ROCHESTER

EXTREME HEAT PLAN

Image Credit: Communications Bureau, City of Rochester NY

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City of Rochester, NY
Rochester City Council

ACKNOWLEDGEMENTS

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Thank you to the many stakeholders involved in the development of the Extreme Heat Plan through participation in interviews and workshops.

Action for a Better Community

American Red Cross

Anthony L. Jordan Health Center

Catholic Charities Refugee Services

Center for Disability Rights

Childcare Council

House of Mercy

Ibero-American Action League

Lifespan

Monroe County Department of Public Health

Monroe County Office of Emergency Management

Monroe County Office for the Aging

Neighborhood Service Centers

Regional Transit Service

Rochester City School District

Rochester Gas & Electric

Rochester Housing Authority

Rochester Institute of Technology

University of Rochester, Center for Community Health & Prevention

University of Rochester Medical Center

Department of Environmental Conservation

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


THOMAS P. RYAN JR. COMMUNITY CENTER
Rochester Public Library
SULLY BRANCH
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INTRODUCTION

The City of Rochester (City) has recognized the increasing risk of extreme heat to the community and prioritized the development of this Extreme Heat Plan (EHP). The EHP outlines strategies the City will take to increase heat safety awareness and provide resources for residents, especially vulnerable populations who will be most impacted and have the least ability to recover from extreme heat events. The EHP establishes a coordinated response to extreme heat to both align with and add capacity to existing needs and programs.

The City and its residents are keenly aware of the urgency for immediate action to address the increasingly damaging impacts of climate change. Rochester has already taken several steps toward creating a more sustainable and resilient future as demonstrated in its Climate Action Plan (CAP), Climate Vulnerability Assessment (CVA), and its Climate Change Resilience Plan (CCRP). The City has also been an active participant in the New York State Energy Research and Development Authority (NYSERDA), Clean Energy Communities and the New York State Department of Environmental Conservation (NYSDEC) Climate Smart Communities programs.

Over the next 50 years, the City of Rochester and surrounding areas are projected to experience a continued increase in temperatures, potentially as much as 7°F by mid-century and over 10°F by end of the century.[1] The impacts of extreme heat are wide-ranging, affecting everything from natural resources and water supply to public health and infrastructure. The impacts are particularly noticeable among our most vulnerable populations, posing significant health and safety concerns, and added financial stressors as cooling demand increases.

Many of these impacts present significant equity concerns when those who will be most negatively impacted have the least ability to withstand and recover from the impacts of climate change. A significant percentage of households falls below poverty level and there are high rates of unemployment in Rochester. With an aging housing stock, some with substandard heating and cooling capacity, Rochester families are already impacted by a high energy burden when it comes to paying for housing and utility costs. Severe weather emergencies further compound these challenges along with exacerbating other inequities such as transportation disruptions or environmental health issues.

[1] City of Rochester (2018). Climate Vulnerability Assessment Report.

SCOPE OF WORK

The purpose of the EHP is to engage the entire community in identifying the Rochester community's vulnerabilities to extreme heat and to articulate strategies to increase heat safety awareness and provide resources for residents, especially for the city's most vulnerable populations.

The EHP addresses three areas of heat preparedness:

1. General preparedness for extreme heat events prior to the hotter months of the year;
2. Cooling interventions offered programmatically during summer months, such as the existing Cool Sweep program; and
3. Coordinated response for extreme heat events that occur when heat indices meet or exceed 85°F.

The focus of this plan is on providing public health and safety information for all people in need that may be living, working, or visiting the City of Rochester during the late spring to early fall. There is a particular emphasis on providing cooling interventions to those most vulnerable to extreme heat ("vulnerable populations"). Those populations include people, such as outdoor workers and athletes, who have greater exposure to heat; people who have inadequate access to cooling either because of a lack of infrastructure (e.g., air conditioning) or an inability to afford to pay the energy costs of using that equipment; and people with pre-existing health conditions or more sensitive physiologies such as young children, the elderly, and pregnant people. It is understood, however, that elevated heat indices present challenges to all demographics if there is inadequate access to cooling.

What is extreme heat?

Extreme heat is an extended period (two to three days) when the heat index is above 90°F. Extreme heat is the leading cause of weather-related deaths in the U.S.

The EHP was developed through a combination of research, stakeholder participation, and industry best practices. The key components of this work, which were used to inform this plan, included the following:

- Stakeholder and Subject Matter Expert interviews with both technical (content) experts and social (context) experts;
- Development of a social vulnerability assessment through the lens of heat emergencies;
- Development of an extreme heat scenario that was used to identify potential strengths and weaknesses of the current system, including highlighting key themes, inherent assumptions, and dependencies on utilities and other support systems that are outside of direct control of the City;
- Conducting two separate workshops, one that included stakeholders directly involved in planning and response efforts, and one workshop that included a broader group of service providers (stakeholders representing vulnerable populations), both of which involved a scenario planning approach to determine areas of focus for the EHP; and
- Development of this plan, including an accompanying communications strategy, to build out an extreme heat response protocol, operational expectations and responsible parties, and actions and timelines for implementation – before, during and after extreme heat events.

See Appendix 1 for the list of interviewees and a summary of questions. See Appendix 2 for a summary of stakeholder workshops.

KEY POPULATIONS VULNERABLE TO HEAT

Definition of Vulnerability

Vulnerable populations include people who have greater exposure and sensitivities to extreme heat, combined with a lower capacity to adapt compared with others in their community. Key drivers of vulnerability and chronic stressors have been linked to language barriers, educational levels, poverty, age (i.e., very young and very old), social isolation, mobility and accessibility barriers (e.g., homelessness, physical disabilities, cognitive, mental health and communication-based factors) as well as existing public health challenges that often arise from larger environmental injustices (e.g., a higher rate of asthma for populations located next to heavily-travelled roadways).

For this EHP, the drivers of heat vulnerability include the following:

1. Social/language vulnerability
2. Socio-economic vulnerability
3. Environmental/urban vulnerability
4. Elderly/social isolation
5. Infants and Children
6. Homelessness
7. Physical and mobility challenges
8. Mental health and cognitive challenges
9. Outdoor laborers and athletes

This definition of vulnerable populations is based on the use of existing information from the City of Rochester, and was further informed through stakeholder interviews, as well as with leading national and international research that had direct and immediate application for this work.[2] [3]

[2] Nayak, S.G. et al. 2018. Development of a heat vulnerability index for New York State.
[3] Benz, S.A. and J.A. Burney, 2021. Widespread Race and Class Disparities in Surface Urban Heat Extremes Across the United States Earth's Future.


Older Adults (Aged 65+)


Infants and Children


Chronic Conditions


Low Income


Athletes


Outdoor Workers

Mapping Vulnerability

Heat vulnerability indices (HVIs), which are based on environmental, demographic, and socioeconomic factors, are commonly developed to identify and locate populations vulnerable to extreme heat and prioritize resources to the most in need. NY State Department of Health created HVI maps to identify areas in the state where people are most vulnerable to heat.[4] The index incorporates language barriers, socioeconomic factors, surface temperature, and elderly isolation. This index was used in addition to Benz and Burney's Disparity Map, which measures urban heat disparities[5], and the U.S. Department of Energy's Low-Income Energy Affordability Data (LEAD) Tool , to compile a detailed heat vulnerability assessment tailored to Rochester[6]. Figure 1 shows those areas within the city of Rochester with the highest vulnerability to extreme heat events based on social and economic health indicators.

See Appendix 3 for the methodology that was used for the heat vulnerability assessment.

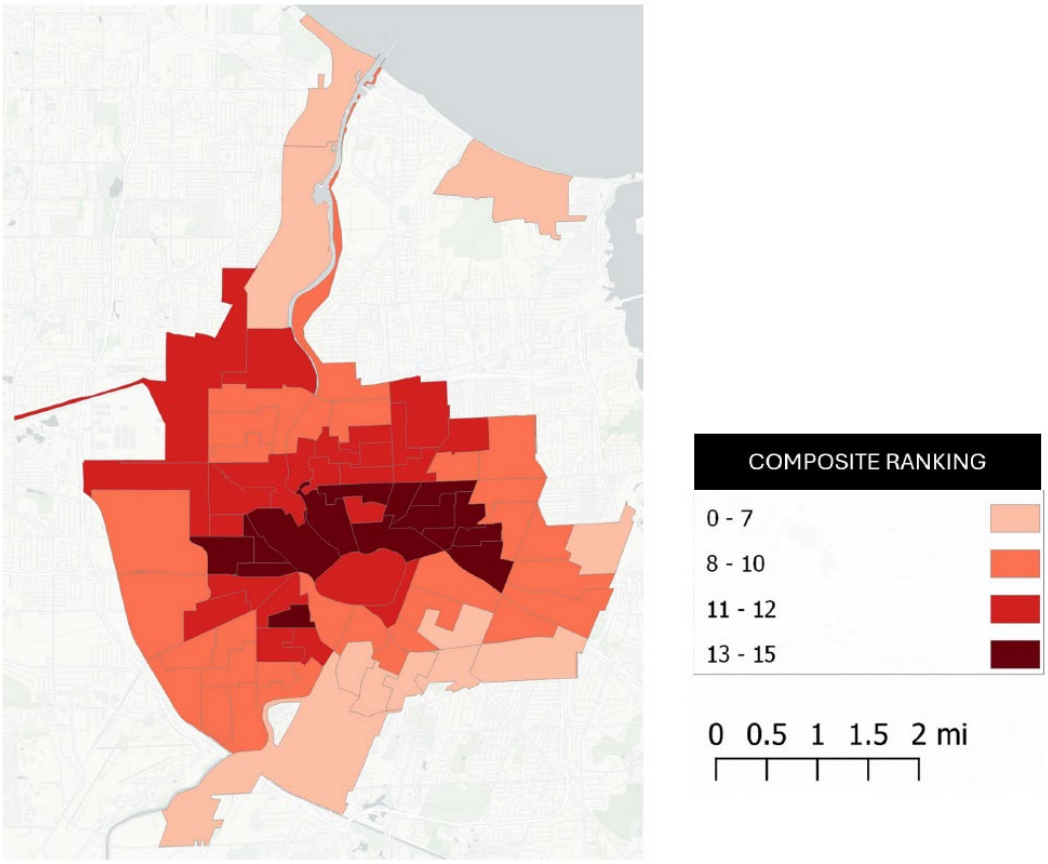


Figure 1. Composite Map of various vulnerability indicators which highlight the communities in the neighborhood which are likely to be most vulnerable to extreme heat events based on key social and demographic indicators. The higher numbers and darker colors indicate the areas with the highest vulnerability. See Appendix 3 for a detailed assessment of the data sources and methodology that were used to construct this map.

[4] New York Department of Health. Heat Vulnerability Index.
[5] Benz, S.A. and J.A. Burney, 2021. Widespread Race and Class Disparities in Surface Urban Heat Extremes Across the United States Earth's Future.
[6] U.S. Department of Energy. Low-Income Energy Affordability (LEAD) Tool.

EXTREME HEAT AND ITS IMPACT

Climate Change and Extreme Heat

Rochester is anticipating more high heat days as a result of climate change. Over the next 50 years, the City of Rochester and surrounding areas are projected to experience a continued increase in average annual temperatures (Figure 2), potentially as much as 7°F by 2050 and over 10°F by 2100.[7]

The impacts of extreme heat are wide-ranging, and are particularly noticeable among our most vulnerable populations, posing significant health and safety concerns, and added financial stressors as cooling demand increases.

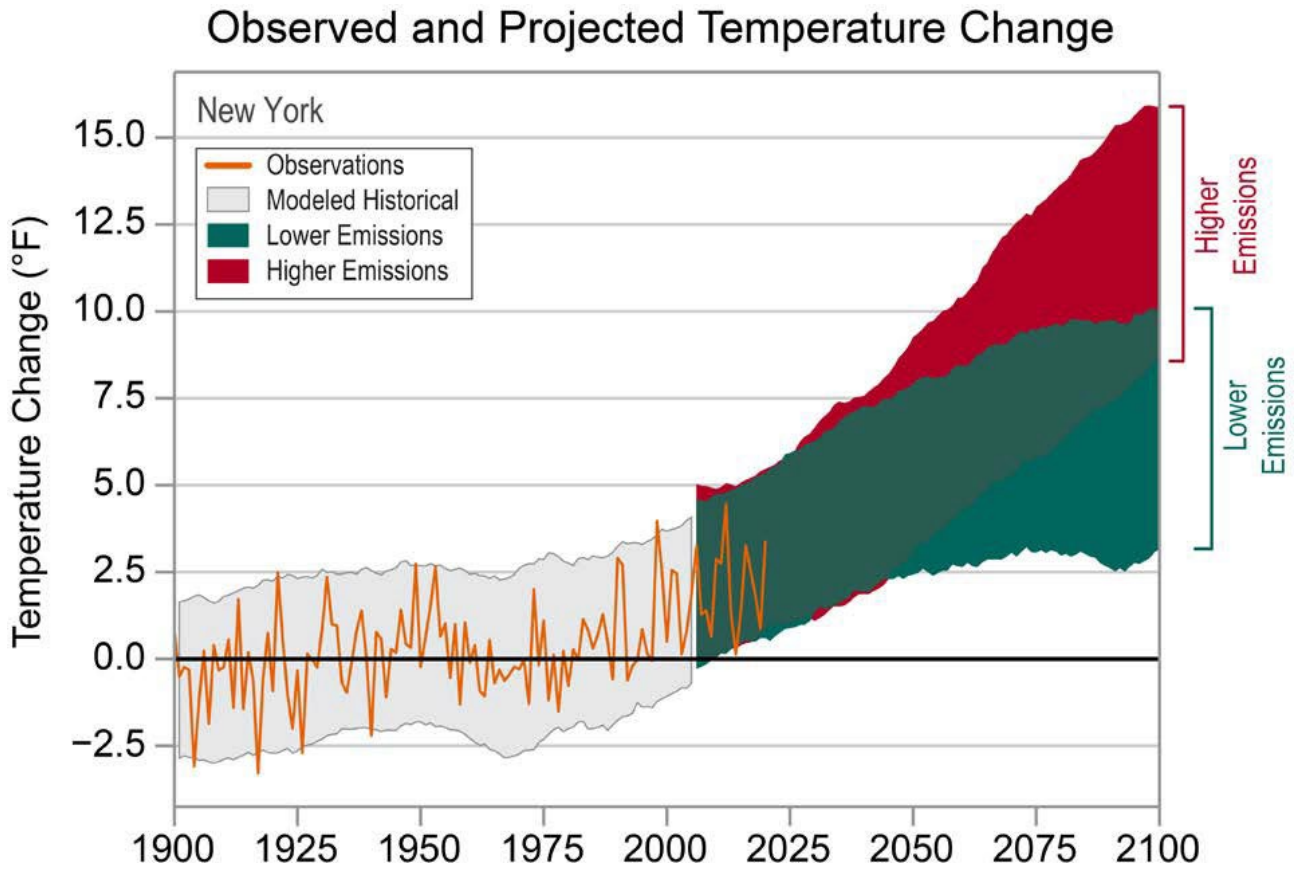


Figure 2. Observed and Projected Temperature Change for the state of New York[8]

In addition to being exposed to extreme temperatures during the day, warmer nighttime temperatures can make it more difficult to adequately cool off during the evenings. There has already been a trend of warming evenings during the summer at a state-wide level. Overall, the state of New York has seen an increase in the number of warmer nights during the summer and a decrease in the number of very cold nights.

[7] City of Rochester (2018). Climate Vulnerability Assessment Report.
[8] NOAA National Centers for Environmental Information (2022). State Climate Summaries 2022.
[9] NOAA National Centers for Environmental Information (2022). State Climate Summaries 2022. Retrieved from https://statesummaries.ncics.org/chapter/ny/

Health Outlook

Extreme heat is the leading weather-related killer in the United States. Extreme heat events can lead to significant human health effects (Figure 3) in a relatively short period of time. Elevated heat indices present challenges to all demographics if there is inadequate access to cooling, but these events will present greater challenges to vulnerable populations. Vulnerable populations include those people, such as outdoor workers and athletes, who have greater exposure, people who have inadequate access to cooling either because of a lack of infrastructure (e.g., air conditioning) or an inability to afford to pay the energy costs of using that equipment, and people with pre-existing health conditions or more sensitive physiologies such as young children, the elderly and pregnant people.

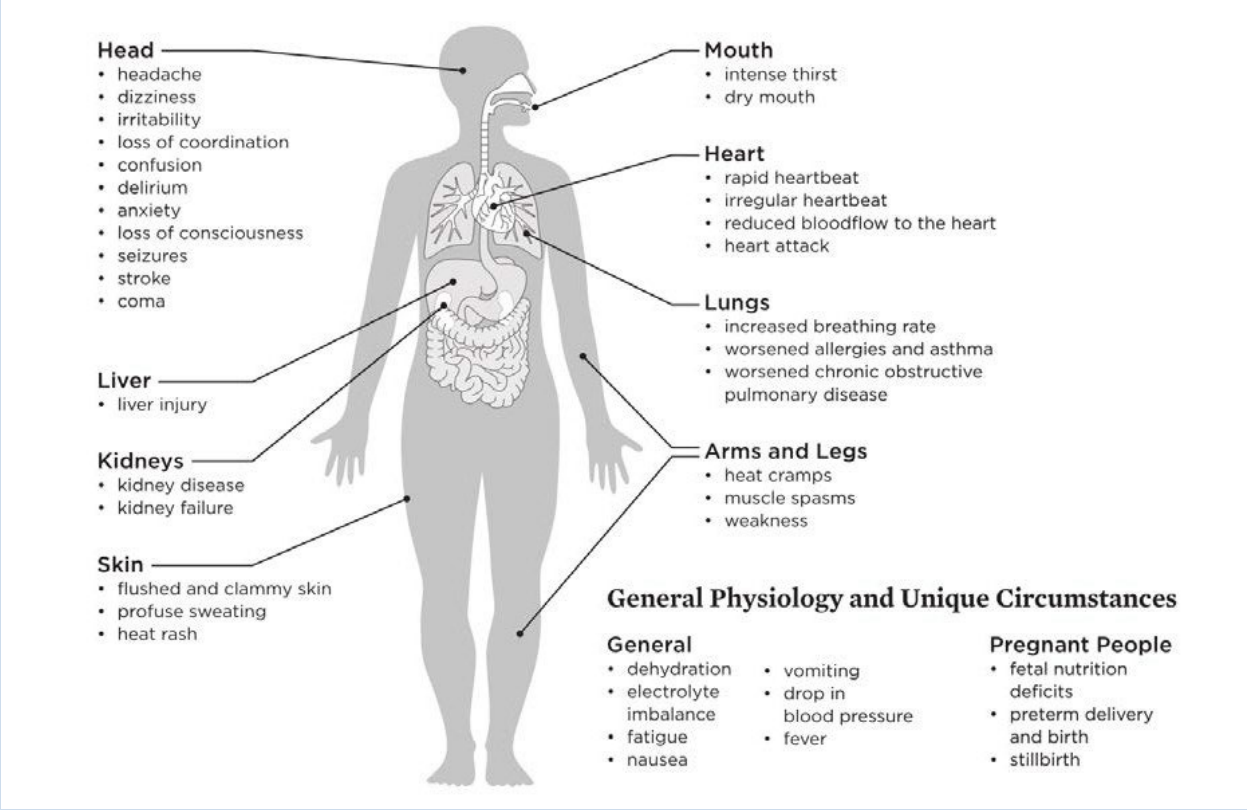


Figure 3. How Heat Harms our Bodies[10]

What is heat index?

Heat index is a measure of how it feels when relative humidity is factored in with the actual air temperature.

[10] Union of Concerned Scientists (2020). Killer Heat in the United States.

EXTREME HEAT AND ITS IMPACT

Extreme heat emergencies develop when there is a rise in both the ambient air temperature and the relative humidity. Heat is more harmful when humidity is high because humid air prevents the effective evaporation of sweat. Since the human body needs to sweat in order to cool itself, it is important to account for the relative moisture in the air as well as the temperature because there are certain combinations which make sweating ineffective. The overall "safety" point is indicated by that combination of ambient air temperatures and humidity – which is called the heat index. The heat index, shown in Figure 4, was developed by the National Weather Service (NWS) and is a key indicator used to predict potential public health concerns during heat wave.

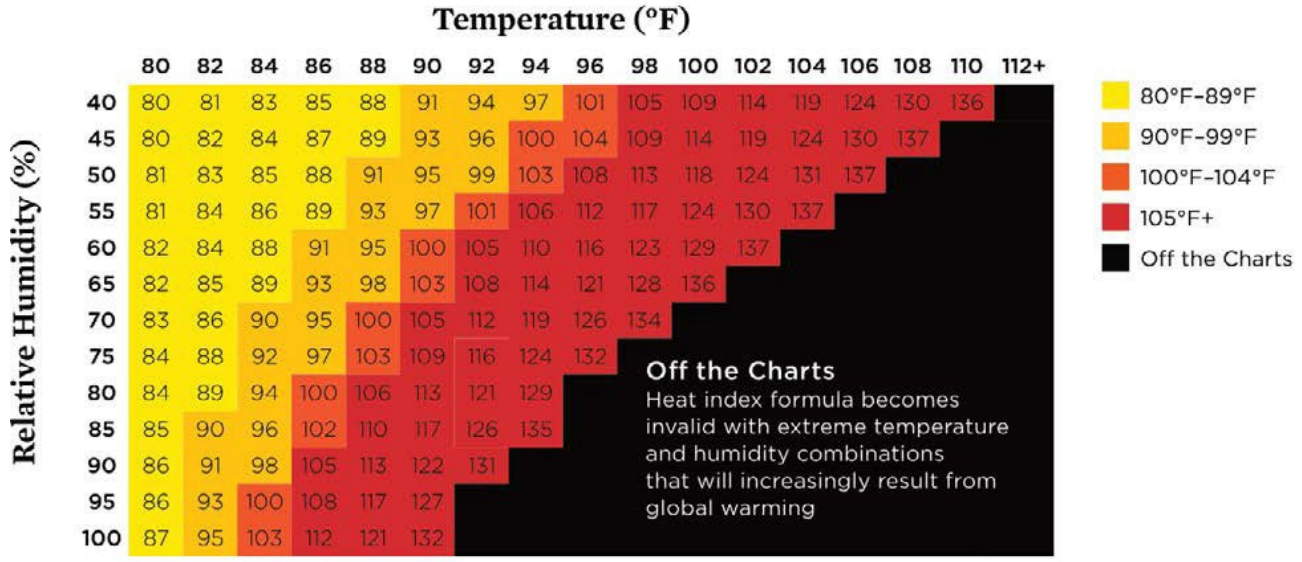


Figure 4. How Temperature and Humidity Create the Heat Index[11]

Though the National Weather Service (NWS) does not issue alerts until the heat index reaches 95°F, health impacts can be seen at lower heat indices. For example, at 90°F index level, there is the possibility for individuals to develop sun stroke, heat cramps and heat exhaustion, especially for outdoor workers, athletes and others not acclimatized to these temperature and humidity levels. At 95°F index, heat related illnesses become more prevalent, especially for elderly people and those with sensitivities to the heat. With a heat index of 105°F, that risk extends to everyone, even healthy adults.

Guidance from the National Weather Service

The National Weather Service issues heat alerts based on **heat index** values.

Heat Advisory: In place when heat index is expected to reach or exceed 95°F for 1 hour or more
Heat Warning: In place when heat index reaches or exceeds 105°F for 1 hour or more

[11] Union of Concerned Scientists (2020). Killer Heat in the United States.

EXISTING HEAT RESPONSE INITIATIVES

Cool Sweep Program

The City of Rochester has implemented initiatives that support the community in preparing for and staying cool during extreme heat events. The Cool Sweep program is the City's annual public safety and customer service program to help residents find relief from summer heat. When the heat index is 85 degrees or higher, a Cool Sweep is declared to remind residents about air-conditioned facilities, spray parks or features and swimming opportunities available to them free of charge. Cool Sweep locations may include recreation centers, libraries, spray parks and extended hours at pools and the beach. When a Cool Sweep is declared, a news release goes out reminding residents to take advantage of these opportunities. When staffing allows, the City will also extend the hours at Durand Eastman Beach.

Identified limitations and gaps in the existing Cool Sweep Program include:

- Does not cover Sundays or some evening hours
- May have staffing challenges if multi-day event
- Communications limited to English and Spanish
- Lack of printed communications (digital gap)
- Accessibility/mobility limitations
- Lack of awareness of program, especially for most vulnerable populations
- Need to get information out in advance of an event to support preparedness.

The ability to adapt to extreme heat can be dependent on access to cooling resources, such as cooling centers, spray grounds, or swimming pools, especially for sensitive populations that are experiencing homelessness or do not have access to (or the ability to afford) air-conditioning at home. A 5-minute walking distance (approximately a quarter mile) was measured around each Cool Sweep location using the existing road and sidewalk network, as shown in Figure 5. Areas outside of the 5-minute walksheds are areas that are not within close proximity to existing cooling resources and could likely benefit from expanded resources, particularly if in a census tract with a high composite ranking.

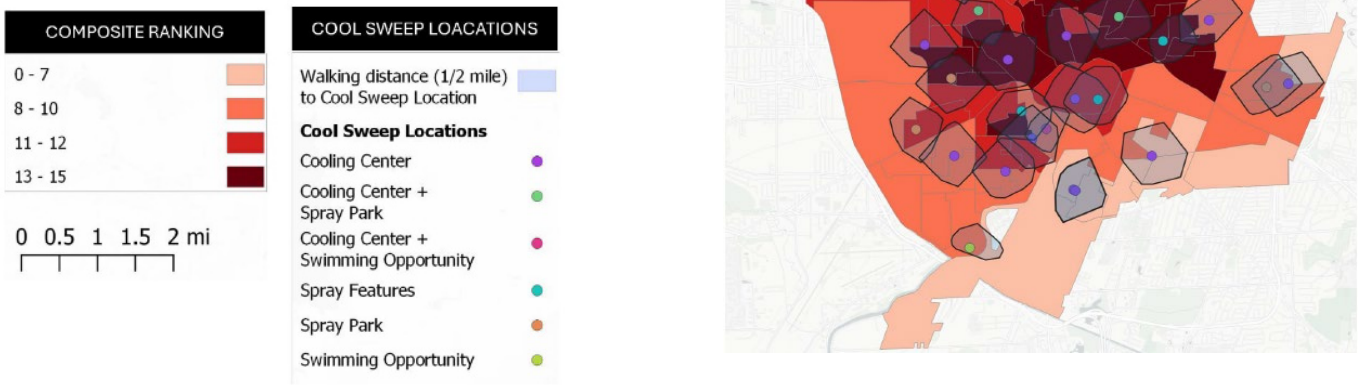


Figure 5. Five-minute Walking Distance from Cool Sweep Locations

EXISTING HEAT RESPONSE INITIATIVES

NWS Heat Advisory and Warning Response

The NWS heat advisory system announces heat advisories when the heat index is expected to reach/exceed 95°F for 1 hour or more, and excessive heat warnings when the heat index is expected to reach/exceed 105°F for 1 hour or more. An important drawback of the NWS heat advisory system is that it does not officially announce heat advisories until the index reaches 95°F, though there is already risk for heat illnesses at lower heat indices.

This EHP recommends issuing alerts starting at 85°F index, in addition to the more formalized NWS advisories which begin at 95°F index. The proposed interventions (see Strategies and Responsibilities) represent an enhanced level of effort that would be escalated in accordance with the severity of the extreme heat event, requiring a larger set of stakeholders and elevated incident command and authorization structure.

Cooling Assistance Programs

Several entities throughout the City have been involved in helping residents cope with extreme heat event (see Appendix 2 for stakeholder workshop summaries). The majority of these programs either act in an emergency response mode or are temporary, based on the availability of external funds that are grant-based and not necessarily available for renewal. A City-wide, coordinated effort between the various entities to both align and add capacity to the existing needs and programs would represent an important improvement in responding to heat events. In the past, the state's Low-Income Home Energy Assistance Program (LIHEP) program offered support to residents in the acquisition of fans or air conditioners, but the funding remains limited and there is no certainty that the program being available year to year.

There have also been programs offered through RG&E to help offset the increased energy costs associated with using air conditioning, but this support may also be limited. A final potential barrier is the distribution and installation of the units themselves. There have been efforts on this front from local non-profits such as Lifespan with the distribution of fans, but the demand quickly outstripped their capacity, so the program had to be suspended.[11] This would be an area worthy of further development with the City acting as a potential lead, if State funds remain available for cooling units, whether for traditional window AC units or heat pumps.

Identified limitations and gaps of existing cooling assistance programs include:

- Lack of a formalized and coordinated effort among City, non-profit and private institutions on extreme heat preparedness and response efforts
- Emergency shelters are 24 hours, but cooling centers do not offer overnight services
- May have staffing challenges in event of multi-day extreme heat event
- Communications limited to English and Spanish
- Accessibility/mobility limitations
- Access to refrigeration for medications
- Cooling shelters typically do not accommodate pets

Community Outreach

The City is working to identify trusted community members and create a network to inform the community of heat emergencies, including how to prepare and respond.

This initiative aims to dispel government distrust by building partnerships with community members and organizations trusted by the community.

[11] City of Rochester (2022). Extreme Heat Plan Workshop 2 Meeting Summary.

EXTREME HEAT PLAN PROTOCOL

The NWS heat advisory system will be used to determine trigger points for operational and communications procedures during heat emergencies. The NWS heat advisory system does not officially announce heat advisories until the heat index reaches 95°F. Because there is risk for heat illnesses at lower temperatures, the EHP recommends issuing alerts when the heat index reaches 85°F, in addition to the more formalized NWS advisories which begin when the heat index reaches 95°F. Heat alerts will be announced through the existing Cool Sweep program. The protocol for extreme heat provides a summary of protocols for each trigger level. A more detailed summary of protocols at each trigger level is included in this section. The City's ability to implement the recommended strategies will depend on availability of staffing and resources. The City will plan to seek opportunities to expand staff and resources so that the strategies can be implemented.

Extreme Heat Preparation and Education

Before an event

- Collaborate with internal agencies and external partners to distribute information.
- Share preparedness information and resources through events and outreach.

Cool Sweep

Available through the summer with special announcements when heat index reaches 85˚F and above.

- Share information about existing resources through targeted and general outreach.
- Improve access to cooling locations

National Weather Service Issues Heat Advisory

Issued when heat index expected to reach/exceed 95˚F for 1 hour or more

- Appoint an Incident Commander on the City level to coordinate all City-related effort. Follow City Response Level 3 (Partial Activation) incident guidelines with internal agencies, including DEM, DES, DRHS, Office of the Mayor, Office of Management and Budget, RFD, RPD.
- Engage with service providers for support
- Adopt a broader incident command if the event extends beyond 48 hours or is compounded by other factors.

National Weather Service Issues Heat Warning

Issued when heat index expected to reach/exceed 105˚F for 1 hour or more and/or there is a potential for power outages lasting longer than 12 hours

- Follow City Response Level 4 (Full Activation) Incident Guidelines, establishing a Unified Command, engaging community partners involved in response.
- Engage similar partners as those used for cold emergencies.
- Recognize that this will be a regional event so Rochester cannot necessarily depend on mutual aid from County or regional entities.

Incident command is a standardized approach to the coordination of emergency response.

City Response Levels

Steady State/Monitoring: Controlled emergency situation without any or very minimal threat to life, health, or property, which requires minimal or no assistance beyond initial first responders.

Partial Activation: Limited emergency situation with some threat to life, health, or property, but confined to limited area, usually within one quadrant of the City or involving small population within the quadrant**.**

Full Activation: Reflects a serious situation or potential for a serious situation with threat to life, health or property involving large area of the City and/or when one to three such incidents are occurring simultaneously, or when there exists or is the serious potential for a regional, statewide emergency exists, that will involve the significant commitment of resources within or out of the region.

EXTREME HEAT PREPARATION AND EDUCATION

Before an event

A key indicator of success during any emergency is the level of preparedness that is achieved prior to that event. The messaging must convey a sense of relevancy and urgency without overwhelming the participants. It also must contain readily available and easily accessible solutions that likewise make people feel empowered and able to act. The concept of accessibility includes not only addressing language barriers but also thinking about how people with different physical and emotional states might access these solutions. The key aspects of messaging are further elaborated on in the Communications Strategy section. Below, are strategies that can be used to "get the word out", what people can do on their own to prepare and the additional support systems that are available beyond that.

Strategy	Responsible Party
Work collaboratively with the American Red Cross to develop and distribute readily available information; collaborate among City departments distribute information and resources	City (DEM) to work in collaboration with the American Red Cross for content
	City (DEM) to work with Bureau of Communications and Special Events, local libraries to distribute information
Connect with City Recreational Programs around health and safety and youth programs to distribute information	City (DEM) in coordination with R-Centers. Consider working with Rochester City School District and the City of Rochester's Office of Special Projects and Educational Initiatives
Connect with First Responder outreach programs in schools to distribute information	City (DEM) in coordination with City of Rochester's Office of the Fire Chief and Office of the Police Chief
Collaborate with RG&E to provide information about the Life Support Equipment Program	City (DEM) and Neighborhood Service Centers in Coordination with RG&E
Collaborate with community-based organizations in order to distribute information and extreme heat preparedness "kits".	City (DEM) to coordinate with Bureau of Communications and Special Events, local libraries, and other departments within City Hall
Educate people about heat preparedness and cooling resources.	City (DEM) and Neighborhood Services Centers in coordination with Community Groups

COOL SWEEP

Cool Sweep is available through the summer with special announcements when heat index reaches 85˚F and above.

There are existing programs that provide residents with various cooling options throughout the summer months. Most of these opportunities come through the Cool Sweep program which is managed by the City through the Department of Emergency Management (DEM). This program is active throughout the summer months and, depending on the forecast, extreme heat news releases are posted to alert residents of potential heat-related health impacts.

The EHP recommends that, at a minimum, there are alerts when the temperature or heat index is expected to reach 85˚F. This is a robust program, and the recommendations below represent ways in which it could further enhance its impact. The City's ability to implement the recommended strategies will depend on availability of staffing and resources. The City will plan to seek opportunities to expand staff and resources so that the strategies can be implemented.

Strategy	Responsible Party
Leverage Cool Sweep Program and ongoing neighborhood outreach to: • Explore the potential of using Cool Sweep locations as places where cool packs, vouchers for cooling units, additional informational materials could be distributed as available; • Coordinate with hotels and retail/commercial establishments to be used as additional cooling centers/emergency cooling shelters; • Ensure that animal control/veterinary clinics have backup power to ensure safe storage of medications, deceased animals, and continuity of care; and/or • Identify location(s) and/or mobile resources to protect pets and families with pets during extreme heat.	City (DEM)
Use varied communication pathways to send alerts to share with networks; follow up with link to Cool Sweep program.	City (DEM)
Develop branding program to indicate severity of extreme heat.	City (DEM) to coordinate with Bureau of Communications and Special Events
Develop partnership with Regional Transit Service for mobile cooling centers to get vulnerable populations to cooling centers. Assess transportation priority areas based on existing mapping analyses (see Figure 5).	City (DEM) to coordinate with Monroe County Regional Transit Service to develop protocol and triggers

NATIONAL WEATHER SERVICE ISSUES HEAT ADVISORY

Issued when heat index is expected to reach or exceed 95˚F for 1 hour or more

When the heat index exceeds 95˚F for 1 hour or more, more people will be impacted (including those without existing vulnerabilities) and the needs will likely exceed what is readily available through the Cool Sweep Program. A larger, more formalized network will be required to coordinate the various requests and responses during the event. In addition to the ongoing Cool Sweep program interventions, the following are additional levels of support which may be needed. The City's ability to implement the recommended strategies will depend on availability of staffing and resources. The City will plan to seek opportunities to expand staff and resources so that the strategies can be implemented.

Strategy	Responsible Party
City Senior Management should appoint an Incident Commander to coordinate all City-level efforts. Follow City Response Level 3 incident guidelines.	City DEM to initiate incident command operations for the City by notifying the Mayor, Deputy Mayor, Chief of Staff, Assistant Director of the Office of Management & Budget, 311, and all relevant City departments (RFD, RPD)
	City DEM to engage hospitals (Rochester General Hospital, University of Rochester Strong Memorial Hospital, others) through this group either as official participants or as providers of information and/or via the Monroe County Public Health Department. Each of the mentioned agencies should hold a check in call daily to share information and resources. Participants should be identified at the beginning of the season. Consider engaging Flower City AmeriCorps for expanded staff support.
Reach out to the American Red Cross regarding potential capacity to support.	City DEM to contact the American Red Cross
Consider adopting a broader full-scale incident command structure, involving County and others if event will extend beyond 48 hours; and/or is compounded by other mitigating factors such as loss of power, flooding, COVID/pandemic, other challenges that will impact normal response.	The City DEM will work together with the Monroe County OEM as needed/as appropriate

NATIONAL WEATHER SERVICE ISSUES HEAT WARNING

Issued when heat index is expected to reach or exceed 105˚F for 1 hour or more and/or there is potential for power outages lasting longer than 12 hours

When the heat index reaches 105˚F, all people--regardless of existing social, economic or health vulnerabilities--are at risk of developing severe heat illnesses. Events such as these require significant emergency response efforts and may require restricting travel, work, school, and other daily events. An example of that--and the extent to which the government had to intervene to protect public health--can be seen in the extreme heat emergencies that struck Great Britain in July 2022. People were told to remain home; schools were closed, and public transit limited to essential travel as ambient air temperatures reached 105˚F.[12] The City and/or County may consider declaring a state of emergency which will need to be coordinated between the Mayor and County Executive.

Strategy	Responsible Party
City Senior Management should appoint an Incident Commander to coordinate all City-level efforts. This would be a Level 4 incident using the City's Emergency Operations Plan. **The City or County might decide to partially or fully activate their Emergency Operations Centers. The City and County's emergency managers will work in partnership with the County to coordinate resources and consolidate communications efforts.**	Senior Management to appoint an Incident Commander to oversee all City Response efforts. Activation of the City or County EOC is at the direction of the City Mayor or County Executive respectively.

[12] The Guardian (2022). Temperature passes 40C for first time; London fire brigade warns of 'huge surge in fires' – as it happened.

Post-Extreme Heat Event Strategies

The City's Department of Emergency Management (DEM) will have the ultimate responsibility in conducting feedback sessions after an extreme heat event takes place but may act in partnership with the Office of Energy and Sustainability (OES) to undertake this task. The post-event feedback sessions will be conducted within two weeks of the end of the event. The two offices will work together to develop an agenda and determine appropriate participants. A debrief session will be held to record what worked and what needs to be addressed before the next event to address pressing health and public safety concerns. The event can be held in person or remotely. A written summary of the debrief, including follow up actions, responsible parties, and timetables for completing tasks will be developed by City staff and distributed in draft form for comment following the debrief. After receiving comments back from participants, the summary will be finalized by City staff and shared with key departments, external parties, and the general public as appropriate. Following the summer heat season, an annual debrief session should be held to allow for a more detailed analysis of lessons learned. Results from the annual debrief session should be integrated into the EHP with any recommended changes in protocol and procedure.

COMMUNICATIONS STRATEGY

Developing additional protocols for heat advisories and warnings to Rochester's existing heat response initiatives provides an opportunity to communicate clearly too residents-particularly those most vulnerable to its impacts—about the risks of high heat and actions they can take to get relief.

Image Credit: Communications Bureau, City of Rochester NY

The existing Cool Sweep program is well-known for its ability to provide connections to cooling centers and swimming/water activities, however, the program is limited in its ability to execute a full-scale communications campaign beyond press releases and website information. This communications strategy offers a way to scale outreach around heat preparedness and heat emergencies through additional tactics that build on existing Cool Sweep communications protocols. The City's ability to implement the following recommendations will depend on access to staff and resources. The City will seek opportunities to expand staffing and resources.

COMMUNICATIONS GOAL

To educate the community, especially vulnerable populations in Rochester about actions to take during an extreme heat event.

Recommended Education Campaigns

Preparedness and Education

Audience: Third-party partners (see partners listed on p. 23)

Messaging: *Stay Cool This Summer!/Have a Plan for Hot Days!*

- Triggers and timing
- Roles and responsibilities
- Opportunities for assistance (e.g., free fans, open hours of Cool Sweep locations)
- Public messaging

Extreme Heat Alerts

Audience: Community, with a focus on vulnerable populations as identified in the Heat Emergency Plan

Messaging: *Protect Yourself!/Stay Cool!/Beat the Heat!*

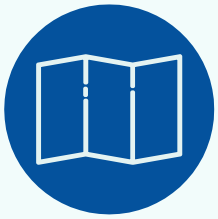
- Visit a cooling center
- Visit a pool or spray park
- Keep medications cool (get free cool pack)
- Take care of pets

Recommended Communications Strategies and Tactics

Branding

Continue to use the "Cool Sweep" name to encompass all-summer heat relief as well as the new heat emergency day alerts, as the Cool Sweep name is already known within the city. Options for building out this brand include:

- Develop a simple and engaging Cool Sweep logo and graphic treatment to unify communications;
- Use symbols in communications and messaging to indicate levels of heat severity and risk (heat alert, heat advisory, heat warning); and/or
- Create a "mascot" or display banner to represent Cool Sweep to attract attention at Cool Sweep locations all summer as well at events, rec centers, schools, and other venues.



Collateral

Invest in the creation of a few key communications pieces, both printed and electronic, in order to provide turn-key outreach material to third-party organizations. All materials should be produced in English and Spanish and other languages as deemed necessary. Recommended collateral materials include:

Magnets (printed): Magnets simply and clearly indicate the actions a resident should take during a heat emergency day and reference 311 for more information. Actions should be concise and clear and may include:

- Stay cool
- Find shade
- Stay hydrated
- Beware of hot cars
- Check on others

Fact sheet (printed and electronic): Intended for organizations and professionals who work with vulnerable populations for use with residents, the fact sheet succinctly describes the risks of heat exposure, the actions that should be taken in a heat emergency, and the process for alerting people of a heat emergency. Fact sheets will be distributed to third parties and City departments during the third-party education and outreach process (below).

Door hanger (printed): Intended for residents in vulnerable neighborhoods, door hangers simply and clearly indicate the actions a resident should take during a heat emergency and reference 311 for more information.

Poster (electronic): Electronic posters are customizable and printable for third-party organizations (e.g., rec centers, libraries) that provide services during heat emergencies so that they can post updated information about hours and cooling opportunities during the summer.

Third-party/City Department Education and Outreach

Leverage third parties to help spread the word about heat safety and emergency day actions will extend the City's reach to residents, including the most vulnerable populations. These organizations will be key in checking on the most vulnerable people during heat emergencies, whether through in-person contact, phone outreach, or email, and distributing magnets, cool packs, fact sheets, and other information. Appropriate third parties for this outreach are organizations whose work routinely brings them in contact with residents who need to know about heat preparedness and emergency actions. Key third parties for this effort include:

- American Red Cross
- Common Ground Health
- Rochester City School District
- Doctors/Clinics
- Faith communities
- Shelters/Food pantries
- Rochester Gas & Electric
- Neighborhood groups
- City Department of Recreation and Human Services (Rec Centers), including Department of Emergency Operations
- Libraries
- First responders/City Office of the Fire Chief and Office of the Police Chief
- Lifespan
- Monroe County Department of Public Health
- Regional Transit Service
- Public libraries

Employ the following communications tactics to reach third parties:

- Hold a pre-heat season virtual or in-person (at City Hall) meeting for third parties to learn about heat response initiatives and how they can help. Encourage third parties to distribute materials to vulnerable populations, check on vulnerable people during heat emergency events, post on websites and social media, and include heat preparedness information in newsletters.
- Supply third parties with fact sheets, cool packs, and magnets for distribution.
- Create an online toolkit that organizations can use to access electronic resources, such as newsletter blurbs, website banners/ buttons, logos, magnet order form, or printable posters.

Press Outreach

Work with media outlets to educate and inform editors, news directors, and reporters about the risks of heat exposure and the importance of action on heat emergency days to spread the word quickly and across a wide population. Tactics for engaging the press include:

- **Press releases**: During heat emergencies, the City should issue a press release to indicate the level of risk and state desired actions. This should be distributed by the City's press office to its media list.
- **Press event**: If budget allows, work with City Neighborhood Service Centers, local media and consider attending community meetings or events to educate people on the dangers of extreme heat and to raise awareness about the importance of heat preparedness and the Cool Sweep program. These meetings or events are an opportunity not only to educate the local community and media but also to discuss possibilities for public service announcements, and special announcements online, on air, and in print during extreme heat events.

Direct Outreach

Undertake outreach directly to vulnerable populations, as resources permit. This may include tactics such as:

- **Pop-up events**: Seasonal neighborhood events and venues, such as La Marketa at International Plaza or Rochester Harborfest at Charlotte, provide an opportunity to engage community members directly with information about heat preparedness and heat emergencies. The City may use these events as an opportunity to distribute magnets, cool packs, and collateral material to promote heat emergency messaging.
- **Door-to-Door**: The City should conduct door-to-door outreach in neighborhoods with higher vulnerability to extreme heat to distribute door hangers. This is also an opportunity for the City and partners to check on vulnerable residents during heat emergency events.

Paid Media

Explore paid advertising, should resources become available. Even if resources for paid advertising are not available, media channels may be open to running ads on a pro bono basis. Possible tactics include:

Billboards: Billboards placed in well-trafficked areas could provide greater awareness of heat preparedness.

Transit shelters and bus card: Buses provide a good channel for reaching people who do not have their own transportation through ads on bus shelters, and cards inside buses.

Electronic outreach: Ensure electronic media are kept up to date and that heat preparedness and heat emergency information is distributed through these channels. This includes:

- Updating the City's website
- Including heat preparedness information in regular email blasts
- Including information on the City's social media channels
- Developing a text alert system

Image Credit: Communications Bureau, City of Rochester NY

PLAN UPDATES

The Department of Emergency Management (DEM) will have the ultimate responsibility for updating the plan but will coordinate closely with the Department of Recreation and Human Services (DRHS) and the Office of Energy and Sustainability (OES) for this task. The plan will be reviewed at least yearly, and more often based on key recommendations that may result from post-event feedback sessions or other relevant sources. The updates to the plan will include revisiting the response to heat emergencies that may have been experienced by Rochester in the previous year, including a brief summary of meteorological events, related emergency response efforts, as well as associated public health events, physical impacts (e.g., failure of key energy infrastructure which may have exacerbated the issues, lack of access to cooling centers, etc.) and other socio- economic outcomes.

The plan should also be reviewed to ensure the proper people are listed as key contacts for each of the tasks and that web-based links, Facebook messaging and other digital platforms (both for sharing and communicating information) are up-to-date and functioning.

DEM will review the current Communications Strategy and, in consultation with OES, make updates to how it is functioning, what types of materials are being distributed, who is being contacted, etc. as a way to constantly broaden its impact and ensure that vulnerable populations are being adequately served. The updated plan will be reviewed by OES and DEM and a revised version issued at the start of the fiscal year or earlier if needed, as indicated above.

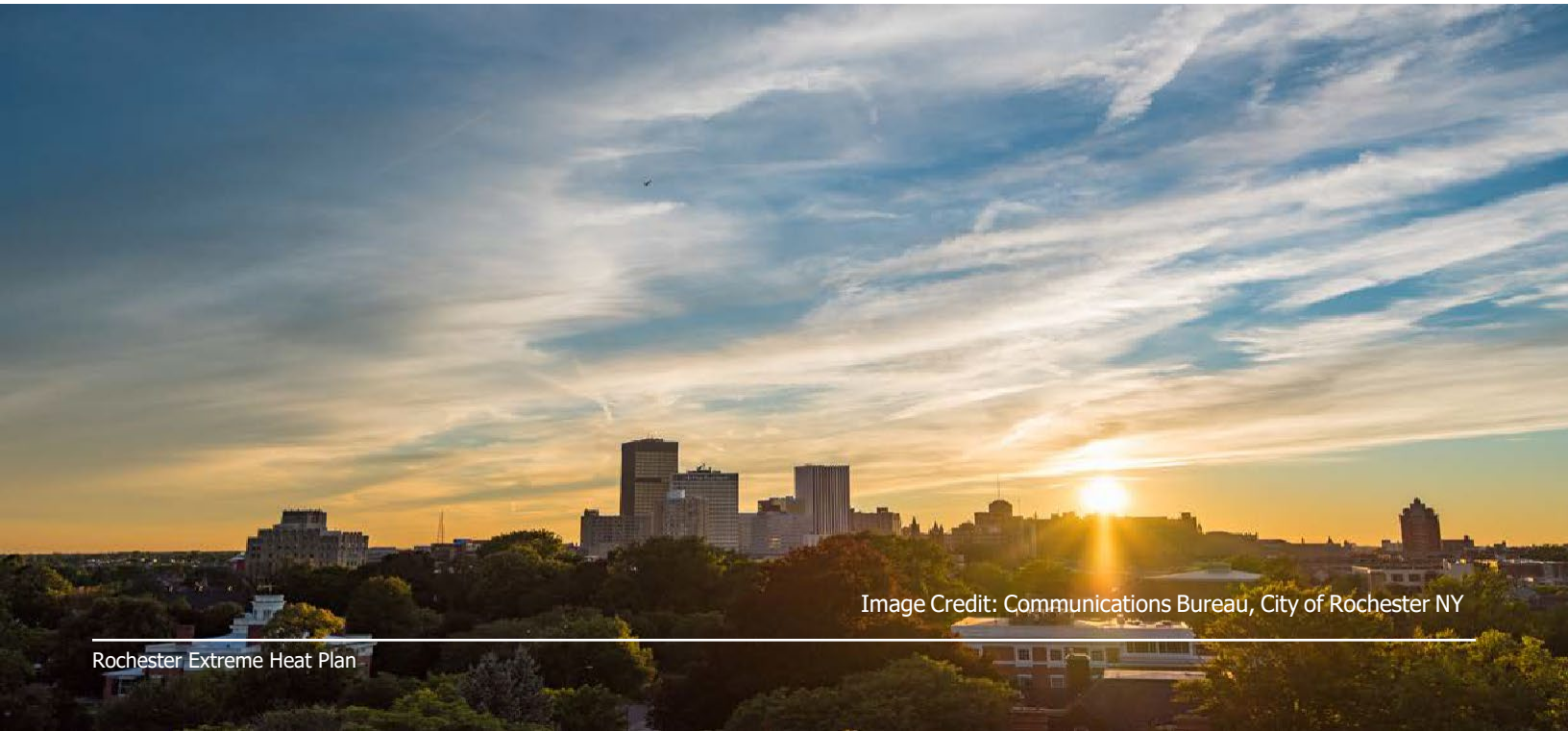


Image Credit: Communications Bureau, City of Rochester NY

APPENDICES

The appendix contains the following documents, which were used to inform and collect data and input from stakeholders, throughout the development of the EHP:

Appendix 1. Interview and Questions and List of Interviewees

Appendix 2. Workshop Summaries

Appendix 3. Heat Vulnerability Assessment Methodology and Data Sources

Appendix 1. Interview Questions and List of Interviewees

Stakeholder Interviews

In February and March 2022, Highland Planning interviewed seven stakeholders concerning existing issues and opportunities regarding extreme heat and documented how best to engage stakeholders in the development of the Rochester Extreme Heat Plan. Interviewees were provided with a background of the project and invited to participate in 20 to 30-minute calls with the project team. Topics covered by the interview questions included existing services for extreme heat events, issues and opportunities, additional stakeholders to include and opportunities to gather input from the community on the project. Key findings are included below and additional stakeholders to include in the study as well as opportunities for outreach are included in this memo.

Interviewees

Name	Title	Organization
Getachew Beshir	Refugee Resettlement Program Manager	Catholic Charities Refugee Services
Anne Marie Cook	President/CEO	Lifespan
Zach Garafalo	Manager of Government Affairs	Center for Disability Rights
Thomas Green	COO	Anthony L. Jordan Health Center
Sister Rita Lewis	Sister	House of Mercy
Angelica Perez-Delgado	President/CEO	Ibero-American Action League
Ayisha Salifu	Deaf Systems Advocate	Center for Disability Rights

Key Findings

- **Existing Support.** Early childcare centers, senior centers, Community Place, Charles Settlement House, Baden, and Montgomery Senior Center and the House of Mercy encourage people to stay with them during high heat events. The Home Energy Assistance Program (HEAP), which Lifespan administers, provides funding for heating and cooling. People living in poverty cannot afford fans and air conditioning, so this assistance is important. The Islamic Center of Rochester, Muslim Charity and Islamic Relief are also supporters and funders of a fan give-away effort. Currently, support for refugees is focused on acclimating them to colder weather because many of them come from high heat regions and are not prepared for cold temperatures, snow and ice.
- **Information Sharing**. Information about programs and services is distributed through word of mouth, flyers, phone calls, email, and Facebook. Lifespan's 100+ social workers share information. Consumer Directed Personal Assistance (CDPA) are homecare workers and health care assistants that have direct contact with homebound populations that could help share critical information.
- **Experience of vulnerable populations.** Our research and interviews suggest that vulnerable populations include those living in poverty/low income, homeless population, disability community, deaf and hard of hearing, refugees, Spanish speaking community, and seniors/elderly, especially those living in high rises. Interviewees noted that the homeless population, the disability community, and the refugee services community do not use Cool

Sweep[1]. The homeless community is most likely not welcomed due to how they appear and potential mental health challenges. Refugees may use the splash park at Jefferson High School. Seniors are unlikely to go to a location they are not familiar with. Hydration is an issue for the homeless population in extreme heat events. Loss of power is an issue for the disability community because people require power for medical devices. The loss of the Cadillac Hotel on the homeless community has left an impact; a hotel is needed to accommodate the homeless population during extreme heat events.

- **Communication Challenges and Opportunities.** A key finding of our interviews pertained to communications and information about the Cool Sweep program and other services that are available during high heat emergencies. For example, the Center for Disability Rights was unaware of the program. Other interviewees indicated their staff are aware of the program primarily via TV or email and offered suggestions for methods to increase the community's awareness. Suggestions included using higher profile and larger locations (such as Blue Cross Arena and Convention Center), hosting workshops for the community, using email, texting and social media platforms to get the word out. It is important to provide ASL and foreign language interpretation at press conferences and TV communications to reach vulnerable populations. For the refugee and Spanish speaking communities, it is important to leverage community leaders who are trusted and credible. Written and spoken communication should always be in Spanish and other languages spoken by refugees. Cooling centers should have bilingual staff if possible. Some stakeholders emphasized that communication should come early and often to educate the community about Cool Sweep and other services before extreme heat days occur.

Subject Matter Expert Interviews

Eight subject matter experts (SMEs) were interviewed in February and March 2022 concerning existing issues and opportunities regarding heat emergencies.

Interview Questions

1. Extreme heat events, or heat emergencies, are when temperatures reach 90 degrees and above in the city. Have you experienced extreme heat events in Rochester or elsewhere? How did it impact you, personally and/or professionally?
2. Do you feel that extreme heat events are a significant concern for Rochester residents, currently and/or in the future?
3. Are there particular populations that may be more prone to and/or less able to cope with these types of events?
4. In your opinion, what is the best way to involve marginalized and impacted groups within this effort – both in terms of its planning, as well as how it is implemented and used?
5. Are there past examples of things that have worked well?
6. Are there past examples of things that did not work well?
7. Are you familiar with Rochester's Cool Sweep initiative? If yes…
    a. Where did you hear about the initiative?
    b. To what extent have you interacted with the initiative?
8. What current stressors (i.e., economic, social, health) exist for populations that may be vulnerable to extreme heat?

a. What do you think is the greatest challenge for people during extreme heat events in Rochester?
b. What barriers exist for people to access resources during extreme heat events?

9. Do you have ideas of policy, operational, and/or built solutions that could increase resilience of Rochester residents during extreme heat events?
10. We are planning to do a half-day desktop scenario-based exercise where we will stress-test the current systems to see how they work to support residents during an extreme heat event. Would this be something you might be interested in participating in? Are there other individuals or organizations that should be considered?

Interviewees

The following SMEs were interviewed:

Name	Title	Organization
Tim Henry	Deputy Director of Public Safety & Emergency Management	Monroe County Office of Emergency Management
Kathy Hiltunen	Manager, Public Health Nursing Services	Monroe County Department of Public Health
Katrina Korfmacher	CEC Director, Professor of Environmental Medicine	University of Rochester Medical Center
Steve Newcomb	Director	Monroe County, Office for the Aging
William Platt	Regional Manager of Direct Support	American Red Cross
Stephanie Rankin	Program Manager, Government and Community Relations	Rochester Gas & Electric
Jennifer Schneider	Principal	Rochester Institute of Technology, Collaboratory for Resilience and Recovery
Harold Zink	Chief Engineer	Rochester Housing Authority

Appendix 2. Workshop Summaries

MEETING SUMMARY

Project Title	City of Rochester Extreme Heat Plan
Meeting Date	April 28, 2022
Venue	Zoom
Topic	Extreme Heat Plan Workshop 1

Overview

On April 28, 2022 the City of Rochester hosted a workshop to address extreme heat in the city. The purpose of the workshop was to discuss current response systems as well as gaps and solutions. Jen Topa from Highland Planning convened the workshop and introduced Anne Spaulding, Manager of the City of Rochester's Division of Environmental Quality and Shalini Beath, Energy and Sustainability Manager.

Anne and Shal welcomed everyone and thanked them for attending. The goal of the plan is to build community resilience in the face of extreme heat that the community will continue to face. The focus of the Extreme Heat Plan is on all of Rochester, but also vulnerable populations who are disproportionately impacted by climate change and heat. We have invited a mix of participants, some who are directly involved in emergencies, others who are involved in planning and some who are not involved at all. The goal of this workshop is to get a variety of input and feedback–and to understand how we would currently respond to scenarios. Look at what is working really well and what areas need improvements, and how we can fill those gaps.

Jen Topa then facilitated introductions of the consulting team and participants, listed in Appendix A. Jen then reviewed the workshop agenda.

Workshop Agenda

- Welcome and Introductions
- Workshop Objectives and Focus
- Who is Being Served by This Work?
- Review of the Scenario: Day-by-Day
- Deep Dive Discussion: Response to the Scenario
- Incident Command
- Key Themes, Gap Identification and Prioritizing Focus
- Wrap Up and Next Steps

Lisa Churchill, from Climate Advisory then reviewed the objectives of the workshop and provided an overview of how the morning will be organized.

Workshop Objectives

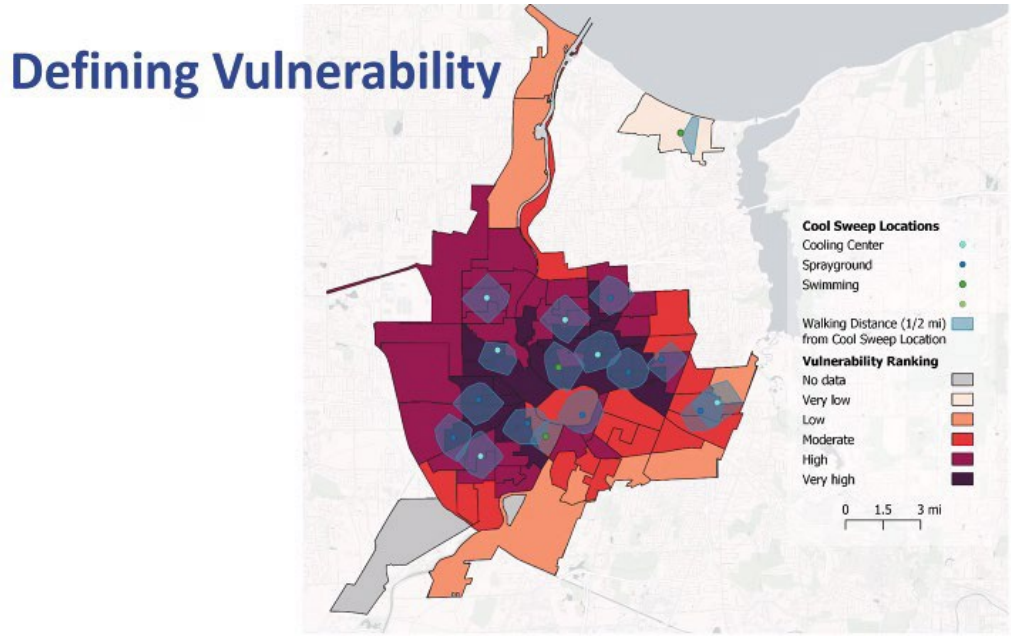
Confirm assumptions on which existing systems are currently working to address an extreme heat event

Identify unrealized biases within the systems

Coalesce on final determinations on what is really working and where gaps exist

Identify opportunities to fill gaps and enhance systems for extreme heat resilience/response

Lisa discussed vulnerable populations, which is the focus of this work. Those populations include older adults, infants and children, those with chronic health conditions, low income, athletes, and outdoor workers. The team has done some preliminary work to determine where vulnerable populations are located in the Rochester at the census tract level. Key areas of vulnerability were overlaid with cool sweep locations to better understand access to cool sweep locations relative to vulnerable populations.



This map has since been updated with new Cool Sweep Locations (see page 9)

Lisa introduced the concepts of FEMA's community lifelines. FEMA groups lifelines into seven categories. Each of the categories have subcategories. Those with the most relevance in Rochester include those circled in yellow.

Kari Hewitt, Hewitt Sustainability Strategies, provided a summary of the responses received prior to the workshop regarding resources available during an extreme heat event, as illustrated below.

City of Rochester, NY
Malik D. Evans, Mayor
Rochester City Council

Summary of Pre-Workshop Responses

	DES-OPS (special services)	DES-OPS	Animal Control	Fire	RG&E	Regional Transit	DES-Buildings & Parks
Backup generators/ Alternative energy for cooling	☑ *Not used for cooling	☒	☒	☑ *Limited functions	☑ *For critical facilities	☒	☑ *Only some locations
Adequate fuel for 3 days	☒	☒	☒	☑ *Fueling sites not managed by RFD		☒	☑ *At facilities with generators
Products or services that require cooling	*None*	*Laborers*	*Vaccines; deceased animals; pet food*	*For firefighter rehab stations and/or heat-related medical response*		*IT equipment*	*Some*

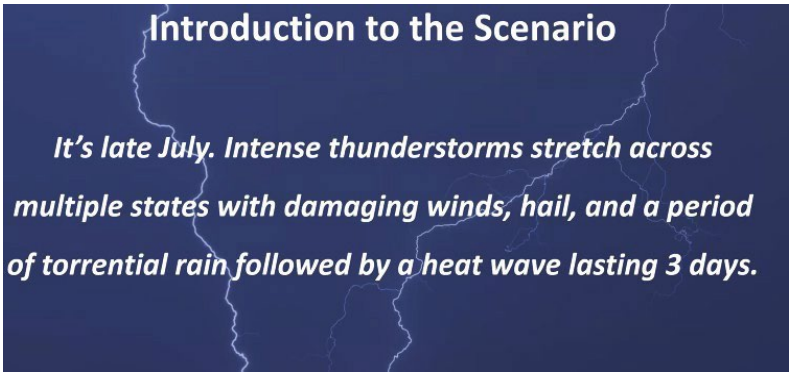
Key highlights from this feedback included the critical dependence on back-up generators and fuel pumps, as well as access to fuel to keep those running. The ability to redeploy staff for emergency response noting that typical functions would have to be suspended. This includes waste management, which raises questions about where to put waste and hazards associated with that. Animal control would have to suspend some services, such as surgeries. In addition, temperatures may exceed thresholds for humanely

housing animals. In general, most services can continue as long as fuel pumps are working. Some rerouting or change in timing may be necessary. For the fire department, extreme heat events increase demand for emergency response services. For Buildings and Parks, most operations would need to be suspended.

The team also asked about dependencies of each organization. Chief among those dependencies was on fuel for vehicles, as well as need for personnel who can maintain vehicles. In addition, electricity is key, gas, water, access to the ECD/911 system. For transit, dependency was on the ability to repair, access supplies and HVAC contractors. In relation to vulnerable populations. All organizations at this workshop today are serving vulnerable populations in some form. The mission to serve those populations will be impacted by an extreme heat event.

Greatest vulnerabilities included the ability to assist in roadway clearing and supplies, potential spread of rodents/vermin, populations with pets, situational impacts for treating and transporting patients, access to locations and potential reduced number of responders, lack of access to emergency care, food, medical supplies, and lack of access to recreational facilities and libraries because people use those to escape heat.

Review of the Scenario: Day-by-Day



Impacts from Day 1:
Widespread power failures, fallen power lines, and flooded substations
Blocked roadways interrupts traffic and deliveries
Damage to structures, buildings, and cars
Emergency communications services reach capacity
Loss of power leading to no A/C and inoperability of grocery stores, pharmacies, and gas stations
Rescue crews focus on immediate needs

Impacts from Day 2:
Medical calls start to shift to heat-related issues
Relocation of people with life essential medical equipment needs and/or at nursing homes and hospitals is needed

Some populations are isolated in multi-story buildings
Refrigerated medicines and foods may be at risk

Impacts from Day 3:
Power is restored to 90% of the city, with some who may remain without power for several days or more
Many residents still do not have access to adequate cooling, including people experiencing homelessness or social isolation and cost-burdened households
Traditional shelters may be at capacity or may not have adequate cooling or equipment to accommodate disabilities and medical needs
Katrina K. asked: compared to other communities you have worked with, is there anything in the summary of responses you shared that is unique/unusual? Conversely, is there a category of needs that is missing (i.e., gaps you would expect to have heard about but didn't)? Same question for resources (technical, human, institutional)?
Kari Hewitt answered that RG&E has done a lot of work to build in resilience to be able to restore power quickly. There is a lot of variability in terms of access to cooling centers that various communities have and the extent that additional buildings can be made available. The key concerns and issue of reliance on fuel for backup generators is something that we have seen in many communities. Lisa added that hospitals end up being go-to facilities because they have back-up power or refrigeration. Highlights the importance of spreading out the load in terms of where people are going to get relief from heat. How can we use places that are already familiar to people to serve that need so that we're not adding to people's stress when they need somewhere to go?

Kate Galbo introduced the interactive tool that will be used for the workshop: www.menti.com.

Day 1 Discussion

It's late July. Intense thunderstorms stretch across multiple states with damaging winds, hail, and a period of torrential rain followed by a heat wave lasting 3 days

Question: What response activities, if any, will you be in engaged in on Day 1?

Responses

- Road clearing
- Declare emergency
- Restoring power to critical facilities
- Secure buildings
- Ensure that all generators are running at our facilities
- Storm cleanup of tree debris
- Emergency operations center management
- Ensuring that medical needs for tenants are accommodated
- Staffing emergency operations center,
- Opening red cross shelters
- Ensure locations that have generators are operational
- Opening up cooling centers
- Information: identifying where outages are and how many areas are impacted
- Mobilize generators
- Maintain business as usual as long as possible
- Collect brush and tree debris

- Bringing in additional staffing, crews as needed
- Advocating for equity in response
- Answering questions from residents
- Determine which [transit?] routes we can run with the operators that can make it to our facility

Challenges:

- Power restoration
- Staffing/getting and vendors to work locations (emergency workers, transit, operations, supplies)
- Communication
- Road access due to blocked roads and flooding
- Finding shelter locations with power
- Movement of supplies
- Communications with team
- Power requirements for systems
- Power restoration
- Passable streets
- Functional traffic control devices
- Communications
- Availability of volunteer workforce
- Mobilizing staff
- Food for those in need who have sheltered in place
- If staff are unable to reach work locations
- Whether to send students home if staff can't make it to work
- Bus operators' ability to get to work
- Which transit routes are accessible or blocked by trees and debris
- Ability to contact vendors to supply services and materials
- Communications when people's phones run out of power
- Injuries, stress, and electricity failure
- Ensuring we maintain focus on equity. That can go by the wayside during an emergency

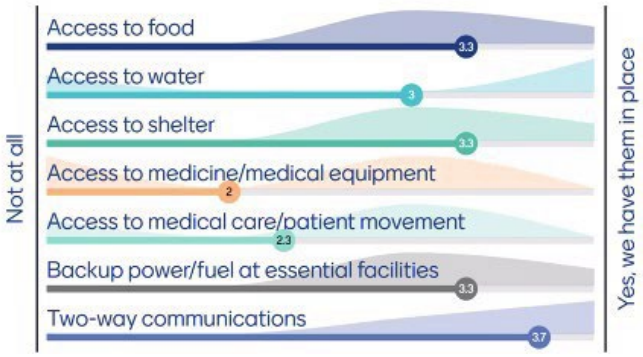
Tim Henry: We have an inventory of school sites and other available buildings so if we need to move people out of areas of the city, we have pre-identified sites that have long term fuel supply, generators, food, bathrooms. But there is a gap in the day 2 and day 3. Day 1 is covered by emergency management. County Executive would declare a state of emergency. EOC for County becomes the hub of collaboration and coordination on Day 2 and 3 and beyond.

Jennifer S.: City does a lot of back-office analysis as things happen. This is really a Day 2 and 3 issue. Collaboratory has identified the issue of child-care here. This region has more children in childcare than any other region in the country. 25,000 children. Much of that childcare in the sanctioned world is in YMCA and Church basements. Everyone will need childcare including responders and staff. [is this an issue of capacity?]

Katrina: Also, on childcare: 1) for URMC, MANY essential staff travel from 'outlying areas' (think Livingston County) and 2) not sure of the %, but a lot of essential workers depend on in home/home based childcare in rental housing in city

Lisa then asked the group to respond to the following question on a sliding scale:

Do you currently have the resources and procedures in place to ensure that community needs are met with regard to the following:



Day 2: Discussion

Question: Do all emergency shelters have cooling and backup power:

Bill: A lot of that depends on facility's ability to keep equipment in good working order. At any one time, a cooling plant may not be functional at the worst possible time. Maintenance.

Jessica: Some areas come back on faster than others because of their location depending on areas that are prioritized for power restoration. We would want to coordinate our activities with that.

Question: If shelters reach capacity on Day 1, will there be shelter capacity on Day 2?

Jessica: We adjust as we see demand fluctuate. People will only come to a facility if they absolutely need to. They will go to the area where they are most comfortable, which may be a Church or retail location. We would not turn people away. If we reach capacity, we may limit to City residents or people from certain neighborhoods. That is a last resort.

Question: Transportation to cooling centers?

Lifespan in the past they've expressed that many vulnerable people are 1) not on their lists/in a network; 2) self-identifying need as in need of cooling; 3) able to get to cooling center; 4) willingness to leave house

RTS always steps up. The challenge is not necessarily having the transportation but communicating that it is available.

Tim: Execution is not the issue with transportation. Communicating availability along with willingness of community members to go to shelters is the issue. We have struggled at the 48–72-hour power outages. Opening up overnight shelter with limited food and we get one family. It was worth opening, but the struggle is assessing what the demand really would be at these locations. What is the willingness of the community to go to a shelter and how do we transport people there? We will need more of the

smaller shelters closer to the populations in need. Spreading limited people-resources across these locations.

Dave Belaskas from RTS appreciate the comments about RTS, our limitation would be the number of bus operators that can make it in and the number of people we need to transport. [Getting essential transportation workers to work]

Katrina K: what about mental health services (health system, community groups, churches)? The capacity of folks to make decisions that protect their physical health are big challenges here. Jen mentioned the % of kids in childcare; we also have high mental health needs and an exceptionally high and growing % of older adult in our population (I think it is twice the national average?)

Josh Shail: We can make facilities available, but they need to be on the radar of RG&E so we can prioritize those facilities to restore power. The issue for us is the incoming load from air conditioners, more so than the actual rising air temperatures.

Question: Overnight cooling centers?

William Platt: Please keep in mind: Cooling/Warming centers are open for a period each day (not overnight) and only provide water, snacks and maybe food. Shelters are open 24-hrs, include cots, food, water, etc.

Jessica: Absolutely Bill, realistically we'd operate cooling centers anywhere we have power, but then work with a transit service to get people to the overnight shelter when they close.

William Platt: Open all the smaller local places that have accessibility. That gives you time to then transport people out to a place like MCC or Dome/Convention center (i.e. larger location where we can provide overnight services). Instead of doing an adequate job at a lot of little places, use the small locations for temporary shelter to provide time to transport people. Then we can do a really good job at one large location with a lot of services.

Katrina: how are our vulnerable populations networked and communicated with? Their communication networks are themselves vulnerable.

Jessica: we are starting to identify trusted messengers to communicate with vulnerable populations. Mapping out those people and how do we access them?

Question: Are there shelters/cooling centers that allow pets?

Jonelle: Monroe County purchased a very nice trailer to handle pets. Individuals with homes won't go to places unless they can bring animals. Here at our shelter in the city, we have plans for evaluation of animals. We don't have back-up systems or generators for a heat situation. In the past, we have done that for a day at the most. This is laid out with the EOC. We have gone through scenarios at the Dome. Animals go to a separate section from the people. We would ensure that people who have pets could bring them and get reunited with them afterwards and/or be able to visit with the animal while they are there. There is a gap in response for people at home who don't want to leave their pet

Tim: emergency plans for the Dome are Ginna related.

Question: Will there be sufficient emergency responders to reach people having heat-related issues?

William Platt: large percentage of staff will not be able to respond to an emergency due to a variety of barriers. We work under that assumption on a regular basis, which is why we keep a larger volume of staff. Fire department does not have that.

T. Everett: It's not that we don't have enough responders, but we may have a delay because there are other things going on. Unless we have a major fire, bridge collapse, building collapse will compound the issue. The emergency alone will not have that big of an impact on staff availability. We have time on the generator to keep workers cool (cooling tents, fans etc.). We have the ability to recover and recuperate and take care of our own staff so that we can then take care of the public.

David Belaskas: We can bring a bus to an event to help cooling staff/first responders. If people don't need an ambulance, we can transport them as well.

Tim Henry: we are living through EMS staffing shortages currently. If we are looking at more transports to hospitals due to heat related issues, we know that our current EMS Ambulance services are currently stretched. We may have delayed response times.

Question: Distribution and storage of essential materials: Do we have sufficient systems in place for that?

William Platt: Do we have the ability to make food due to the scope and scale, do these facilities have the ability to cook. Do they have staff that are not affected by the heat emergency? Or do we need to prepare ready-to-eat meals? Feeding becomes a huge problem. In the scope and scale of this, if Red Cross opened a disaster kitchen, a mobile disaster kitchen, we could distribute that as mobile feeding or at a fixed site. To feed the entire city of Rochester is well beyond Red Cross's scope.

Jessica: All of the shelters have kitchens

T. Everett: Need education before the disaster. We don't talk about preparedness before disasters, such as cold and heat. Need to educate people about what to have in their home for a disaster (food, water, medications). What do you need to have in your home to help emergency responders. How do you prepare the community in advance? This also relates to pets. Look to Florida for help on this and how they help a community prepare for what is coming. It's people who have the least amount of resources or who are not able to prepare.

William Platt: Red Cross has many individual and community preparedness programs that can be offered.

Katrina: Is someone from Foodlink on the call? I'd ask them. When we start talking about food, I always want to highlight our New American communities and cultural diversity (i.e., need for food everyone can eat.)

Joshua Shail: we keep a list of customers who require life support equipment (or at least those who have informed us).

Jessica: happy to coordinate through R-Centers to offer those programs and spread the message about preparedness.

Day 3: Discussion

What do you anticipate being the major issues or gaps in service available on day 3?

Question: Major issues or gaps in services available on Day 3?

William Platt: Homeless population, returning them to pre-disaster situation and also support and help them, to move forward after that disaster.

Katrina: So important to engage the mental health community and those serving people with opioid use disorder and living with other addictions. I keep learning more about these people's increased vulnerability to heat stress, and since they are less likely to self-identify as such, building their needs into systems is extra important

The construction workers and other physically active services who will be needed in disaster response activities at day 3+

Jessica: Speaking from personal experience (I lived through a heat wave/derecho/5-day power outage) at this point we're going to be dealing with a lot of anger and resentment in the community, and the 10 percent without power will be a big deal and major focus for the media. Those still without power will be casting a lot of blame and anger at government and feeling like they've been cast aside. It may sound petty in planning, but it does become an issue.

Question: Other gaps in service would you expect to occur on Day 3?

Communication about shelters to people who still do not have power

Information about who still has no power or cooling

Jessica: It's a matter of finding the trusted messengers who can knock on neighbor's door. Common ground health had a great program during the pandemic to encourage people to get vaccine. The trusted messenger program is sort of the "anti-social media" campaign. We want to get to the neighbor who will knock on doors.

Reaching socially isolated people

Exhaustion and relief for staff and personnel

Food and water for people who have stayed home during the disaster

Public awareness and communications
Returning people to homes that are mobility and ability impaired
Making sure we have ability to translate and/or speak multiple languages. Language Line can't always respond quickly enough

Incident Command

Lisa discussed considerations for communications and incident command. Questions include: Who will lead the response? How would it be organized? Will that change each day depending on impacts?

Tim: recommend activating the Incident Response. Unity of command at the County level. The city could construct their own incident command structure.
City would be under the unified command structure. The senior management team would be acting as a policy group. We would have various departments with us at the EOC. City would have its own department operations center. Our representative at EOC would be the commissioner.
It's different from public safety perspective.
The unified command approach includes collaboration between County Executive and Mayor. Unity of Command at the command staff level between County and City. Our approach would be similar to a multi-day snowstorm or multi-day power outage due to thunderstorm. Scope of impact may affect this. It may be coordinated differently depending on scope and duration.
Red Cross follows ICS. We don't have the hazmat and fire suppression. Our leadership are trained in this. The question is, are we invited in. We need to be called in early to be part of the discussion and give us run up time to mobilize people and resources. The winter storm in Binghamton last week: We started mobilizing three days before when the weather forecast came out. We start looking for volunteers ahead of time. We do that for snowstorms, flooding, etc. We begin to put our command structure in place. We are 91% volunteer.
Jessica: Cool sweep is changing. We are moving from a temperature trigger, to more of a marketing effort to show what is available all of the time. Cool Sweep is becoming more of a way to communicate general heat awareness. And then during severe situations, when do we go beyond normal operations.
Centralized vs. distributed services: Important to plan something centrally, but also be ready to plan for shelters and services at a very local level–i.e., Meeting people where they are.
Centralized/larger shelters can be higher quality and offer more comprehensive services. It is harder to do that if we are opening multiple shelters.

Summary of Key Themes

Pre-Extreme Heat Event

- Maintenance of equipment needed during disasters
- Education about how individuals and families can prepare their homes and supplies

Day 1 Themes

- Power restoration
- Staffing/getting and vendors to work locations (emergency workers, transit, operations, supplies)
- Communications

Day 2 Themes

- Community willingness to access shelters during heat events
- Communications (i.e., about transportation and overnight shelters (especially using trusted messengers)
- Childcare & pets
- Staffing/availability of response workers and volunteers
- Food - ability to prepare and distribute during power outage

Day 3: Themes

- Identification of 10% populations in need (i.e., no power still, those who stayed home)
- Communications via trusted messengers and trusted methods
- Staff/emergency volunteer relief
- Returning people home

Overall Themes

- Communications (especially concept of trusted messengers)
- Power restoration
- Staffing availability and support
- Transportation
- Childcare
- Pets
- Food
- Centralized vs. local/distributed services and shelters

Reflection on the Day's Exercise

Kari Hewitt led the group through an exercise on Mentimeter, asking participants to rank a list of key themes that emerged throughout the morning's discussion.

Katrina: Not on the list: the most important thing is to build up our institutional capacity to communicate with each other, as opposed to communicating with the community.

William: I would suggest that we share a contact list of those on this call with strong communications within this cadre. We should continue this collaboration moving forward.

Question: What strategies could be implemented to address these issues?

Monthly work group to keep conversations focused

Pre summer summit every March to spark the conversation and start planning for the season.

Dedicated teams that own implementation

Establish a multi-org work group to continue building this process

Community preparedness outreach program to ensure folks have plans in place ahead of extreme heat events

Toolkits for incidents

Include Common Ground Health (both the outreach teams mentioned earlier and Melissa Wendland, Aging in Place group). University of Rochester (both university and Strong - healthcare and facilities/operations); Rochester Regional Health

Wrap-up and Next Steps

Results from that workshop will be summarized

We may follow up for additional feedback or input

We will use this information to hone the focus of the upcoming workshop

Workshop Participants

Name	Organization/Agency	Title
Jonelle Joy Lang	City of Rochester Animal Services	Shelter Manager
Marvin Parker	City of Rochester Department of Environmental Services	Manager of Building Services
Brian Liberti	City of Rochester Department of Environmental Services	Director of Bureau of Buildings and Parks
Karen St. Aubin	City of Rochester Department of Environmental Services	Director of Bureau of Operations
Lauren Miller	City of Rochester Department of Environmental Services	Assistant to the Director, Bureau of Operations
Sarah Ruekberg	City of Rochester Department of Environmental Services	Principal Staff Assistant, Bureau of Operations
Jessica Alaimo	City of Rochester Department of Recreation and Human Services	Office of Emergency Operations
Anne Spaulding	City of Rochester Office of Energy and Sustainability	Manager, Division of Environmental Quality
Shalini Beath	City of Rochester Office of Energy and Sustainability	Energy & Sustainability Manager
Teresa Everett	City of Rochester Office of the Fire Chief	Executive Deputy Fire Chief of Administration
Jennifer Schneider	Rochester Institute of Technology, Collaboratory for Resiliency and Recovery	Principal
Matt Jarrett	Monroe County Office of Emergency Management	Emergency Services Planning Technician
Tim Henry	Monroe County Office of Emergency Management	Deputy Director of Public Safety & Emergency Management
Dave Belaskas	Monroe County Regional Transit Service	Director of Engineering and Facilities Management
William Platt	Red Cross	Regional Manager of Direct Support
Joshua Shail	Rochester Gas & Electric	Manager, Integrated Field Construction Design
Tom Schlegel	Rochester Housing Authority	Master Electrician
Katrina Korfmacher	University of Rochester Medical Center	CEC Director, Professor of Environmental Medicine

MEETING SUMMARY

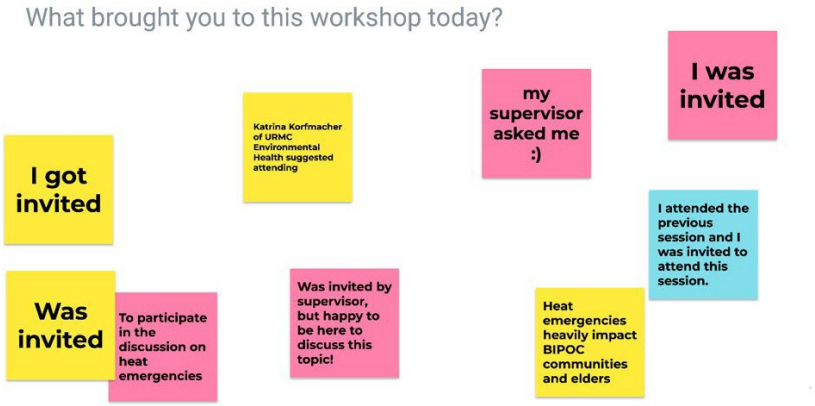
Project Title	City of Rochester Extreme Heat Plan
Meeting Date	June 16, 2022
Venue	Zoom
Topic	Extreme Heat Plan Workshop 2

Overview

On June 16, 2022 the City of Rochester hosted a workshop to address extreme heat. The purpose of the workshop was to discuss current response systems as well as gaps and solutions. Jen Topa from Highland Planning convened the workshop and introduced Anne Spaulding, Manager of the City of Rochester's Division of Environmental Quality and Shalini Beath, Energy and Sustainability Manager.

Anne and Shal welcomed everyone and thanked them for attending. The goal of the plan is to build community resilience in the face of extreme heat that the community will continue to face. The focus of the Extreme Heat Plan is on all of Rochester, but also vulnerable populations who are disproportionately impacted by climate change and heat. We have invited a mix of participants, some who are directly involved in emergency response, others who are involved in planning and some who are not involved at all. The goal of this workshop is to get a variety of input and feedback–and to understand how we would currently respond to scenarios. Look at what is working well and what areas need improvements, and how we can fill those gaps.

Jen Topa then facilitated introductions of the consulting team and participants, listed in Appendix A. Jen started with an ice breaker using a tool called Jam board where users can interact on the platform as a virtual whiteboard and create their own virtual sticky note. The icebreaker question was "What brought you to the workshop today?", and participants who were able left their responses.



After the ice breaker, Jen reviewed the workshop agenda, and the workshop objectives.

Workshop Agenda

- Welcome and Introductions
- Workshop Objectives
- Communications Strategy
- Recap: Key Themes and Gaps
- Deep Dive Discussion
- Wrap Up and Next Steps

Workshop Objectives

The workshop objectives included the following:

Share potential strategies to deal with extreme heat events

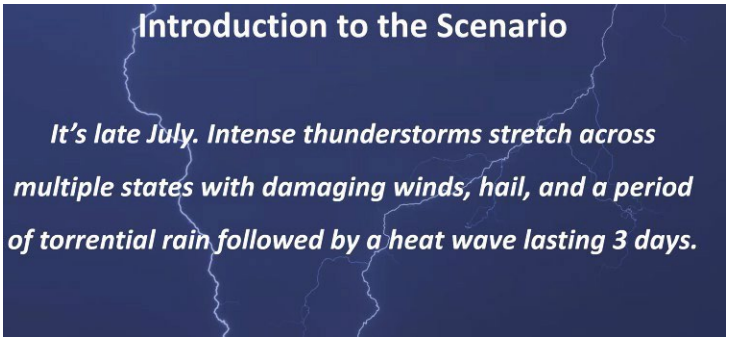
Identify gaps, challenges, and needs

Identify additional opportunities to enhance resilience to extreme heat

Cynthia Rochet (City of Rochester) gave an overview of the City's communications strategy related to extreme heat. She noted that in previous years when temperatures reach 85 degrees or higher, pools would be open and when temperatures reach 90 degrees or higher cooling centers would be open. This year the spray park hours and pool hours will be extended, and a marketing campaign is in place to bring people into our facilities and accommodate the needs of the city. The Trusted Messenger Project presents an opportunity to speak to the community and meet to network and find "trusted messengers". This Trusted Messenger came about to combat the issues from the most vulnerable communities so that information can be distributed to those areas which is the focus of this work. Those populations (14605, 14608, 14611, 14621, 14613) include older adults, infants, children, those with chronic health conditions, low income, athletes, and outdoor workers.

Review of the Scenario: Day-by-Day

Lisa Churchill gave a review of the scenario day-by-day. The focus of this work is to understand vulnerable populations because they are at an increased risk. The scenario from the first workshop was used to help understand where there may be gaps.



Impacts from Day 1:
Widespread power failures, fallen power lines, and flooded substations
Blocked roadways interrupts traffic and deliveries
Damage to structures, buildings, and cars
Emergency communications services reach capacity
Loss of power leading to no A/C and inoperability of grocery stores, pharmacies, and gas stations
Rescue crews focus on immediate needs
Regional events mean your neighbors around the region are dealing with similar impacts. This could mean the common support that might happen during mutual aid may not be available here and the impacts would require a more localized support.

Impacts from Day 2:
Medical calls start to shift to heat-related issues
Relocation of people with life essential medical equipment needs and/or at nursing homes and hospitals is needed
Some populations are isolated in multi-story buildings
Refrigerated medicines and foods may be at risk
Most of the flooding has subsided, and the immediate life safety needs have been addressed, but there is still widespread power outage.

Impacts from Day 3:
Power is restored to 90% of the city, with some who may remain without power for several days or more
Many residents still do not have access to adequate cooling, including people experiencing homelessness or social isolation and cost-burdened households
Traditional shelters may be at capacity or may not have adequate cooling or equipment to accommodate disabilities and medical needs

This is the scenario that is used to continually stress the system. A question to think about moving forward: is there adequate infrastructure to allow everyone to have access during these events?

Recap of Key Themes and Gaps

Pre-Engagement Key Themes

Jen briefed the group on the preliminary engagement interviews, where key stakeholders were asked about what systems are currently in place to check on the most vulnerable people, the awareness of Cool Sweep, any challenges faced during extreme heat events, and the best way to communicate with those being served. Key themes from the pre-engagement interviews are as follows:

1. Inclusivity- do people feel comfortable coming to any cooling center although they have mental health issues?
2. Language barriers- are there bilingual employees operating these centers?

3. Trust Issues- do people trust government resources?
4. Better communication is needed when determining the best way to reach people.
5. Feeling welcome/comfortable in an out of the home setting- do people feel comfortable leaving (children, pets, transportation)?

Workshop 1 Key Themes

Lisa gave an overall overview of key themes from Workshop 1. People that had programmatic oversight of emergency response programs (e.g., Rochester Office of the Fire Chief, Red Cross) were engaged along with people who operated key pieces of the infrastructure (e.g., Rochester Gas &Electric, Monroe County Regional Transit Service, Rochester Housing Authority). The main objective was to confirm the assumptions on which the existing systems are currently working, and then to identify unrealized biases or assumptions on some of the systems and some of the gaps to reach agreements on what works, what doesn't, and what needs to be addressed.

The key themes are listed and also summarized below.

Key Themes We Heard from "Workshop 1"

1. Days 2 and 3 present more challenges than Day 1
2. Importance of communications (especially through concept of trusted messengers)
3. Power restoration
4. Staffing availability and support
5. Transportation
6. Childcare
7. Pets
8. Food
9. Centralized vs. local/distributed services and shelters

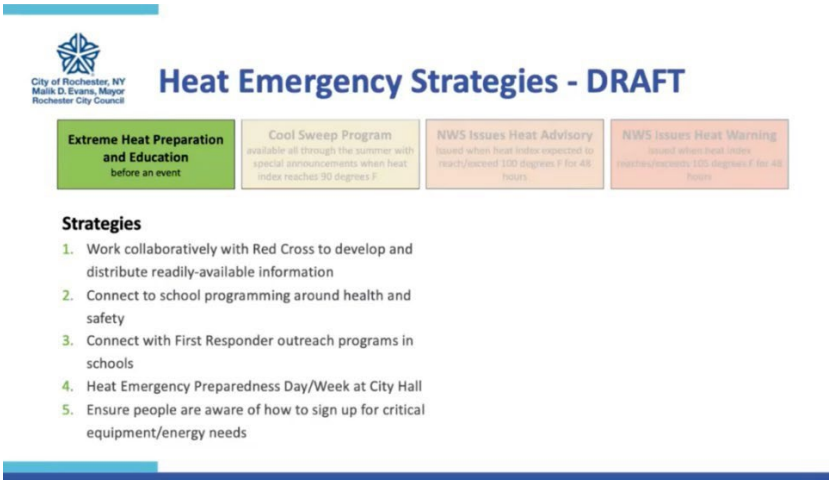
1. People felt comfortable with Day 1 impacts, but Days 2 and 3 presented more of a challenge, especially with inability to call for aide.
2. Who is in charge? Where is information coming from? How is information being distributed? How do we engage networks we already have? Where could the Trusted Messenger Program be used? What is working? What needs to be changed?
3. Rochester Gas and Electric recognized parts of their infrastructure that may be weak.
4. Are staff able to work? Are they supported?
5. There may be an opportunity for busses to act as mobile cooling centers.
6. Is there adequate childcare? Without power, is there adequate cooling to continue childcare?
7. Shelters are mostly for people and don't accommodate the pet family population. How do we accommodate a person or ensure there is a popular facility for their pets to be considered?
8. For food and medications that need refrigeration, is there help when the power is out?

9. Recognizing if this event is regional, the preference is to have cooling centers centralized and to bring people to this service and shelters. How do we distribute the services and shelters? What would be more viable and efficient way to approach a centralized or distribute the services?

Draft Extreme Heat Strategies

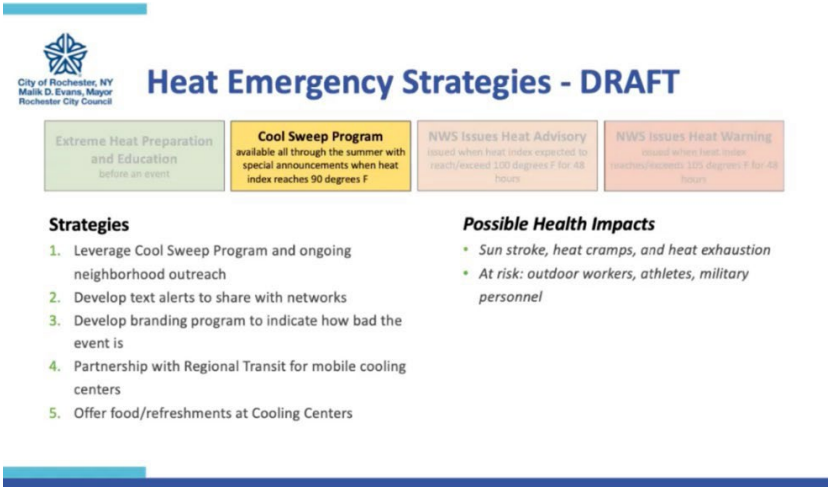
Extreme Heat Preparation and Education

Lisa moved forward giving an overview of the draft extreme heat strategies. There are four main phases that make up the strategies, the first is Extreme Heat Preparation and Education.



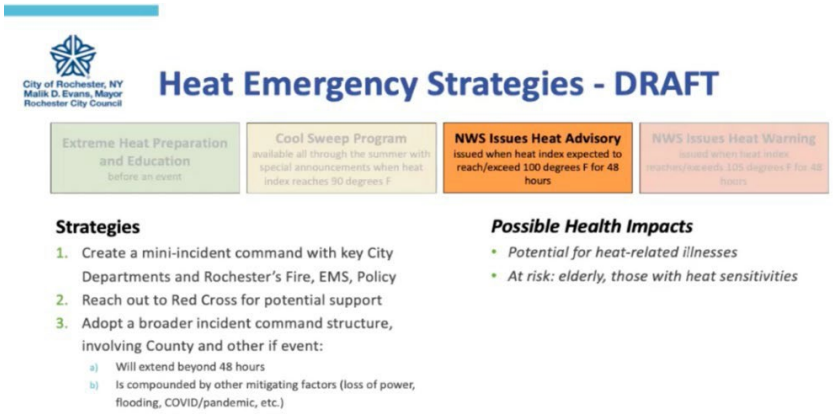
Cool Sweep Program

The heat index was developed by the National Weather Service, and it combines what the temperature is outside with what the relative moisture (humidity) is in the air. The heat index represents both aspects. Rising temperatures accompanied by high humidity is what causes extreme heat events. When the heat index reaches 90 degrees, people can develop health complications. Regardless of where the heat index is, there is capacity to address some of these strategies for the duration of the Cool Sweep Program this summer.



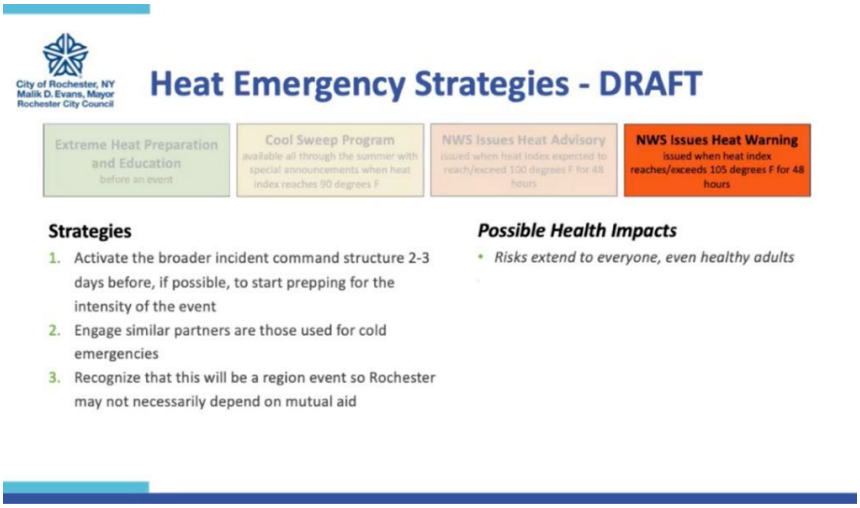
NWS Issues Heat Advisory

The NWS issues a heat advisory when the heat index reaches 100 degrees. (Note: 100 degrees was the number used in this meeting based on NWS standards at the national weather. This has since been replaced with 95 degree heat index based on what is used by the Buffalo Office of the National Weather Service)



NWS Issues Heat Warning

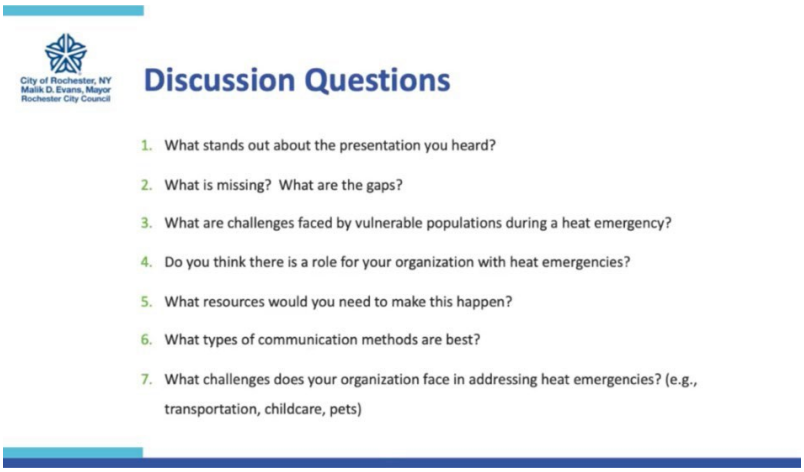
The NWS issues a heat warning when the heat index reaches 105 degrees. Once a heat warning is issued, everyone including healthy adults is at risk. The City of Rochester may need more localized support instead of mutual aid.



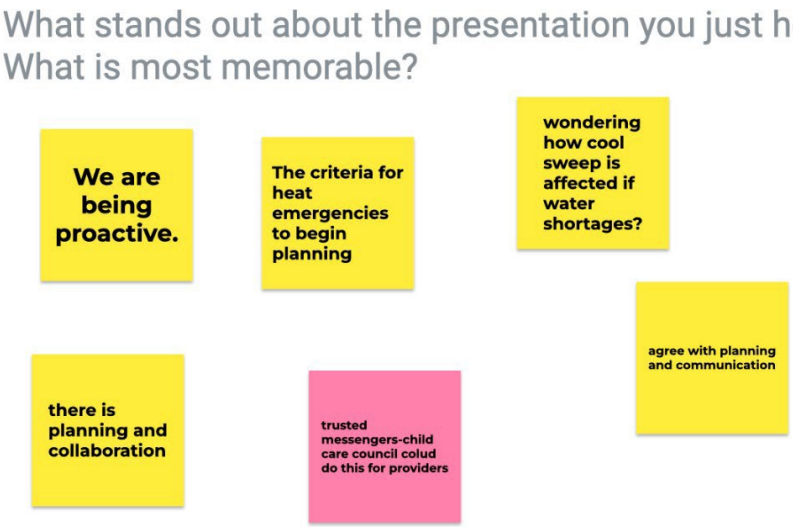
Deep Dive Discussion

Discussion Questions

Jen gave an overview and moderated the discussion.



Question: What stands out about the presentation you just heard? What is most memorable?



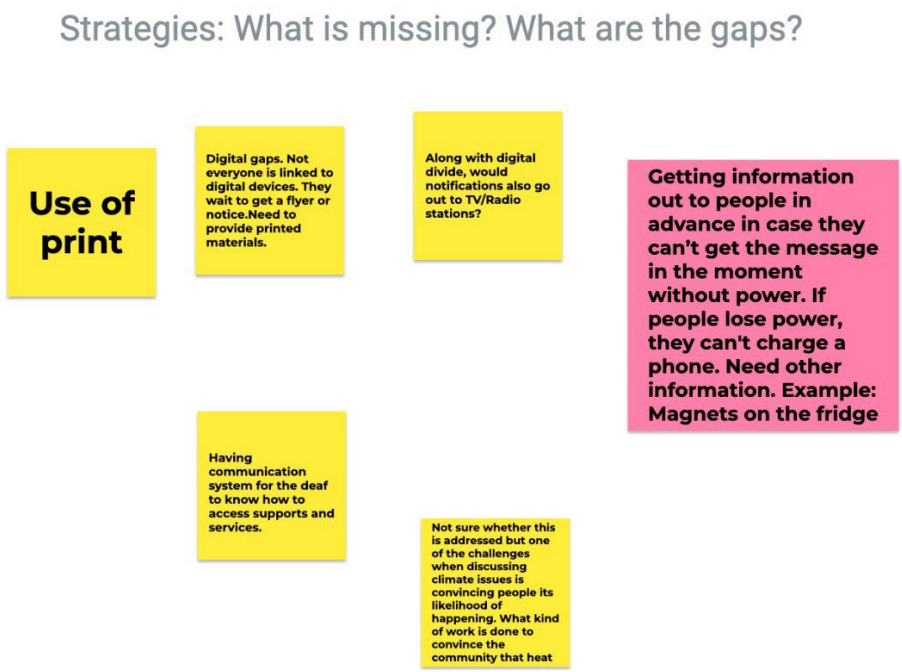
Answers:

- *We are being proactive*
- *There is planning and collaboration*
- *The criteria for heat emergencies to begin planning*
- *I agree with planning and communication*
- *Trusted messengers-Child Care Council could do this for providers*

Question: How is cool sweep is affected if there are water shortages?

Anne Spaulding: That hasn't been something we have thought about mainly because we have never had this happen. A potential issue could be if there was a water main break, we would have to make sure we are coordinated closely with the water bureau and would just make sure they would be on it.

Question: What is missing in the strategies? What are the gaps?



Answers:

- *Use of Print- There is the reality of digital gaps. Not everyone is linked to digital services, and they wait to get a flyer or notice. Printed materials need to be provided.*
- *Along with the digital divide, would notification also go out to TV/Radio stations?*
- *Having communication systems for the deaf community to know how to access supports and services.*
- *Getting information out to people in advance in case they can't get the information in the moment without power. If people lose power, they can't charge a phone. There needs to be access to other ways to find out information Ex. Magnets on the fridge.*
- *Not sure whether this was addressed, but one of the challenges when discussing climate issues is convincing people its likelihood of happening. What kind of work is done to convince the community that a heat emergency is serious?*

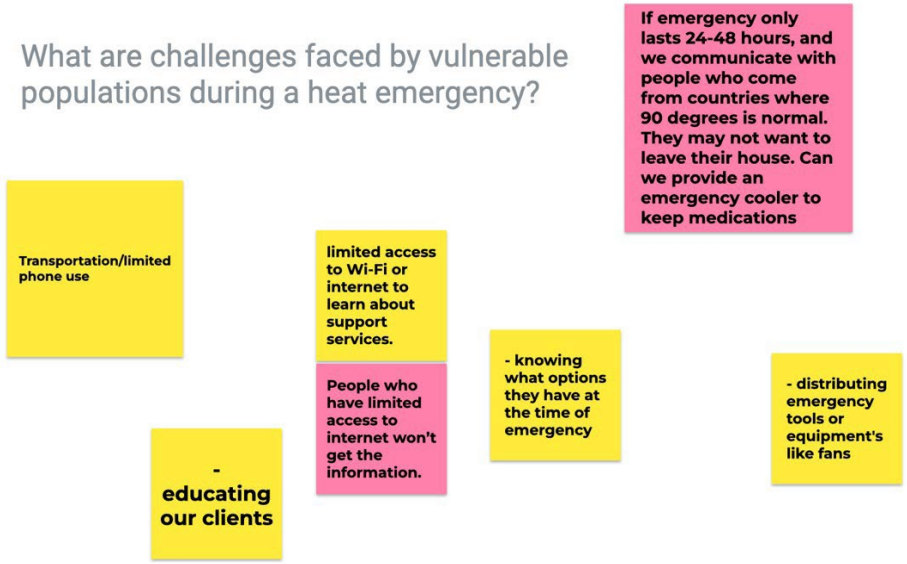
Question: When it comes to the trusted messenger program, do you have trusted messengers that could have flyers that they would bring out to their populations?

Cynthia: We are in the process of creating a half sheet flyer and bringing them to the trusted messengers for distribution. Any key messages that come out of this process with developing this plan, the city will work with the Cool Sweep team to make sure the heat related messaging is coordinated, and all methods and platforms can be used to get that out.

Question: Are we able to get the messaging out to people now? In case there is no power and people cannot retrieve messages, can we come up with magnets to give out ahead of time? If you are in a complete dead zone, using something that requires power to reach out will not be helpful.

ABC: Magnets would be a great way to communicate information. We are also working with 3-1-1 if there were any issues going on as well.

Question: What challenges are faced by vulnerable populations during a heat emergency?



Answers:

- *Transportation/limited phone use*
  At one point, RTS role was to administer free transportation to Cool Sweep centers, but we will follow up for the answer.
- *If an emergency is only going to last 24-48 hours, and there are people who come from places where high heat is normal, they are able to adapt and know how to take care of their medicine or food in preparation for when it gets too hot. What if we can provide an emergency snap pack type of icepack/cooler, that when they snap it, it activates the cooling effect. Not everybody wants to leave the safety of their home, so to calm the first 24 hours, this could be a good idea for people who need cooling and could stay inside and be checked on after 24 hours.*
  This is a great idea for medication access in heating or loss of power issues, and temporary food storage just in case.
- *Limited access to Wi-Fi or internet to learn about support services.*
- *Cynthia: With our trusted messengers, we are doing outreach, knocking on doors, and having one on one conversations to combat this challenge.*
- *Knowing what options people have at the time of the emergency.*
- *Distributing emergency tools or equipment i.e., fans*
- *Educating our clients*

Question: Does Lifespan offer some sort of cooler or breakable ice packs?

Lifespan: No, we don't at this time. That is something to consider.

Question: Is there something in place at Lifespan where you have identified folks in vulnerable populations?

Lifespan: Our staff of social workers reach out by phone or would go to their homes or if there are neighbors that we could reach out to as well.
Lifespan: We are working with the office of Aging in our peer-based database, on how to connect with people under extreme circumstances.
Cynthia: We have also looked into contacts of elders in the high rises and being able to get our services to these most vulnerable seniors.

Question: Do you think there is a role for your organization with heat emergencies? What is that role?

Answers:

- *We can share materials on social media and prepare for putting info on the website and in newsletters.*
- *From the Neighborhood Services Center perspective, during the COVID lockdown our role was communication. The NSC offices work with 3-1-1 and are used as hubs for PPE and deploying staff and deliverables. Another group that can be utilized is the faith community leaders. Information and materials can also be left in churches. IBERO as well.*
- *We would share resources through our social media channels/e-newsletter and work with community partners to help get information out to their networks in ways that work best for them.*
- *During COVID Action for a Better Community retooled their systems and partnered with 2-1-1, food link and united way to distribute PPE and food to people who were quarantined. If someone received a free a/c, ABC could help them install it. ABC can help by canvasing certain neighborhoods to distribute any necessities.*

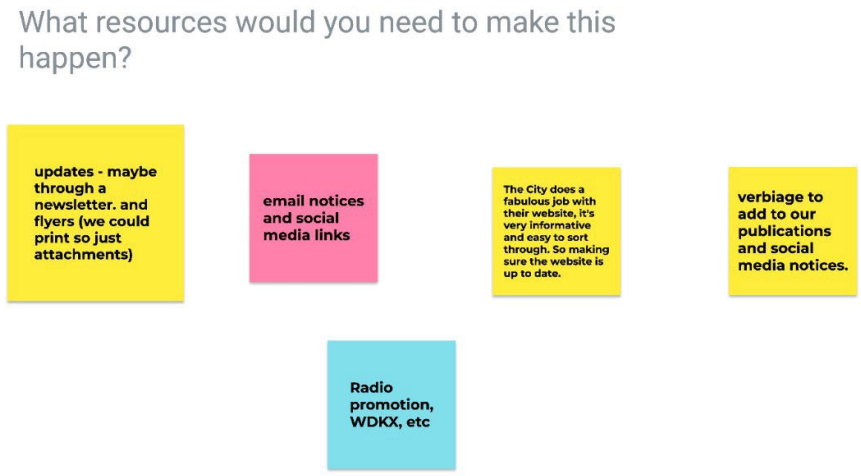
Question: Does anyone have anything to distribute fans?

Answer: Lifespan had a program where they delivered fans but were flooded with people. Distribution of fans was unmanageable and there is a need but it's difficult financially for a single organization to do it.
Lifespan: This year the free air conditioner funding is limited.
ABC: Once every 5 years people can apply for an air conditioner program. The funding will end August 31, 2022, or until the air conditioners and fans are gone.

Question: Sometimes people hesitate to turn on their a/cs because their RG&E bill would go up, and then trying to pay some of those RG&E bills. Some organizations have funding that they have will offset some of those bills. Do any organizations work with that?

Answer: Things have changed since COVID, a lot of people who are HEAP eligible with lower income could benefit from an air conditioner. Cooling assistance funds are limited.

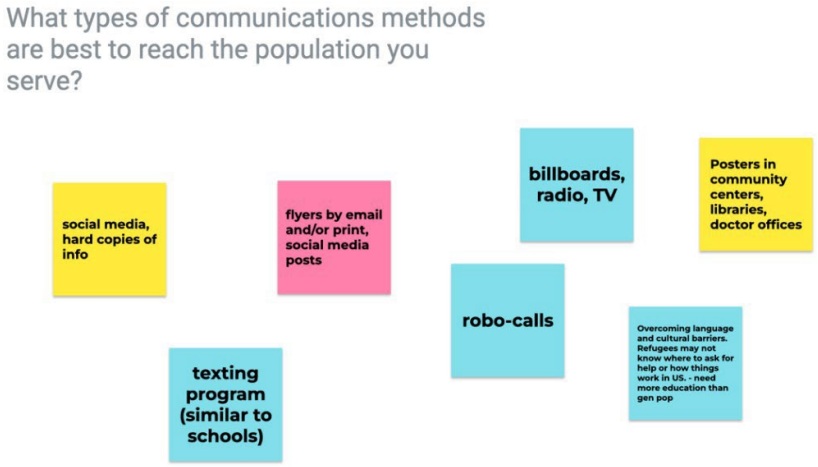
Question: What resources would you need to make this happen?



Answers:

- *Updates through a newsletter and flyers, regular communications through the city*
- *Email notices and social media links.*
- *Radio promotion, WDKX etc., press releases to the media, and billboards.*
- *The city does a fabulous job with their website, it's very informative and easy to sort through. So, making sure the website is up to date.*
- *Verbiage to add to our publications and social media notices.*

Question: What types of communications methods are best to reach the population you serve?



Answers:

- *Flyers by email and or print, and social media posts.*
- *Posters in community centers, libraries, and doctor's offices.*
- *Texting program (similar to schools) at Lifespan.*
- *ABC utilizes robotic automated calls*
- *Billboards, radio, television, closed captioning for the deaf community*
- *Overcoming language and cultural barriers. Refugees may not know where to ask for help or how things work in America. They need more education than the general population.*
- *Offering incentives*

GG: When it comes to refugees, the biggest issue is the language barrier, and they may have had different experiences and may not take emergencies in the United States seriously or might not take basic precautions due to lack of knowledge. We need to teach Refugees more than the general population.

Question: What challenges does your organization face with addressing heat emergencies? (e.g., transportation, childcare, pets)

Answers:

- *Literacy level of target populations. Make sure what graphics we use are an appropriate literacy level.*

- *Make printed materials that can reach people at all literacy levels.*

Wrap-up and Next Steps

Results from this workshop will be summarized and synthesized into recommendations for the Heat Emergency Plan

We may follow up for additional feedback or input

Draft and final plan will be posted to the city's website (we will email you)

Workshop Participants

Name	Organization/Agency	Title
Cynthia Rochet	City of Rochester Department of Recreation and Human Services	Office of Emergency Operations
Anne Spaulding	City of Rochester Office of Energy and Sustainability	Manager, Division of Environmental Quality
Shalini Beath	City of Rochester Office of Energy and Sustainability	Energy & Sustainability Manager
Mary Andrecolich-Montesano	Rochester City School District	Principal
Daisy Algarin	Neighborhood Service Centers	NSC Director
Jody Rowe	Lifespan	COO/Corporate Compliance
Getachew Beshir	Catholic Charities Refugees	Refugee Resettlement Program Manager
Angelica Perez-Delgado	Ibero-American Action League	President/CEO
Ayisha Salifu	Center for Disability Rights	Deaf Systems Advocate
Judy Reding	Lifespan	Program Manager, NYConnects
Kristin Perrone	Childcare Council	Director of Education & Health
Laura Sugarwala	University of Rochester, Center for Community Health & Prevention	Director, Community Health Partnerships
Rebecca Youmell	University of Rochester, Center for Community Health & Prevention	Communications Manager
Sarah Ruekburg	City of Rochester Department of Environmental Services	Principal Staff Assistant, Bureau of Operations
Shinita Hlywa	Action for a Better Community	Director of Energy Conservation Program

Appendix 3. Heat Vulnerability Assessment Methodology and Data Sources

Data Sources

Rochester is in the fortunate position of having three readily available, census-tract level sources of GIS data that could be used for this work. This included the New York State's Heat Vulnerability Index (HVI), Benz and Burney's Disparity Map and U.S. Department of Energy's LEAD tool which tracks energy burdens.

NY State Heat Vulnerability Index (HVI)

The State of New York commissioned a study to identify the key social determinants of heat stress throughout the state and to plot that information at the level of census tracts. Of all the indicators considered, it was determined that the following three were the most important in determining overall resilience to heat events:

1. Social/language vulnerability (minority populations with language barriers),
2. Socio-economic vulnerability (variables representing economic disadvantage),
3. Environmental/urban vulnerability (urban and metropolitan areas with older homes), and
4. Elderly/social isolation (elderly and elderly one-person household).[1]

The authors noted that, in general, the most vulnerable areas were found in "primarily urban areas with high housing density, less open space, and proportions of elderly, minority populations and lower income households.[2]" It was also notes that there was a significant relationship between the overall heat vulnerability index score and the number of heat stress emergency department visits and hospitalizations.[3] The numbers captured here are telling given that other research has indicated that traditional morbidity and mortality assessments often underestimate the number of heat-related illnesses and deaths.[4]

Benz and Burney: Widespread Race and Class Disparities in Surface Urban Heat Extremes

Researchers at the University of San Diego uncovered a stark disparity in heat resilience between predominately white, more affluent communities with economically disadvantaged, non-white communities.[5] The increase in urban heat island impacts that occur in these areas is directly related to the more densely developed landscapes, the greater prevalence of paved surfaces and fewer trees to shade the areas. The results of this work were published by AGU and made into an accessible, on-line, searchable tool to show those variations at a census-tract level.

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[1] Nayak, S.G. et al. 2018. Development of a heat vulnerability index for New York State. Public Health 161 (2018); 127-147. https://www.sciencedirect.com/science/article/pii/S003335061730327X

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Benz, S.A. and J.A. Burney, 2021. Widespread Race and Class Disparities in Surface Urban Heat Extremes Across the United States Earth's Future, Volume 9, Issue 7, pp. , published by the American Geophysical Union. https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2021EF002016

Energy Burden

Adaptive capacity is the ability to find some level of relief (or, ideally, maintain equilibrium) during times of stress, including both acute shocks and chronic stressors. Energy burden – the proportion of income that is used to pay for energy costs – is an important consideration when assessing overall heat resilience. The ability to cool is essential during these events. Airconditioning is often the most prevalent and successful intervention. However, it can also be extremely expensive to operate, especially for those who are already struggling with paying their base energy bills. Access to air conditioning does not ensure adequate adaptive capacity. Because of that, we've included two maps below. One which tracks the overall energy burden throughout Rochester based on the output from the DOE's LEAD tool.[6] The other which shows those homes that have central air conditioning (note: this does NOT track window-installed air conditioner units).

Creating the Composite Map

To access the overall vulnerability across these different indicators, we created a standardized, relative ranking system within each index that allowed us to combine the various indices into a single map, as shown in **Table 1**. These standardized scores were added together at a census-tract level to obtain a final vulnerability score for each.

Table 1. *Heat Vulnerability Indicator Relative Rankings*

NY State HVI original scores	Relative Ranking	Benz and Burney daytime temperature differential	Relative Ranking	Energy Burden original scores	Relative Ranking	Central A/C (%)	Relative Ranking
0-12	1	-2.86-5.32	1	1-2	1	0-6.8	5
12-14	2	5.33-6.65	2	3-4	2	6.81-21.2	4
14-15	3	6.66-7.57	3	5-6	3	21.21-39.9	3
15-16	4	7.58-8.27	4	7-8	4	40-77.3	2
16-20	5	8.28-9.48	5	9-10	5	77.31-100	1

Distance to Cool Sweep Locations

The ability to adapt to extreme heat can be dependent on access to cooling resources, such as cooling centers, spray grounds, or swimming pools, especially for sensitive populations that are experiencing homelessness or do not have access to (or the ability to afford) air-conditioning at home. A 5-minute walking distance (approximately a quarter mile) was measured around each Cool Sweep location using the existing road and sidewalk network.

[6] U. S. Department of Energy's Low Income Energy Affordability Data: https://www.energy.gov/eere/slsc/maps/lead-tool; link to detailed methodology: https://www.nrel.gov/docs/fy19osti/74249.pdf