerable segments of community members. Susceptibility to tick-borne illness, fluctuations in fuel costs, lack of affordable housing, river flooding and heat waves all were identified as justification for including Vulnerable Populations among the three priority action categories. Participants perceived that with concerted planning, vulnerable populations could become much more adaptive to climate hazards than in the current plotted position (such as through education campaigns and constructing a resilience hub), but that given the present state of public services, Vulnerable Populations suffer from relatively low adaptive capacity.

The Top 8. New Paltz is regionally recognized for its artistic and creative culture, historical landmarks, sweeping open views, recreational opportunities, and local food economy. Taken together, participants perceived these assets as central to New Paltz's identity and therefore ranked Culture, Recreation, and Tourism among the remaining priority community systems. Cross-country skiing, hiking such as in and around the Mohonk Preserve, a vibrant restaurant and late-night scene, and area orchards all contribute to this asset base. While Recreation and Tourism both are moderately vulnerable and resilient, participants view the distinct Culture of New Paltz as highly adaptive due to the creative nature of its residents. Additionally, participants recognize Public Services among the top priority, defining this community system in terms of schools, public health institutions, fire, rescue and police services. Overall, participants perceive public services to be both moderately vulnerable and resilient to climate hazards.

Mapping community assets

The intended top-level priority of the New Paltz Climate Vulnerability Workshop was to gather multi-stakeholder participants to identify priority community systems, rank each system's vulnerability to climate change, and determine a short-list of assets to target for climate adaptation planning. The final prioritization exercises resulted in the results above, but these priorities were assembled on the backbone of a Community

Assets Mapping exercise. To ensure that all NYS Climate Smart Communities "community systems" were addressed, participants were instructed to consider primary assets both system-by-system and spatially. These "assets" were defined as the populations, places, institutions, and service components that give the Town and Village their character, quality, and livability. In this way, a community asset can be a neighborhood or favorite gathering place, a wastewater treatment plant, a site that exemplifies the local economy, a historical landmark, or a more intangible element, such as a "viewscape".

Participants worked through the Climate Smart Communities shortlist of community systems, addressing each by documenting assets by system on a series of small adhesive-backed paper strips. **The Climate Smart Communities "Community Systems" include:**

Municipal facilities and buildings including critical facilities (e.g., schools, hospitals, fire and police departments)

Transportation infrastructure

Waste disposal systems

Wastewater treatment infrastructure

Drinking water sources, infrastructure, and treatment processes

Stormwater infrastructure

Energy sources, infrastructure, and systems

Communication systems

Economic sectors (e.g., manufacturing, recreation and tourism)

Social sectors (e.g., the elderly, youth, low-income and non-native English speakers)

Parks and public land

Public health including the private health care system

Agriculture

Food supply

Natural assets

Cultural assets

Emergency response systems

Participants placed each paper strip listing an asset on a large projected map of New Paltz, therein assigning a spatial component to the asset. This asset-mapping will later be digitized as part of the final project report. From the exercise, the f**ollowing assets were identified, grouped here by the Top 8 Priority Systems** prioritized by participants and described above:

Agriculture

Taliaferro Farm CSA

Carbon sink

Bradley Farm and RB Brew

New Paltz Gardens for Nutrition

Dressel Farms

Wallkill Farms

Culture

Historic Huguenot Street (in its entirety)

Unison Arts & Learning Center

Water Street Market

Cultural associations with the Lenape People

Infrastructure (Combines energy, transportation, and water)

Throughway as egress

New Paltz Recycling Center

New Paltz Sewage Plant

New Paltz Water Department

New Paltz Trailways Terminal Bus Station

Carmine-Liberta Bridge

Open Space (Including natural assets)

Carbon sink

Woodland pond

Street and highway trees (to mitigate impacts of diesel fumes)

Animal habitat bordering Wallkill River

Wetlands important to phytoremediation

Nyquist-Harcourt Wildlife Sanctuary

Mohonk Preserve and “viewsheds” it provides

Public Services (includes emergency services, hospitals, schools, fire and police)

New Paltz Rescue Squad

New Paltz Police

New Paltz Fire

New Paltz Community Center

All schools

New Paltz Family Health Center
Sojourner Truth Library

Elting Memorial Library

Recreation

Wallkill Valley Rail Trail

Loren Campbell Baseball Field

South Turf Field

Sojourner Truth Park

River to Ridge Trail

Skate park

Ulster County Pool Complex

Moriello Pool

Clearwater, Field of Dreams Park

Tourism

Rail Trail

Gatehouse

Water Street Market

Vulnerable Populations

Meadowbrook Housing

Woodland Pond at New Paltz (relevance to elderly residents)

Hasbrouck Park (relevance to children and families)

VFW Brannen - van den Berg Post 8645

Elting Memorial Library

New Paltz Gardens for Nutrition

Lenape Elementary School

Concentrations where English is spoken as a second language

Others (not classified in the Top 8 priority systems)

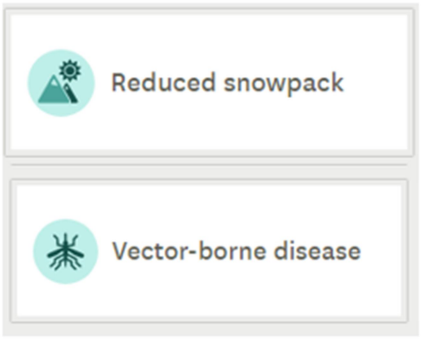
Solar power components manufacturing plant

Web of Climate Vulnerability: Asset-Hazard Pairing

After workshop participants identified community assets, by assigning both community-system categorization and spatial placement, the exercise turned toward making a connection between those assets and anticipated climate hazards. Prior to the workshop, New Paltz utilized the ICLEI TEMPERATE tool's hazard-identification feature. TEMPERATE inputs include climate data from the 22 leading climate models paired with New Paltz's geolocation to prepare an initial list of climate hazards. The shortlist of climate hazards here was informed by the NYS ClimAID climate adaptation insights since 2011 on anticipated climate impacts for the state and also on the 2019 National Climate Assessment report finding for the Northeast Region.

TEMPERATE Shortlist of Predicted Hazards:

The New Paltz Climate Action Community Survey provided a final pre-workshop opportunity to gain insights on climate hazards. The survey was administered during July through mid-November 2019, reaching 160 respondents, or 1.14% of New Paltz population. Survey results revealed two additional climate hazards:



Finally, space was given during the workshop for attendees to identify any potential climate hazards not provided by TEMPERATE or the survey. The discussion revealed one final workshop-identified climate hazards:

Climate anxiety (climate impacts to mental and emotional well-being)

Participants were now armed with both a map of community assets and a list of climate hazards. The final exercise at the workshop aimed to make connections between assets and climate hazards. To do this, an array of cut strings were provided to participants, who were asked to consider each climate hazard for its own merits and, based on their personal perception, match that hazard with the community asset which they

believed would be most impacted were that hazard to occur. Each workshop participant would then adhere a piece of string to the hazard card, posted alongside the map, and connecting to an individual community asset. Each participant completed one full round of hazard-to-asset pairing followed by a group discussion on why these choices were made. Then, each participant completed a second full round of hazard-to-asset pairing, in essence "ranking" the second-most impacted asset to each hazard. Due to time constraints, only some participants were able to successfully complete a second round (with some completing a third). A point of improvement for a future workshop would be to allow for increased time, space, and activity materials to facilitate up to 10 rounds of pairings. This lesson learned aside, the exercise revealed useful insights:

Most connections were made from River Flooding and Drought. While more asset-hazard pairing analysis will be completed for the final report, including which assets were perceived to be most at risk from each hazard, the number of connections made from River Flooding and Drought were the highest with five or greater connections made to community assets. This greater number of pairings can indicate workshop attendees' relative knowledge of how assets may respond to River Flooding and Drought, their past experience with these two hazards creating for outsized presence in their perceptions of impact, their ability to complete the exercises for these particular hazards in the timeframe — or most likely, some combination of these factors.

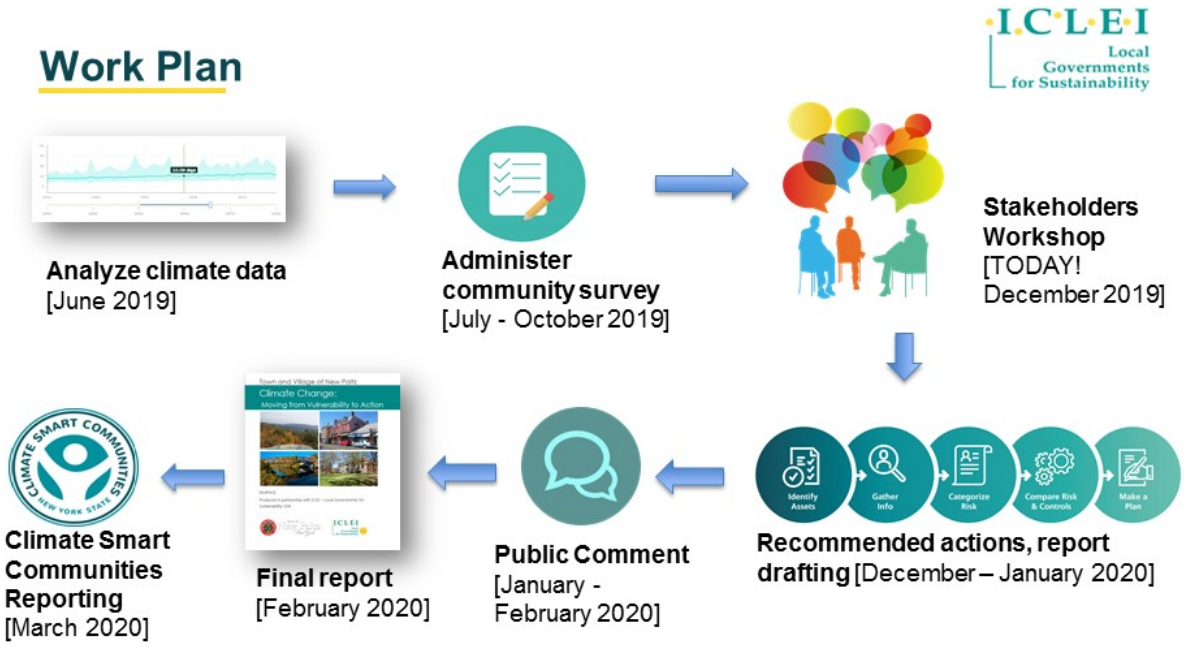
Agriculture and food supply-related assets were paired with the highest number of hazards. Participants continued to express the agricultural qualities that give New Paltz and the surrounding region its character, economic base (from both food and tourism), and cultural significance. It is not surprising then that most of the hazards were paired to at least one, and often up to four, agriculture or food supply assets. For instance, area farms sited along the Wallkill River, were heavily paired with River Flooding, Flash Flooding, and Seasonal Changes.

Heat-related hazards pose unique social impact challenges. Both Heat Waves and Extreme Heat were the second-most noticed hazard pairing, and these hazards were most often linked to social assets: schools, elder-care facilities, low-income housing neighborhoods, and parks.

Next Steps

These minutes serve only to recount primary workshop objectives and describe the exercises that were used to gain insights. The next steps in the project will be to further record workshop insights and analyze their meaning for New Paltz's broader Vulnerability Assessment effort. Future steps in this work plan will include to:

1. Transcribe appropriate pieces of the video-recorded portions of the workshop to further inform these minutes
2. Digitize the mapping exercise above, including placing assets and providing a mechanism to gauge perceived sensitivity to various hazards
3. Incorporate workshop outcomes into the final Vulnerability Assessment Report



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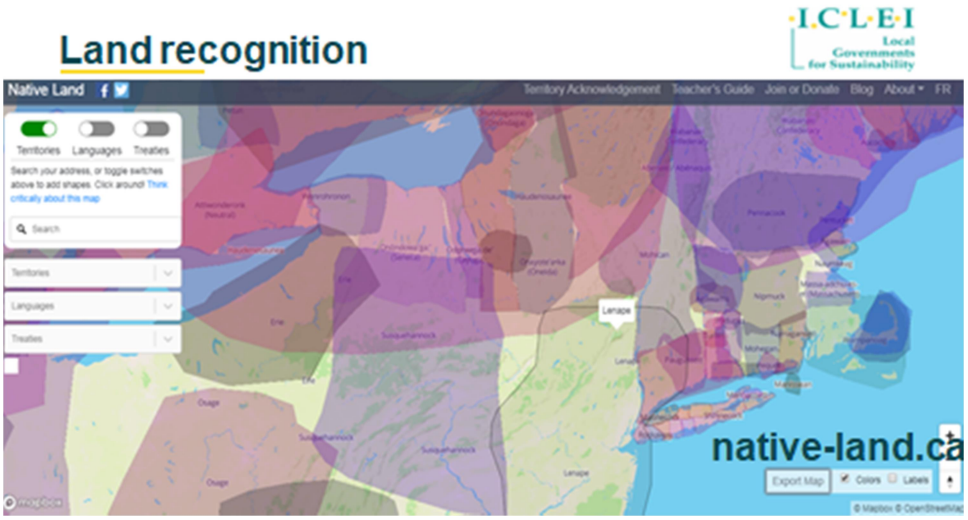
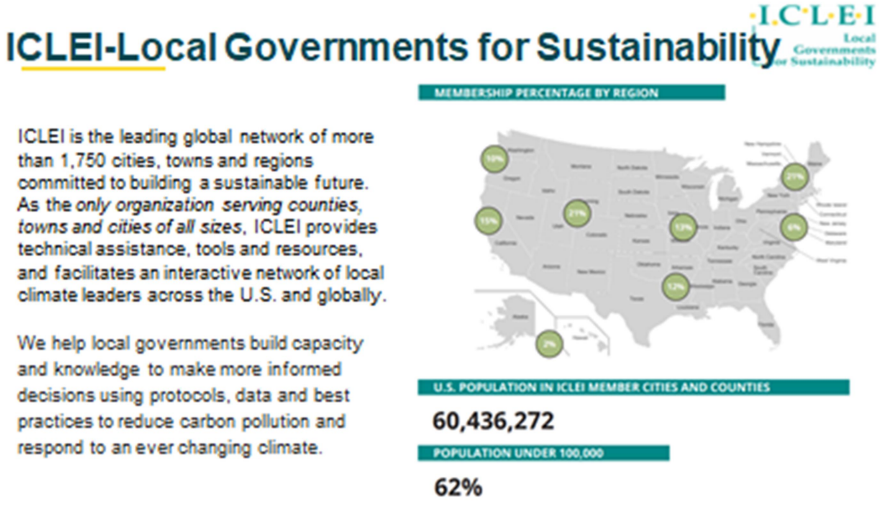
Slide Deck


Climate Vulnerability in New Paltz
A Risk and Opportunity Workshop
New Paltz, New York • December 4, 2019
This project has been funded by The Climate Smart Community Grant Program, Title 15 of the Environmental Protection Fund through the NYS Department of Environmental Conservation.


Land recognition
Native Land
native-land.ca


ICLEI-Local Governments for Sustainability
ICLEI is the leading global network of more than 1,750 cities, towns and regions committed to building a sustainable future. As the only organization serving counties, towns and cities of all sizes, ICLEI provides technical assistance, tools and resources, and facilitates an interactive network of local climate leaders across the U.S. and globally.
We help local governments build capacity and knowledge to make more informed decisions using protocols, data and best practices to reduce carbon pollution and respond to an ever changing climate.
MEMBERSHIP PERCENTAGE BY REGION
U.S. POPULATION IN ICLEI MEMBER CITIES AND COUNTIES
60,436,272
POPULATION UNDER 100,000
62%

How we work

SCALE UP AND EXPAND THE MODEL OF SUSTAINABLE CITIES AND REGIONS

MAKE SUSTAINABILITY A FUNDAMENTAL PART OF ALL LOCAL AND GLOBAL DEVELOPMENT

TACKLE THE MOST PRESSING ISSUES OF OUR TIME TO PROTECT THE LONG-TERM INTERESTS OF CITIZENS

UNDERTAKE A COLLECTIVE EFFORT FOR GLOBAL CHANGE ACROSS ALL SECTORS AND LEVELS OF GOVERNMENT

LOW EMISSION DEVELOPMENT

RESILIENT DEVELOPMENT

CIRCULAR DEVELOPMENT

EQUITABLE AND PEOPLE-CENTERED DEVELOPMENT

NATURE-BASED DEVELOPMENT

Agenda

Scene Setting
- Climate Adaptation Frameworks
- Climate Vulnerability project scope and timeline review
- Definitions and concepts
- Climate data review
- Community Systems overview

Activity 1: "Mapping Our Community Systems"

Activity 2: "Web of Climate Hazards"

New Paltz climate survey responses

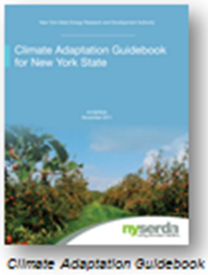
Activity 3: Plot the Priorities!
- Facilitated XY diagram discussion to prioritize community systems identified as most at risk from Activities 1 and 2
- Group vote on Top 3 systems to prioritize for climate action

Closing
- Timeline review and next steps

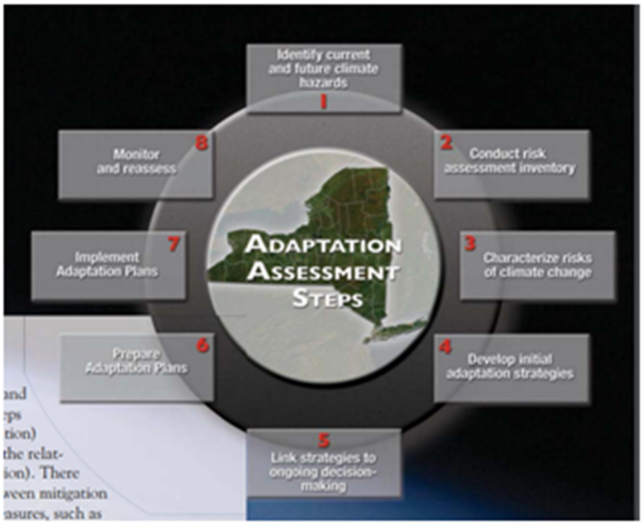
Work Plan

GreenClimateCities Framework

NYS ClimAID Framework



Climate Adaptation Guidebook for New York State. NYSERDA, 2011.

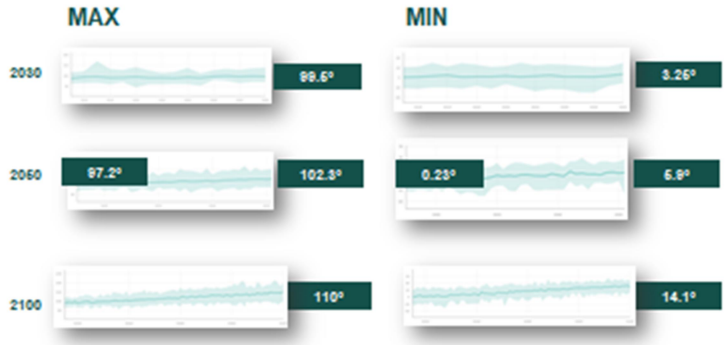


Climate data review

TEMPERATE

Climate data: Max / Min Temperatures

ICLEI Local Governments for Sustainability



TEMPERATE

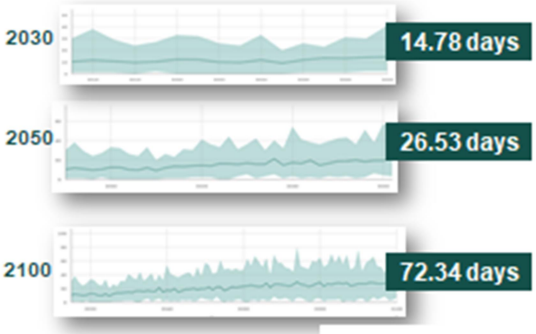
Climate data: Extreme Heat Events

[# days per year temps exceed historical highs]

ICLEI Local Governments for Sustainability

In 2000s, New Paltz summer is hotter than the historical average 10 days per year.

This trend is increasing.

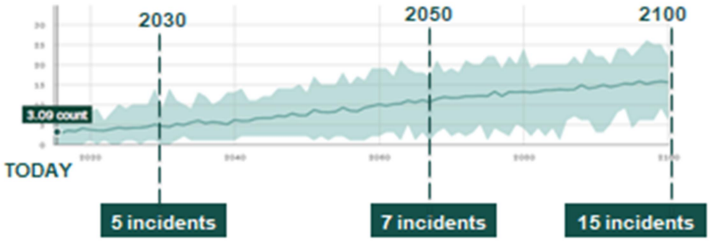


1970 average highs = mid-80s°

TEMPERATE

Heat Wave Incidents

[# of times high temps exceed historical for 5+ days]



New Paltz is likely to see **more frequent heat waves** ....

TEMPERATE

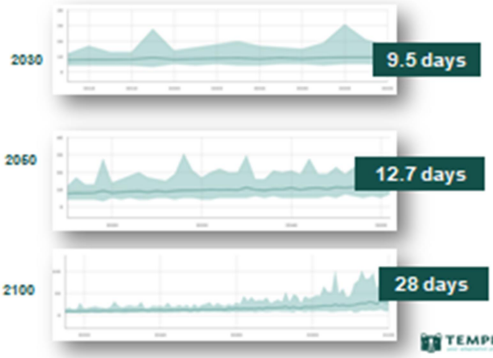
Climate data: Heat wave duration

[# consecutive days that temps exceed mid-80s°]

...and those **heat waves will last longer.**

In 2000s, New Paltz topped mid-80s° no more than **7 consecutive days**.

The future could see **more consecutive heat days**.



TEMPERATE

Climate data: Extreme precipitation events

[# times per year avg precipipitation exceeds 99 percentile historic]

The number of extreme precipitation events could **nearly double** by 2100.

TEMPERATE

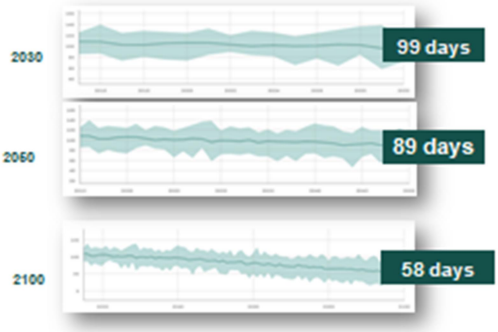
Climate data: Frost days

[# of days below freezing]

New Paltz **freezing days could decrease by half.**

Current average frost days **108 days**

Frost days in 1990 **115 days**



TEMPERATE

Relative climate

[Low-emissions scenario]

New Paltz will feel a lot more like Charlotte, N.C., within 80 years.

Climate Adaptation
A shared vocabulary

Adaptation – Actions that take place in response to a changing climate. Actions can create opportunities or challenges.

Adaptive capacity – Ability of a system to adjust to actual or expected climate stresses, or to cope with the consequences.

Adaptation strategies – Operational, managerial, budgetary, or infrastructure changes that will result in reducing risk and/or taking advantage of potential opportunities associated with climate change. A strategy is usually developed for a key vulnerability. Adaptation strategies do not directly include actions that reduce the likelihood of climate change occurring.

Climate resilience – A state in which climate risk information, vulnerability, and adaptation knowledge are taken into account in order to reduce the level of physical, social, or economic impact of climate variability and change.

Climate risks – Generally, risk is a product of the likelihood of an event occurring (typically expressed as a probability) and the magnitude of consequences should that event occur. For climate change impacts, risk can be thought to have three dimensions: the probability of a climate hazard occurring; the likelihood of impacts associated with that hazard; and the magnitude of consequence, should that impact occur. These risk estimates can be adapted and improved as additional information becomes available.

Local Governments for Sustainability

Climate Adaptation
A shared vocabulary

Impacts – The natural or potential effects a change in climate has or could have on natural or human systems.

Mitigation – Direct actions that reduce the concentrations of greenhouse gases in the atmosphere and other factors that are currently altering, or have the potential to alter, the earth's climate system.

Prioritization – Methods to assess and evaluate a set of adaptation strategies to determine those that are more pressing or suitable to undertake. Various prioritization criteria can be used.

Vulnerability – The degree to which geophysical, biological, and socio-economic systems are susceptible to, and unable to cope with, adverse impacts of climate change.

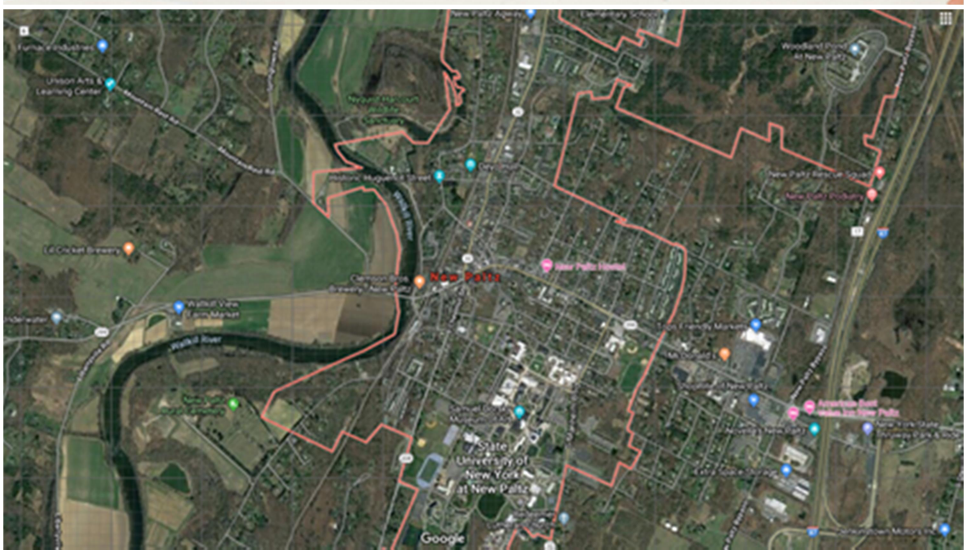
Community Systems
NYS Climate Smart Communities

- Food supply
- Agriculture
- Drinking water sources, infrastructure, and treatment processes
- Energy infrastructure, and systems
- Transportation infrastructure
- Housing
- Economic sectors (e.g., manufacturing, recreation and tourism)
- Municipal facilities including critical facilities (e.g., schools, hospitals, fire and police departments)
- Waste disposal systems
- Wastewater treatment infrastructure and systems
- Stormwater infrastructure
- Emergency response systems
- Communication systems
- Social sectors (e.g., the elderly, youth, low-income, and non-native English speakers)
- Parks and public land
- Public health including the private health care system
- Natural assets and systems
- Cultural assets

New York uses a "multi-layered systems" mindset"

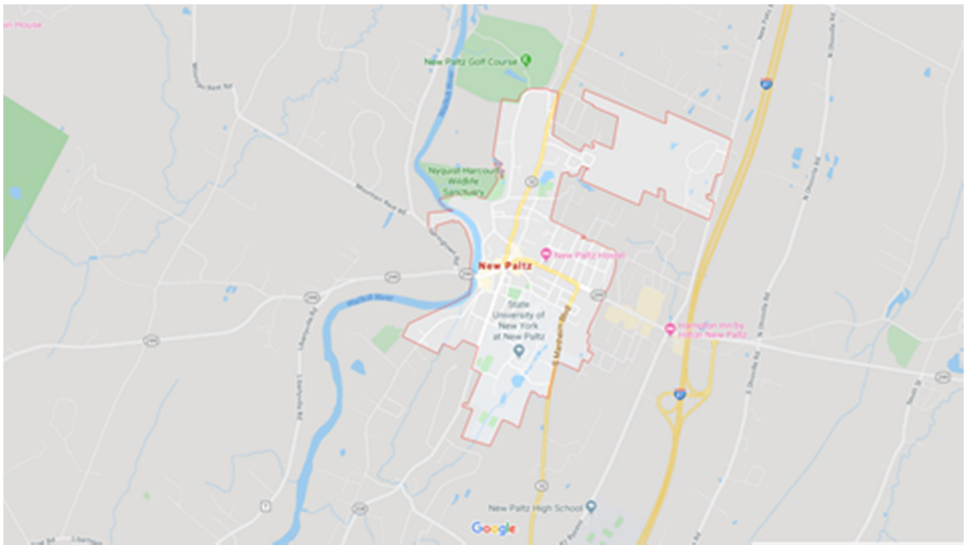
Local Governments for Sustainability

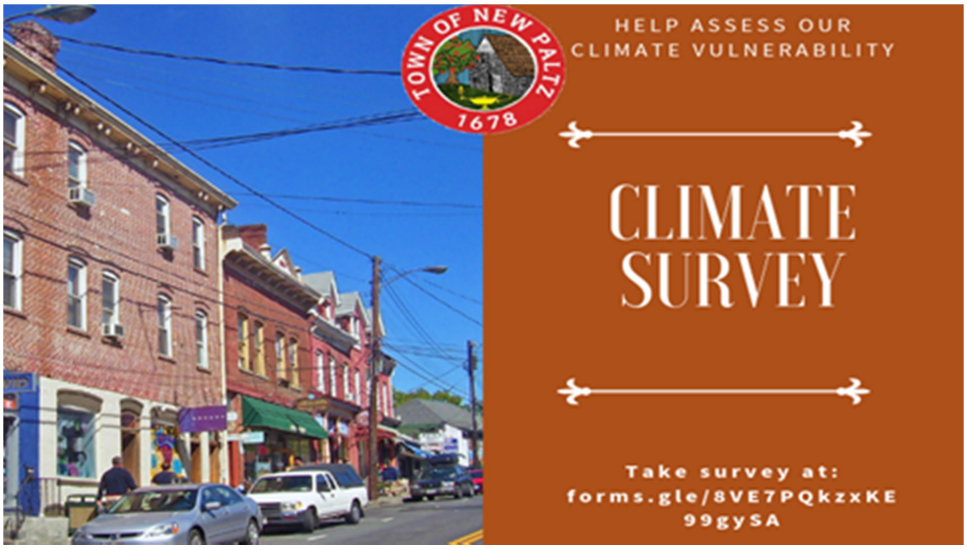

Activity 1
Mapping Our Community Systems


New Paltz
Google


New Paltz
Google


New Paltz
State University of New York at New Paltz
Samuel Dorsky Museum of Art
Historic Huguenot Street
New Paltz Gardens
Wallkill View Farm Market
New Paltz Rural Cemetery
Redeemer Lutheran Church
Extra Space Storage
Google


New Paltz Golf Course
Nyquist-Harcourt Wildlife Sanctuary
New Paltz
State University of New York at New Paltz
New Paltz High School
Google


TOWN OF NEW PALTZ
1678
HELP ASSESS OUR CLIMATE VULNERABILITY
CLIMATE SURVEY
Take survey at:
forms.gle/8VE7PQkzxKE99gySA

Survey results

Community systems addressed

- Food Systems
- Water Systems
- Energy Systems
- Transportation & Housing
- Jobs & Economy
- Social Services

Design inspired by Bay Localize

http://www.baylocalize.org/files/Community_Resilience_Toolkit_v1.0.pdf

Administration

- Summer/Fall 2019
- Google Form (online)
- Advertised in newspaper and CSC newsletter
- 1.14% of total Town population responded

Survey results

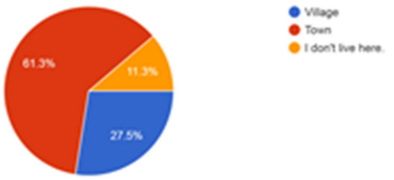
160 responses

Do you live or work in New Paltz?

160 responses

If you live in New Paltz, do you live in the Village or the Town?

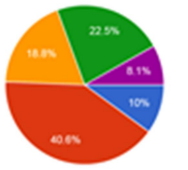
160 responses



Survey results

How many people live in your household?

160 responses



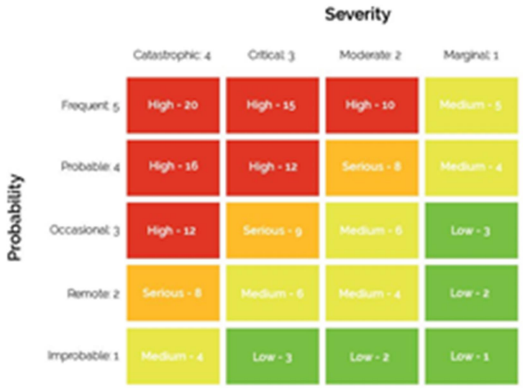
What is your age range?

159 responses

Survey results

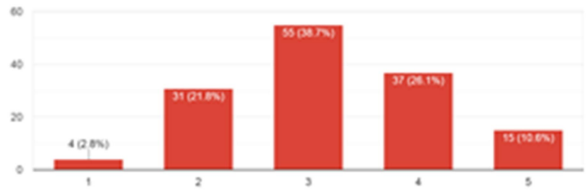
Designed with a Risk Matrix in mind

ICLEI Local Governments for Sustainability



Survey results
Sample spread of responses

On a scale of 1-5, rate New Paltz: All residents in our community currently have enough to eat, regardless of income or race.
142 responses

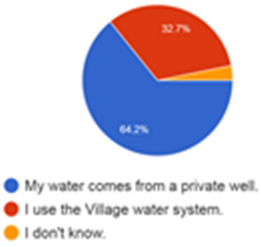


Some questions—such as for Food Systems—showed disagreement.

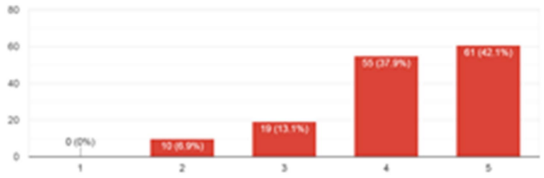
Survey results
Sample spread of responses

Other questions—such as for Water Systems—yielded more uniform response.

What type of water system do you have?
159 responses



On a scale of 1-5, rate New Paltz: My tap water is clean and safe.
145 responses



Survey results
Food Systems

	Food Systems	Avg rank	% 'don't know'
1	All residents in our community currently have enough to eat, regardless of income or race.	3	41
2	Fresh, healthy food is convenient and affordable for everyone in the community, regardless of income or race.	3	24
3	The majority of my food is currently grown locally or regionally (within the Northeast).	3	15
4	Our community currently has a strategy to ensure local agriculture production, even in emergencies.	2	90
5	New Paltz's local agriculture will be impacted by extreme climate events.	4	27
6	New Paltz's local agriculture, such as area farmers, has the capacity to adjust and respond to extreme climate events or other disruptions.	2.5	86

1 is a "moreso" rating; 5 is "not so" rating

Takeaways

Convenient and affordable food access is not guaranteed to everyone in the community, regardless of income or race.

- The majority of food is not grown locally or regionally.
- New Paltz does not have, or has not adequately communicated, a strategy to ensure local agricultural production, even in emergencies.
- Local agriculture will be very impacted by extreme climate events.
- Local agriculture has little capacity to adjust and respond to extreme climate events or other disruptions.

Survey results
Water Systems

	Water Systems	Avg rank	% 'don't know'
7	Residents in our community currently have enough water to meet everyone's basic needs, regardless of income or race.	4	49
8	My tap water is clean and safe.	4	20
9	Our community conserves as much water as possible.	2.5	69
10	New Paltz's local water systems will be impacted by extreme climate events.	4	48

Takeaways

- Residents in the community have access to enough water, regardless of income or race.
- Their (the respondents) tap water is clean and safe.
- The community does not conserve as much water as possible.
- The local water system will be impacted by extreme climate events.

Survey results
Jobs & Economy

	Jobs and Economy	Avg rank	% 'don't know'
22	Majority of residents of our community across all race/ethnicities have access to sufficient income to sustain a household.	2	38
23	The Town or Village actively seeks economic development opportunities that support the creation of full-time local jobs.	2.5	60
24	Our community's economy is based on sustainable use and re-use of our region's resources.	2.5	57
25	Extreme climate events would interrupt the job that you do in New Paltz.	3	39
26	Our community has effective public strategies to secure local employment opportunities.	2	75
27	New Paltz's local jobs and economy will be impacted by extreme climate events.	4	58
28	New Paltz's local jobs and economy has the capacity to adjust and respond to extreme climate events or other disruptions.	2.5	83

Takeaways

- A majority of our residents, across all race/ethnicities, do not have access to sufficient income to sustain a household.
- The Town or Village does not actively seek economic development opportunities that support the creation of full-time local jobs.
- The local economy is not based on sustainable use and re-use of our region's resources.
- Extreme climate events would likely interrupt the job that they (the respondents) do in New Paltz.
- Our community does not have effective public strategies to secure local employment opportunities.
- New Paltz's local jobs and economy will be impacted by extreme climate events.
- New Paltz's local jobs and economy has little capacity to adjust and respond to extreme climate events or other disruptions.

Survey results
Social Services

	Civic Preparedness and Social Services	Avg rank	% 'don't know'
29	Neighbors in our community are well organized to help each other in times of need.	3	22
30	My Town or Village government is adequately prepared for climate change, rising costs, and natural disasters.	2	65
31	Our local government services are funded from sources that are sustainable as energy prices rise.	2	93
32	Our local government responds effectively to natural disasters.	3	53
33	If no climate adaptation occurs, New Paltz's local government services will be impacted by climate change.	4	51
34	New Paltz's local government has the will and ability adjust and respond to extreme climate events or other disruptions over time.	3.5	51

Takeaways

- Neighbors in our community could be much more organized to help each other in times of need.
- Local government is not adequately prepared for climate change, rising costs, and natural disasters.
- Government services are not funded from sources that are sustainable as energy prices rise.
- Local government does not respond effectively to natural disasters.
- If no climate adaptation occurs, New Paltz's local government services will be impacted by climate change.
- Local government has some will and ability to adjust and respond to extreme climate events or other disruptions over time.


Activity 3
Plot the Priorities!


Prioritizing action
Community systems most vulnerable
Adaptive capacity
Degree of vulnerability
(exposure to the hazard + severity if the hazard happened)
Culture
Open space & Agriculture
Public Services
Recreation
Vulnerable Populations
Tourism
Infrastructure
Agriculture

Work Plan

Analyze climate data
[June 2019]

Administer community survey
[July - October 2019]

Stakeholders Workshop
[TODAY!
December 2019]

Recommended actions, report drafting [December – January 2020]

Public Comment
[January - February 2020]

Final report
[February 2020]

Climate Smart Communities Reporting
[March 2020]

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This project has been funded by The Climate Smart Community Grant Program, Title 15 of the Environmental Protection Fund through the NYS Department of Environmental Conservation.

Appendix D: Outreach Materials

Village of New Paltz Website

Climate Vulnerability Assessment

Search

Announcements

Please be aware that the handicap lift at Village Hall is currently out of order. If you need assistance in order to attend a meeting, please call Village Hall at 845 255 0130 so we can make arrangements.

The Village Board has declared a water conservation emergency for the duration of the NYC DEP repair work on the Catskill Aqueduct

Resolution #76 Water Conservation

In the past year, New Paltz Climate Smart has completed a greenhouse gas inventory, is currently working on a climate action plan, and is in the process of studying our vulnerability in New Paltz to climate change. Climate change presents threats to New Paltz and the Town and Village may already be experiencing some of those impacts. To prepare for the future and ensure New Paltz remains a resilient and safe community, the Town and Village are developing a Climate Vulnerability Assessment throughout 2019. The assessment focuses on Town and Village operations and assets, but depends on community members like you to help identify what aspects of New Paltz may be susceptible to climate hazards—and how adaptable or ready our community is to face them. This activity will help advance New Paltz commitments toward the New York State Climate Smart Communities certification program.

The survey will take you about 15 minutes to complete. Because climate change can impact many aspects of our community, the questions are grouped into community systems, such as for food, sources of energy, transportation and housing, and jobs. Your answers are entirely based on your perceptions alone (there are no right or wrong answers). Your responses will remain completely anonymous to be combined with answers from your neighbors who participate in the survey to inform New Paltz's Climate Vulnerability Assessment. You can skip any question, or mark that "you don't know", as well as provide explanations after the end of each section. Your thoughts will inform the development of the Town and Village's climate adaptation strategies.
https://forms.gle/X8iirMnGKRdKRKpo8
Please share this link and encourage your friends and neighbors to complete the survey too.

Town of New Paltz Website

Climate Smart Communities Task Force Page

2019 Threat Assessment Launch-Temperate Data Slides

Climate Smart Newsletter June 2019

Climate Smart Newsletter September 2019

Community Greenhouse Gas Emissions Inventories: Town and Village of New Paltz, Ulster County, New York

Presentation Slides: Community Greenhouse Gas Emissions Inventories: Town and Village of New Paltz, Ulster County, New York

Summary Points- New Paltz Climate Vulnerability Assessment

Town of New Paltz Greenhouse Gas Inventory slides

Home ›› Committees

Climate Smart Communities Task Force

The Climate Smart Communities Task Force is a working group for the Town's Climate Smart Community certification. Volunteers are always needed!

Meetings are held on the 3rd Monday of the month at 7:00 pm in the small conference room at the Community Center.

New Paltz Climate Smart Website

Climate Smart on Facebook

Town of New Paltz Local Government Operations Greenhouse Gas Inventory

Survey Announcement: August 1, 2019

New Paltz Climate Smart Survey: We need your input!

POSTED ON: AUGUST 1, 2019 - 11:03AM

In the past year, New Paltz Climate Smart has completed a greenhouse gas inventory, is currently working on a climate action plan, and is in the process of studying our vulnerability in New Paltz to climate change. Climate change presents threats to New Paltz and the Town and Village may already be experiencing some of those impacts. To prepare for the future and ensure New Paltz remains a resilient and safe community, the Town and Village are developing a Climate Vulnerability Assessment throughout 2019. The assessment focuses on Town and Village operations and assets, but depends on community members like you to help identify what aspects of New Paltz may be susceptible to climate hazards—and how adaptable or ready our community is to face them. This activity will help advance New Paltz's commitment toward the New York State Climate Smart Communities certification program.

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https://forms.gle/X8iirMnGKRdKRKpo8

Please share this link and encourage your friends and neighbors to complete the survey too.

Janelle Peotter

New Paltz Climate Smart Coordinator

Survey Announcement: August 21, 2019

Home

New Paltz Climate Survey: We Need Your Input!

POSTED ON: AUGUST 21, 2019 - 10:41AM

In the past year, New Paltz Climate Smart has completed a greenhouse gas inventory, is currently working on a climate action plan, and is in the process of studying our vulnerability in New Paltz to climate change. Climate change presents threats to New Paltz and the Town and Village may already be experiencing some of those impacts. To prepare for the future and ensure New Paltz remains a resilient and safe community, the Town and Village are developing a Climate Vulnerability Assessment throughout 2019. The assessment focuses on Town and Village operations and assets, but depends on community members like you to help identify what aspects of New Paltz may be susceptible to climate hazards—and how adaptable or ready our community is to face them. This activity will help advance New Paltz's commitment toward the New York State Climate Smart Communities certification program.

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Janelle Peotter

New Paltz Climate Smart Coordinator

Workshop Announcement

Home

Climate Change Vulnerability Workshop with the Town and Village Boards @ Village Hall

Event Date: Wednesday, December 4, 2019 - 7:00pm