

MEMORANDUM

TO: Mayor and Council

THRU: Chris Shorter, Assistant City Manager

Rey Arellano, Assistant City Manager

FROM: Lucia Athens, Chief Sustainability Officer

DATE: March 9, 2020

SUBJECT: Phase 2 Response to Climate Resilience Resolution 20190509-019

Background

On May 9, 2019, City Council passed **Resolution 20190509-019**, which directed the Office of Sustainability to 1) perform a literature review of climate resilience plans of peer cities, 2) explore available, potential partnerships and funding options for resilience planning, and 3) provide recommendations for creating a comprehensive, community-wide climate resilience plan that is fair, just, and equitable, including recommendations for funding a Chief Resilience Officer. The Resolution clearly identified resilience to climate change and extreme weather impacts as the focus of the desired response. Staff's preliminary response was contained in an August 26, 2019 memo to Council, which defined Climate Resilience, summarized the major impacts being felt in Austin (extreme heat, drought, flooding, and wildfire), and provided options for creating a Resilience Officer.

Staff Part Two Response

This memo provides an overview of existing efforts underway as well as additional options for creating a comprehensive, community-wide climate resilience response. The Office of Sustainability worked with Homeland Security and Emergency Management, Austin Public Health, Austin Fire Department, Economic Development Department, Watershed Protection, and Austin Water Utility, among others, to identify ongoing resilience work and ways to build on those efforts to enhance emergency preparedness and resident safety. Increasing community-wide resilience will continue to require efforts from many different Departments as well as collaboration with external partners. This document includes:

- Overview of Climate Resilience Efforts Currently Underway, either fully or partially funded through multiple city departments.
- **Menu of New Unfunded Climate Resilience Options** to build on existing efforts to increase community-wide climate resilience.
- Appendix of Project Details with additional information for Section A and B projects.

Climate Investments Cost Summary

The Budget Office has initiated an inventory of climate-related spending that includes Climate Resilience-related efforts. Departments will submit their budget analysis to the Budget Office, which will tabulate the data and have summary information available for fiscal year 2021 budget discussions.

CC: Spencer Cronk, City Manager
Gina Fiandaca, Assistant City Manager
Rodney Gonzales, Assistant City Manager
Jackie Sargent, Austin Energy General Manager
Greg Meszaros, Austin Water Utility Director
Joel Baker, Austin Fire Department Chief
Stephanie Hayden, Austin Public Health Director
Rob Spillar, Austin Transportation Director
Denise Lucas, Development Services Director
Veronica Briseno, Economic Development Director
Brion Oaks, Chief Equity Officer
Juan Ortiz, Office of Homeland Security and Emergency Management Director
Kimberley McNeeley, Parks and Recreation Director

Jorge Morales, Watershed Protection Director

A. OVERVIEW OF CLIMATE RESILIENCE EFFORTS CURRENTLY UNDERWAY

The following table provides an overview of current City of Austin efforts which seek to address climate resilience. This list is <u>not exhaustive</u> but is intended to give a sense of the breadth of current activities underway. Addressing extreme heat, droughts, flooding, and wildfires have long been components of public safety services by the City of Austin. However, as climate change unfolds and these extreme weather events become more frequent or disastrous, additional efforts may be needed to help the Austin community sufficiently prepare, respond, and recover.

Overview of Climate Resilience Efforts Currently Underway

More detail on each item can be found in the attached Appendix to this memo.

SD23 Metrics Alignment	Departments	Staffing / Budget Impact	Timeframe	Partners (grants or in-kind)
1) Create digital atlas that maps locations and populations most impacted by climate change. S.C.2 S.C.3 S.C.4 HE.E.5.a, b, and c	Lead Department: Office of Sustainability Supported by: Austin Fire Department Austin Public Health Homeland Security & Emergency Management Watershed Protection	No new impact.	Project completed February 2020.	In-kind services from University of Texas at Austin Professor and students (Dr. Patrick Bixler, Assistant Professor of Practice at the LBJ School of Public Affairs).
2) Create an integrated Green Infrastructure Plan HE.C.2 HE.D.3 HE.E.5.a, b, and c	Lead Department: Office of Sustainability Supported by: Austin Water Development Services, Urban Forestry Division Parks & Recreation Planning & Zoning Watershed Protection	Hire consultant for Phase 2 using combined contributions from multiple existing Department budget allocations.	Phase 1 underway and expected to be completed in March 2020. Phase 2 to be initiated in the current calendar year.	Texas Nature Conservancy staff has been advising the project team to-date. Multiple other nonprofit entities are expected to contribut to a project Advisory Team.

Overview of Climate Resilience Efforts Currently Underway

More detail on each item can be found in the attached Appendix to this memo.

Strategy SD23 Metrics Alignment	Departments	Staffing / Budget Impact	Timeframe	Partners (grants or in-kind)
3) Implement Water Forward, Austin's 100-Year Water Plan. EOA.C.5.b HE.D.6	Lead Department: Austin Water Supported by: Planning & Zoning Watershed Protection Austin Energy Austin Resource Recovery Neighborhood Housing & Community Development Office of Innovation Office of Sustainability Parks & Recreation Development Services	Implementation of Water Forward underway. Any additional budgetary or staffing needs will be addressed by AWU.	Ongoing Water Forward Adaptive Management Plan outlines initial tasks through 2040.	N/A
4) Reduce wildfire risk with fuel (vegetation) mitigation strategies, Firewise education and outreach, Homeowner Wildfire Assessments, and adoption of the Wildland Urban Interface (WUI) Code. HE.E.5.c	Lead Department: Austin Fire Department Supported By: Austin Resource Recovery Austin Water Austin Energy	2019-2020 budget was adopted with an additional \$800K funding dedicated to fuel mitigation efforts. A memo dated March 4, 2020 estimates additional one-time and on-going personnel costs to implement the WUI code.	Ongoing	N/A
5) Conduct creek flooding mitigation planning	Lead Department: Watershed Protection Supported by: Planning & Zoning Austin Water	Current efforts being conducted using existing staff and budget resources.	Ongoing	N/A
6) Investigate impact of heat on students at 3 Elementary Schools. (Barrington, Cook, and Odom)	Lead Department: Parks & Recreation	Current efforts being conducted using existing staff and a grant.	Funding available through August 14, 2021.	University of Texas Health Science Center. \$341,014 grant from Robert Wood Johnson Foundation including amount not to exceed \$123,835 for the University of Texas.

Overview of Climate Resilience Efforts Currently Underway

More detail on each item can be found in the Appendix attached to this memo.

Strategy SD23 Metrics Alignment	Departments	Staffing / Budget Impact	Timeframe	Partners (grants or in-kind)
7) Implement recommendations from October 2018 Flood Event Engineering Review.	Lead Department Austin Water Supported by: Austin Public Health Development Services Homeland Security & Emergency Management	Design Consultant under contract to design recommended improvements for Austin's three surface water treatment plants.	Design: 2020-21 Construction: 2020-21	N/A
8) Continue implementing Climate Resilience Action Plan for City Assets and Operations. S.C.2 S.C.3 S.C.4 HE.E.5.a, b, and c	Lead Departments: Austin Energy Austin Water Austin Public Health Development Services Homeland Security & Emergency Management Parks & Recreation Watershed Protection Supported by: Office of Sustainability	Current efforts being conducted using existing staff and budget resources.	Ongoing	N/A
9) Conduct Air Quality Assessment Pilot HE.D.1	Lead Department Office of Sustainability Support from Austin Transportation Parks & Recreation Austin Public Health Office of Equity	Current efforts being conducted using existing staff and budget resources.	6-12 months	Collaborate with University of Texas at Austin for data collection and analysis.

OTHER CONSIDERATIONS

Additional items and related work underway or being planned that will inform and support climate resilience efforts:

Ongoing Initiatives

- Water Conservation Program (Austin Water)
- Fire Audit working group, spearheaded by Assistant City Manager Rey Arellano
- Hardening Water Utility Infrastructure (Austin Water)
- Electric Utility Line Clearance to prevent sparking fires (Austin Energy)
- Small Business resources such as local and federal financial assistance and business disaster planning resources (Economic Development Department)

Plan/Policy Updates

- City of Austin Hazard Mitigation Plan update (Homeland Security & Emergency Management)
- Land Development Code update may codify elements of the wildland urban interface and wildfire ingress/egress, Functional Green, and flood risk reduction (multiple departments)
- Heat Island data collection and mapping is being added to the Annual State of the Environment Report (Watershed Protection Department)
- Watershed Master Plan update (Watershed Protection Department)
- Austin Energy Green Build Resilience Pilot Credits (Austin Energy)

B. MENU OF NEW CLIMATE RESILIENCE OPTIONS

The following table provides an overview of options that would build upon the current efforts described in Section A, and if approved and funded in addition to the recommendation for a Resilience Officer as outlined in the in the August 26th memo, would create a comprehensive, community-wide climate resilience plan. These new efforts could help prioritize residents who are likely to be impacted first, suffer the greatest negative consequences, and face the most difficulties in bouncing back from extreme weather events. There are two general categories of proposed solutions, 1) *infrastructure hardening*, which is related to physical assets or procedures that the city (generally) can control, 2) *building community capacity*, which is related to strengthening the social structures within communities to help them to survive and recover from disaster events more easily, items which the City can support but not control in their entirety.

Menu of New Climate Resilience Options More detail on each item can be found in the Appendix attached with this memo.					
Potential Strategies SD23 Metrics Alignment	Departments	Staffing Impact	Potential Additional Funding Needs (May be a combination of grants, in-kind donations, and City matching funds)		
Resilience Officer As included in the August 26, 2019 response to Resolution 20190509-019					
1) Hire a Climate Resilience Officer.	Homeland Security & Emergency Management and/or Office of Sustainability	new Resilience Officer position for HSEM and/or Sustainability Reclassify or repurpose existing vacant PCNs OR create new temporary or permanent position	The Rockefeller Foundation funded Chief Resilience Officers during a three-year grant period, but that funding is no longer available. Staff is continuing to search for other potential external funding partners.		

Menu of New Climate Resilience Options More detail on each item can be found in the Appendix attached with this memo.				
Potential StrategiesSD23 Metrics Alignment	Departments	Staffing Impact	Potential Additional Funding Needs (May be a combination of grants, in-kind donations, and City matching funds)	
Comm	unity Capacity to Pre	pare and Bounce Bac	k	
2) Place Community Emergency Response Teams in three pilot neighborhoods. Goal: Engage residents to better understand the specific impacts of climate shocks and stressors. Category: Building Community Capacity	Lead Department Homeland Security & Emergency Management Support from Austin Fire Department Austin Public Health Office of Sustainability Equity Office	1 new Community Engagement Specialist position for HSEM 1 new Research Analyst position for HSEM Reclassify or repurpose existing vacant PCNs OR create new temporary or permanent positions	Potential grant funding from Urban Sustainability Director's Network (USDN) and/or St. David's Foundation. \$150,000 (one time) \$50,000 for community engagement events in three pilot areas \$48,000/year \$4,000 each per year for 12 Community Resilience Navigators (four liaisons in three pilot areas)	
3) Help small businesses prepare for and recover from climate-related disasters. Goal: Help small businesses in Austin prepare for and recover from climate-related disasters. Category: Building Community Capacity HE.E.5. a, b, and c EOA.A.6	Lead Department Economic Development	1 new Community Engagement Specialist position for Economic Development Reclassify or repurpose existing vacant PCNs OR create new temporary or permanent position	Potential grant funding from the Federal Economic Development Agency. Non- profit community lenders such as PeopleFund and Business and Community Lenders of Texas may be able to support.	
4) Conduct a City-wide Emergency Preparedness campaign. Goal: At-large effort to educate the community. Category: Building Community Capacity	Lead Department Homeland Security & Emergency Management	N/A	No funding partners have been identified for this work. Potential partners could include CAPCOG and Travis County. \$250,000 (one time) for creative/production costs \$150,000/year for annual media buys	

Menu of New Climate Resilience Options					
More detail on each item can be found in the Appendix attached with this memo.					
Potential Strategies SD23 Metrics Alignment	Departments	Staffing Impact	Potential Additional Funding Needs (May be a combination of grants, in-kind donations, and City matching funds)		
Add	ressing Robust & Resilie	nt Infrastructure			
5) Assess critical community facilities for energy and water needs per the Colorado River Flooding After-Action Report. Goal: Developing a culture of resilience within agencies throughout the broader community. Category: Infrastructure Hardening	Lead Department Homeland Security & Emergency Management Support from Austin Energy Green Building Austin Public Health Office of Sustainability Parks & Recreation Austin Water	N/A	Potential grant funding from The Mitchell Foundation. \$150,000 (one-time) for geospatial software		
6) Perform wildfire evacuation assessment. Goal: Planning for ingress/egress routes and procedures. Category: Infrastructure Hardening	Lead Department Austin Fire Department Support from Austin Police Department Austin Transportation Emergency Medical Services CAMPO	N/A	Potential collaborators that would inform wildfire modeling for West Austin include Travis County and neighboring counties, Potential funding from CAPCOG, FEMA, and the Texas A&M Forest Service. \$100,000 (one-time) for consultant to model and assess ingress/egress evacuation routes		
7) Evaluate Austin's resilience to food shortages. Goal: Evaluate how our regional food supply chain infrastructure might react to disruption. Category: Infrastructure Hardening	Lead Department Office of Sustainability Support from Economic Development	N/A	Potential grant funding from the Natural Resources Defense Council. Methodology developed by Johns Hopkins University would be adapted for use in Austin with the help of research partners at the University of Texas at Austin. \$50,000 (one-time) To contract with Johns Hopkins University to map and evaluate food supply systems.		

Menu of New Climate Resilience Options

More detail on each item can be found in the Appendix attached with this memo.

Potential StrategiesSD23 Metrics Alignment	Departments	Staffing Impact	Potential Additional Funding Needs (May be a combination of grants, in-kind donations, and City matching funds)
8) Install neighborhood Resilience Kiosks. Goal: Install 4 new neighborhood-based, publicly accessible solar-powered phone charging kiosks. Category: Infrastructure Hardening	Lead Department Office of Sustainability Support from Parks & Recreation Austin Public Health Austin Public Library Austin Energy Green Building Homeland Security & Emergency Management	N/A	\$36,000 (one-time) for 4 solar-powered phone charging kiosks.
9) Conduct Resilience Hub Assessment and prepare an Action Plan. Goal: Plan for implementation of community-serving Resilience Hubs for municipal facilities. Category: Infrastructure Hardening	Lead Department Office of Sustainability Support from Parks & Recreation Austin Public Health Austin Public Library Austin Energy Green Building Homeland Security & Emergency Management	N/A	Potential funding from federal agencies including Department of Energy, HUD CDGB-DR and FEMA. \$75,000 (one-time) For contracting with an engineering firm to prepare a facility assessment and recommendations for new investments.

TOTAL POTENTIAL STAFFING IMPACTS: 4 positions, including a Resilience Officer

Implementing these eight options, in addition to the work already underway, will move Austin towards a holistic approach to resilience that addresses climate impacts specific to Austin based on the greatest threats to specific geographic areas and most vulnerable populations. The combination of these actions supports a comprehensive, community-wide climate resilience plan that is fair, just, and equitable. Furthermore, many of these options are actionable with the potential for scalability over time.

OTHER CONSIDERATIONS

Extreme weather does not respect jurisdictional boundaries, nor is it always presented in a single disaster event. There are **additional items** beneficial to increasing long-term or regional resilience which staff

are currently considering, but which are not included in this document as they do not yet have specific project proposals, such as:

- Regional collaboration with Travis County and beyond.
- Source water and headwaters protection via regional land acquisition and/or management.
- Long-term climate impacts on PARD park system and native plant species.

Finally, there are **potential funding sources** that may be available, which could be used to cover at least some portion of project costs. These include:

- Expanded Colorado River Flood Recovery grants.
- Texas Recovery Program Hurricane Harvey related Community Development Block Grants (CDBG) available from federal HUD through the General Land Office, currently out for public comment and some of which will be available for Central Texas.
- USDA's National Resources Conservation Service (NRCS) matching grants for land management.

APPENDIX OF CLIMATE RESILIENCE PROJECT DETAILS

PROJECT DETAILS for CLIMATE RESILIENCE EFFORTS CURRENTLY UNDERWAY

1. Create digital atlas that maps locations and populations most impacted by climate change.

Project Description

Every community must be prepared to respond to climate hazards, whether a shock event such as flood or wildfire, or stressors such as heatwaves or bad air quality days. Poverty, lack of access to transportation, poor health, and inadequate housing conditions may weaken the ability to prevent human suffering and financial loss in the event of a disaster.

Identifying areas with high concentrations of social vulnerability combined with greater risks for climate-related threats will help to identify the populations at most risk. Mapping social vulnerability across Austin would include data about socioeconomic conditions; household composition; disabilities; race and ethnicity; languages used; and transportation options. This information will be used to create a data atlas which would inform future outreach, engagement, and planning efforts.

Lead Department

Office of Sustainability, with support from Dr. Patrick Bixler, Assistant Professor of Practice at the University of Texas at Austin. The work will involve coordination of data from the Equity Office, Austin Fire Department, Homeland Security & Emergency Management, Austin Public Health, Austin Water, Planning & Zoning, and Watershed Protection

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this strategy:

- **S.C.2:** Percentage of residents living in high risk areas for natural disasters who say they have access to information and education pertaining to disasters and other major emergencies.
- **S.C.3:** Percentage of residents who say that they are prepared to help themselves, their families, and their neighbors to respond effectively to disasters and major emergencies.
- **HE.E.5.a, b, and c:** Number and percentage of buildings, roadways, and properties whose exposure to high flooding risk, extreme heat risk, or wildfire risk have decreased due to City efforts.

2. Create an integrated Green Infrastructure Plan.

Project Description

The Imagine Austin Comprehensive Plan and Council Resolution 20170615-071 established a priority for using green infrastructure to protect environmentally sensitive areas and to integrate nature into the City. Green infrastructure is defined as a strategically planned and managed network of natural lands, parks, working landscapes, open spaces, and green stormwater controls that conserve and enhance ecosystem services and provide associated benefits to human populations.

Climate-related events are adding stress to vegetation and the urban forest, increasing stream flooding, impacting drainage infrastructure, and changing floodplains in Austin. An integrated Green Infrastructure Plan would provide a framework for leveraging existing assets and identifying future

opportunities to protect and create a viable, healthy, interconnected, and ecologically functioning network of green infrastructure to increase the resilience, health, and wellness of all living populations (human, plant, and animal) in the face of extreme weather and a changing climate.

Phase 1 consists of recent City staff efforts to compile data and departmental projects, programs, and policies associated with green infrastructure and conducting a Green Infrastructure Strengths and Gap Assessment with the help of a consultant, which is currently underway. This first phase will set the stage for the creation of a Green Infrastructure Framework—a green infrastructure guiding document—that completes the work called for by City Council.

Lead Department

Office of Sustainability and Watershed Protection Department, with involvement and cross-collaboration from Austin Energy, Austin Public Health, Austin Transportation, Austin Water, Development Services Department Forestry Division, Equity Office, Parks & Recreation, and Planning & Zoning

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this strategy:

- **HE.C.2:** Austin's ParkScore ranking (absolute score and ranking among U.S. cities).
- **HE.D.3:** Number and percentage of creeks and lakes in good or excellent health.
- HE.E.5.a, b, and c: Number and percentage of buildings, roadways, and properties whose
 exposure to high flooding risk, extreme heat risk, or wildfire risk have decreased due to
 City efforts.

3. Implement Water Forward, Austin's 100-Year Water Plan.

Project Goal

Maximize water supply reliability and climate resiliency by implementing Water Forward strategies in alignment with the adopted Water Forward adaptive management plan.

Project Description

Over the last decade, droughts and floods have put stressors on our water system. While Austin successfully weathered the 2008-2016 drought, that event highlighted the need to increase the sustainability, reliability, and diversity of Austin's water supplies through an integrated water resource plan. Water Forward modeled potential climate impacts to Austin's water supply and evaluated multiple future scenarios to plan for droughts worse than what we have experienced in the past. The adopted Plan is the culmination of a robust effort that involved the Austin community, the Water Forward Task Force, an outside consultant team, City staff, and others.

The Water Forward plan includes strategies to reduce potable water demand, increase use of alternative and reclaimed water, protect our core Colorado River and Highland Lakes supplies, and build potable supply resiliency with strategies like Aquifer Storage and Recovery (ASR). Austin Water is currently implementing the Water Forward plan through onsite reuse and reclaimed water code changes, development of conservation programs, working with our regional partners to protect our current core supplies, and procuring a consultant to assist in identification of potential ASR pilot locations.

Lead Department

Austin Water, with support from Planning & Zoning, Watershed Protection, Austin Energy, Austin Resource Recovery, Neighborhood Housing & Community Development, Office of Innovation, Office of Sustainability, Parks & Recreation, Development Services, and others

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this strategy:

- **EOA.C.5.b:** Percentage of median family income for family of 4 that would be spent on the average water bill.
- **HE.D.6:** Number of gallons of water pumped from treatment plants per capita per day.

4. Reduce wildfire risk with fuel (vegetation) mitigation strategies.

Project Description

Austin has more than 160,000 structures located in the Wildland-Urban Interface. As Austin grows, it must strike a balance between development and wildfire safety, while also considering factors such as environmental protection and natural resource conservation.

This strategy focuses on implementation of vegetation management practices on high-risk properties throughout the city. It follows the National Cohesive Strategy in restoring and maintaining resilient landscapes and involves shaded or mowed firebreaks along property lines and prescribed burns that preserve ecosystems where appropriate. By proactively familiarizing residents and land managers with these types of wildfire mitigation approaches, the foundation will be laid for a more successful outcome when future regulations are proposed for adoption.

<u>A memo to Mayor and Council</u> from the Fire Chief dated March 4, 2020 estimates additional one-time and on-going personnel costs to implement the WUI code.

Lead Department

Austin Fire Department with community partnerships

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this strategy:

• **HE.E.5.c:** Number and percentage of buildings, roadways, and properties whose exposure to wildfire risk have decreased due to City efforts.

5. Continue creek flooding mitigation planning.

Project Description

Atlas 14 is a National Weather Service study of historical rainfall that is used by the Watershed Protection Department to understand Austin's flood risk. New rainfall data through 2017 indicates that more people and property are at risk for flooding than prior studies had shown. Atlas 14 also indicates an increased level of risk for those that already faced flooding hazards.

Watershed Protection's Creek Flooding Program undertakes projects to protect lives and reduce property damage when creeks overflow their banks. This program plans and constructs many different types of projects, including:

- Detention ponds
- Improvements to low water crossings
- Flood walls
- Channel widening
- Buyouts of homes most at risk of flooding

The program also inspects hundreds of small dams to ensure their safety.

Lead Department

Watershed Protection with staff from across the City organization and community

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this strategy:

• **HE.E.5.a:** Number and percentage of buildings, roadways, and properties whose exposure to high flooding risk have decreased due to City efforts.

6. Investigate the impact of heat on students at Barrington, Cook, and Odom Elementary Schools.

Project Description

Cities Connecting Children to Nature (CCCN) is a national initiative that offers support and guidance on initiatives to enhance connections between children and nature. The City of Austin's Parks & Recreation Department collaborated with multiple partners to establish the CCCN-Austin implementation plan in 2016. Parks & Recreation continues to work with community partners such as the Austin Independent School District to create access to natural environments in areas of Austin that are park- and nature-deficient, thus advancing the goals of CCCN-Austin.

The Robert Wood Johnson Foundation, through its Health and Climate Solutions grant program, is offering \$341,014 in funding to further support CCCN-Austin. The Parks & Recreation Department, in partnership with the Michael and Susan Dell Center for Healthy Living, will use the funding to investigate the impact of green infrastructure at joint-use school parks located at Barrington, Cook, and Odom Elementary Schools. Researchers will study the heat index, physical activity levels, and emotional well-being of economically disadvantaged Latino children in Austin, corresponding to their connection with nature. This two-year project will provide a better understanding of the impact of green infrastructure on children to enable the design of increasingly effective programming and infrastructure and to inform the Parks & Recreation Department Long Range Plan.

Lead Department

Parks & Recreation Department

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this strategy:

- **HE.C.3:** Percentage of residents satisfied with Parks & Recreation programs and facilities.
- **HE.E.5.b:** Number and percentage of buildings, roadways, and properties whose exposure to extreme heat risk have decreased due to City efforts.

7. Implement recommendations from the October 2018 Flood Event Engineering Review.

Project Description

In October 2018, historic flood waters flowed into the water supply lakes containing very high levels of silt that made it challenging for water treatment plants to produce the volume of water needed to supply customers. The flooding event resulted in Austin Water issuing a boil water notice over a seven-day period from October 22 - 28, 2018.

The After-Action Report (AAR) and Corrective Action Plan (CAP) for the event identified 161 recommended corrective actions for the City and County in seven focus areas including: operations, direction and control, water points of distribution (PODs), resource management, emergency procurement, communications, and recovery. The AAR process examined the eighth focus area, City and County resilience, related to this specific incident and more broadly for other hazards, threats, and stressors that resulted in 37 distinctive recommendations.

Austin Water staff are working on actions that pertain to the utility's assets and operations, including installing polymer feed systems at each Water Treatment Plant to enhance coagulation and the settlement of suspended solids in the event of future high turbidity flooding events.

Lead Department

Austin Water

Indicators

Austin Strategic Direction 2023 identifies Health and Environment as a key outcome area.

8. Continue implementation of the Climate Resilience Action Plan for City Assets and Operations.

Project Description

The Office of Sustainability led a cross-departmental team in the creation of the Climate Resilience Action Plan for City Assets and Operations, which was delivered to Council on April 6, 2018. The plan provides an overview of climate projections for Austin, an assessment of potential extreme weather impacts to City-owned assets and operations, and strategies to mitigate those impacts.

City assets and operations that are critical for community-wide resilience include:

- Utility Infrastructure needed to deliver energy, water, wastewater, and telecommunications utility services to the community.
- Transportation Infrastructure, such as critical arterial roadways, that support the transportation and mobility of citizens.
- Community Facilities, including recreation and activity centers, libraries, and neighborhood centers, that may be utilized as relief and assistance centers in the event of a disaster.

Lead Department

Office of Sustainability with staff from across the City organization to prioritize actions and track planning efforts. Various Departments are responsible for implementation of specific recommendations

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this strategy:

HE.E.5.a, b, and c: Number and percentage of buildings, roadways, and properties whose
exposure to high flooding risk, extreme heat risk, or wildfire risk have decreased due to
City efforts.

9. Conduce an Air Quality Assessment Pilot.

Project Goal

A monitoring program that would help Austin staff and residents to <u>identify and implement actions</u> <u>that reduce ambient air pollutants</u>.

Project Description

Austin has generally good air quality, but localized air monitoring studies have shown that air pollution is not evenly distributed across the city and can vary significantly from one block to another. Exposure to air pollution is often tied to socioeconomic status with low-income, communities of color bearing disproportionate levels of pollutant exposure. Projected climate conditions show that Austin will become drier and hotter, likely creating conditions that are more favorable to unhealthy air quality conditions.

Staff from the Office of Sustainability propose a partnership and contract with one or more organizations that can assist in implementing a localized air quality monitoring and reporting pilot at a chosen location such as a school, park or recreation center. Staff would collaborate with identified partners to design a research roadmap for implementation of the project and identify a pilot location and hypothesis. Phase 1 of the program would include installing weather stations and air quality monitors at a chosen location. Phase 2 would entail collecting and analyzing the data and presenting the findings to staff and community in an easy to understand format. Phase 3 will support staff and community in creating recommendations to accelerate action to mitigate the immediacy of the air pollution crisis and health impacts in communities of color and identify opportunities for future studies.

Lead Department

Office of Sustainability in collaboration with Parks & Recreation, Austin Public Health, Austin Transportation, and the Equity Office

Budget Impact

Office of Sustainability would contract with an organization to complete Phases 1-3 of the pilot program for a **one-time amount of \$50,000**.

Potential Partnerships

Implementation: University of Texas Health Science Center at Houston, University of Texas at Austin, and Environmental Defense Fund

Funding: Mitchell Foundation and Austin Community Foundation

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this option:

HE.D.1: Number of days per year of good air quality (Air Quality Index Value <51).

PROJECT DETAILS for NEW CLIMATE RESILIENCE OPTIONS

1. Hire a Resilience Officer.

As outlined in the in the August 26, 2019 response to council (Resolution 20190509-019)

Funding and Staffing Needs

This position may be housed either within Homeland Security & Emergency Management or the Office of Sustainability, and may be a reclassification and/or repurposing of an existing position or the creation of a new position, salary to be determined.

2. Place Community Emergency Response Teams in three pilot neighborhoods.

(Pilot areas will be selected based on high levels of climate vulnerability)

Project Goal

While various efforts are underway to broadly address community-wide climate resilience, the City of Austin must <u>engage residents to better understand the specific impacts of climate shocks and stressors</u>, such as flooding, excessive heat, grass fires and subsequent poor air quality on our communities.

Project Description

Detailed risk assessments and engagement activities will be piloted in three communities determined to be most vulnerable to climate impacts and extreme weather. Areas of alignment between community priorities and City programs will be identified to increase resiliency and reduce risks in areas faced with the greatest threats.

Homeland Security & Emergency Management will work with community organizers and health workers to identify and train four community members in each of the three pilot neighborhoods for emergency preparedness through Community Emergency Response Team (CERT) training. These Community Resilience Navigators will collect quantitative and qualitative data through engagement activities, which will be used to inform future community educational materials.

Austin Public Health will also survey residents using CASPER, an epidemiologic survey process designed to provide quick, low-cost, household-based information. Austin Public Health staff will map critical assets in each of the pilot communities to identify possible locations for cooling, heating, and clean air centers. The data collected will also be used to map pedestrian access to critical facilities and identify opportunities for improvement such as tree planting, sidewalk repair, and pedestrian crossings. This CASPER survey will be customized to addresses a variety of resilience-related questions beyond just public health, to ensure a comprehensive engagement and prevent burdening the community with multiple, separate engagement processes.

Lead Department

Homeland Security & Emergency Management with support from the Office of Sustainability, Austin Public Health, Public Works, Austin Fire Department, and Emergency Medical Services

Funding and Staffing Needs

A couple of new employee positions would be needed to ensure success for this effort. These positions may be reclassifications and/or repurposing of existing positions or the creation of new positions, salaries to be determined.

- Homeland Security & Emergency Management would require one full-time position to work with community stakeholders.
- Austin Public Health would require one full-time position to manage community data collection and analysis.

Engaging with community organizers is key to this effort. To reach a large and diverse number of community members, both daytime and nighttime events will be held with activities for children, food, interpretation, transportation, and facilitation provided as needed. A one-time amount of \$50,000 would be required for community engagement events and materials in each of the three pilot communities for a total of **\$150,000**.

Potential Partnerships

There is potential grant funding available through the Urban Sustainability Directors Network, St. David's Foundation, and Planet Texas 2050; however, no funding has been secured at this time. Local non-profit community organizers are intended to play a role in the engagement process and will be identified once the project areas have been determined.

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this option:

- **S.C.1:** Number and percentage of residents living in high-risk areas for top natural disasters who are enrolled to receive regional emergency alerts.
- S.C.2: Percentage of residents living in high risk areas for natural disasters who say they
 have access to information and education pertaining to disasters and other major
 emergencies.
- **S.C.3:** Percentage of residents who say that they are prepared to help themselves, their families, and their neighbors to respond effectively to disasters and major emergencies.
- **S.C.4:** Number and percentage of partner safety agencies and organizations participating in local and regional emergency exercises.

3. Help small businesses prepare for and recover from climate-related disasters.

Project Goal

To help small businesses in Austin prepare for and recover from climate-related disasters.

Project Description

The Economic Development Department's Small Business Program recognizes that almost 50 percent of small businesses never recover from a disaster that severely disrupts operations. An expanded outreach and communications effort is recommended. The focus of this outreach would be two-fold:

1) support continuation of business services if the owner, manager, or staff are not able to perform their duties, and 2) provide Business-to-Business aid during and after a major event.

Efforts to support continuation of small business services would include preparation of templates and documents for use in instances where the business is impacted by an extreme weather event. This emergency readiness package could include materials to help small businesses:

- Assess Risks
- Create an Emergency Plan / Protect the Essentials
- Review Bank and Insurance Policies
- Practice Emergency Plans with Employees
- Create an Emergency Communication Plan for Customers

Business-to-Business aid would involve matching large and medium-sized employers (those with 50+ employees) with small businesses to provide assistance during and after an extreme event. These efforts would include:

- Opportunities for large business to small business collaboration.
- Creation of a small business-focused emergency operations center.
- Focusing funds on upgrades, rather than recovery.
- Emphasizing the importance of business interruption insurance for small businesses.
- Creating a disaster loan pool for businesses without interruption insurance.
- Options for the City of Austin to cover contractor costs for small businesses needs immediately following a disaster.
- Creation of a small business asset inventory that the community could utilize during a crisis.

Lead Department

Economic Development Department

Funding and Staffing Needs

Economic Development requires one new temporary Community Engagement position to support these efforts. This position may be a reclassification and/or repurposing of an existing position or the creation of a new position, salary to be determined.

Potential Partnerships

Non-profit community lenders such as PeopleFund and Business and Community Lenders of Texas may be able to support these efforts with funding. Various Chambers of Commerce, the Travis County Economic Development Division, the Federal Economic Development Agency, and Red Cross of Central Texas are potential collaborators in developing strategies for small business resilience.

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this option:

- HE.E.5.a, b, and c: Number and percentage of buildings, roadways, and properties whose
 exposure to high flooding risk, extreme heat risk, or wildfire risk have decreased due to
 City efforts.
- **EOA.A.6:** Number of small businesses supported by City of Austin programs.

4. Conduct a city-wide Emergency Preparedness campaign.

Project Goal

In Central Texas, extreme weather events can strike anytime or anywhere, and disasters will affect everyone. While targeting outreach efforts to vulnerable areas is important to ensure an equitable

community resilience planning process, an <u>at-large effort to educate the community</u> is pivotal to promoting safety and awareness.

Project Description

This project involves preparation and implementation of a "Climate Ready Austin" education campaign to raise community awareness of how climate may impact local infrastructure and educate citizens on resources that are available to residents and businesses.

Similar to the *Know What to Do* campaign in North Texas, the Climate Ready Austin campaign will clarify a regional message that educates community members on how to prepare for extreme events. The messaging might include: 1) Think what can happen; 2) Know how to prepare; and 3) Know how to act. This campaign will focus on Austin residents as well as those people who do not reside in Austin but spend much of their time here, such as commuters who come into town for work but live elsewhere.

Lead Department

Homeland Security & Emergency Management in collaboration with other regional emergency agencies

Funding and Staffing Needs

A budget of **\$250,000** is needed for initial creative production costs that would include bi-lingual TV, radio, billboard, transit signage, and video elements. **\$100,000 - \$150,000** would be spent annually for media buys.

Potential Partnerships

As participants in developing campaign materials, CAPCOG and Travis County could contribute to funding for creative production costs and media buys, but this would need to be negotiated.

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this option:

- **S.C.1:** Number and percentage of residents living in high-risk areas for top natural disasters who are enrolled to receive regional emergency alerts.
- S.C.2: Percentage of residents living in high risk areas for natural disasters who say they
 have access to information and education pertaining to disasters and other major
 emergencies.
- **S.C.3:** Percentage of residents who say that they are prepared to help themselves, their families, and their neighbors to respond effectively to disasters and major emergencies.

5. Assess critical community facilities for energy and water needs per the Colorado River Flooding After-Action Report.

Project Goal

The 2018 Colorado River flooding and subsequent boil water notice caused a series of cascading impacts in Austin that exposed the need for the City to prioritize <u>developing a culture of resilience</u> <u>within departments as well as agencies throughout the broader community</u>.

Project Description

For example, Homeland Security & Emergency Management and the Travis County Office of Emergency Management provided bottled and bulk drinking water to community facilities, but in some cases the facilities were unsure of how to process the water and which format would best serve their needs. This raises the need to understand how critical facilities receive water and energy, and how to service those facilities during a major event. It is imperative that this work is done before the next major event occurs.

In order to be prepared, Homeland Security & Emergency Management would work with critical community facilities to better understand their water and energy needs and use this information to formulate plans to provide continuous services during and after a major event. These critical community facilities are non-municipal facilities that provide important community services and may include schools, hospitals and health care facilities, correctional facilities, churches, animal services, homeless services, etc.

Lead Department

Homeland Security & Emergency Management, with support from Austin Water to identify critical customers, water billing/usage data, water balance calculators identifying potable/non-potable needs, development of emergency water strategies, etc.

Funding and Staffing Needs

The initial cost of software to evaluate critical facilities is **\$150,000**, with annual licensing renewals thereafter.

Potential Partnerships

Potential collaborating partners in this critical facility analysis would be local hospitals, such as Seton and St. David's; school districts, such as AISD; prisons and detention centers, such as the Travis County Juvenile Detention Center; food distribution centers and retail establishments, and more.

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this option:

HE.E.5.a, b, and c: Number and percentage of buildings, roadways, and properties whose
exposure to high flooding risk, extreme heat risk, or wildfire risk have decreased due to
City efforts.

6. Perform wildfire evacuation assessment.

Project Goal

An analysis to inform *planning for ingress/egress routes and procedures*, as well as identify potential safety hubs for residents.

Project Description

The topography and vegetation of Austin is vulnerable to wildfires and grassfires. Climate projections for Central Texas predict greater swings between drought, floods, and heat in the future; these conditions stress trees, resulting in potential fuel for wildfires. In addition, new home construction in the Wildland Urban Interface has increased the risk to lives and structures from catastrophic wildfires. Extensive modeling of wildfire risk has been done; this work would build upon that data and

mapping which already exists to identify evacuation strategies for the Wildland Urban Interface, which is imperative to preserving life and property.

The Austin Fire Department, in collaboration with Travis County, hopes to model potential wildfires in Austin using predictive and live modeling software. GIS would be used to pinpoint geographic barriers and environmentally sensitive areas that are at greatest risk. Transportation Demand Management and Real Time Evacuation Planning modeling would evaluate evacuation scenarios. This information could be considered in future land use policy and building codes as well as expanded to evacuation planning for other disaster events beyond wildfire.

Lead Department

Austin Fire Department, supported by Homeland Security & Emergency Management, Austin Transportation, Austin Police Department, Public Works, Watershed Protection, Austin Water, and the Office of Sustainability

Funding and Staffing Needs

Austin Fire Department would hire a consultant to model ingress/egress to wildfire for a **one-time amount of \$100,000**.

Potential Partnerships

No funding partners have been identified for this work. Potential collaborators that would inform wildfire modeling and evacuation routes for West Austin include Travis County and neighboring counties, CAPCOG, FEMA, and the Texas A&M Forest Service.

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this option:

• **HE.E.5.c:** Number and percentage of buildings, roadways, and properties whose exposure to wildfire risk have decreased due to City efforts.

7. Evaluate Austin's resilience to food shortages.

Project Goal

To <u>evaluate how our regional food supply chain infrastructure might react to disruption</u>, including climate shocks and stressors.

Project Description

To bounce back from disruption, a city able must be able to feed its residents. The food system in the U.S. is complex, and climate-related disruptions are likely to result in widely cascading consequences across cities and regions. Cities often have incomplete information about both the upstream players who influence their regional food system and the downstream food players whom they influence. A changing climate will likely decrease the availability and affordability of locally-sourced food in Austin, and large events such as floods and wildfire can limit mobility and the ability to bring in food from outside sources.

The Office of Sustainability will collaborate with the Johns Hopkins University School of Public Health Center for a Livable Future to gain a more accurate understanding of our food system's potential weakness during a disruption and how we can prevent or respond to those weaknesses before we

are faced with them. The methodology developed by Johns Hopkins University would be adapted for use in Austin with the help of research partners at the University of Texas at Austin.

Lead Department

Office of Sustainability, in collaboration with Economic Development

Funding and Staffing Needs

Office of Sustainability would contract with Johns Hopkins University to map and evaluate food supply systems for a **one-time amount of \$50,000**.

Potential Partnerships

No funding partners have been identified for this work.

Indicators

Austin Strategic Direction 2023 includes the following indicators related to this option:

- **HE.F.1:** Percentage of residents experiencing food insecurity.
- **HE.F.2:** Number and percentage of residents living in healthy-food priority areas.
- **HE.F.5:** Number of City-supported fresh food access points in healthy food priority areas.

8. Install neighborhood Resilience Kiosks.

Project Goal

Install four (4) new neighborhood-based publicly accessible solar-powered phone charging kiosks.

Project Description

In the event of widespread or sustained power outages, residents may need publicly accessible places to charge their cell phones. The City of Baltimore has implemented small solar-powered phone recharging stations they refer to as Resilience Kiosks. These kiosks can also serve as markers for city disaster response operations, or act as a meeting point for family reunification. Two similar solar-powered installations already exist on the University of Texas campus and in the Seaholm EcoDistrict. The Office of Sustainability would work closely with departments to identify potential locations for 4 additional Resilience Kiosks, such as at neighborhood centers, parks, and branch libraries. It is important to note that these **Resilience Kiosks must be considered only the first step** in the efforts to build community resilience and should not be considered the whole solution.

Lead Department

Office of Sustainability in close collaboration with other departments for planning and technical support (Austin Energy Green Building, Homeland Security & Emergency Management) and identification of potential facilities (Parks & Recreation, Austin Public Health, Austin Public Library).

Funding and Staffing Needs

Office of Sustainability proposes to utilize existing staff to partner with various Departments and the Public Works Department to purchase and install the four (4) kiosks for a **one-time amount of \$36,000**, with the intent to have at least one kiosk available in each quadrant of the City, and assuming an installed cost of up to \$9,000 each.

Potential Partnerships

No funding partners have been identified for this work.

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this option:

- S.C.2: Percentage of residents living in high risk areas for natural disasters who say they
 have access to information and education pertaining to disasters and other major
 emergencies.
- **S.C.3:** Percentage of residents who say that they are prepared to help themselves, their families, and their neighbors to respond effectively to disasters and major emergencies.
- **HE.E.2:** Percentage of residents who report having high levels of social support through friends and neighbors outside of their home.

9. Conduct Resilience Hub Assessment and prepare an Action Plan

Project Goal

With the intent of increasing community capacity and resilience for residents most likely to bear the brunt of the effects of climate change, the Office of Sustainability recommends creating a Resilience Hub Framework and Action Plan that outlines a <u>plan for implementation of community-serving</u> Resilience Hubs in Austin.

Project Description

According to the Imagine Austin Comprehensive Plan, "Resilience will be a hallmark of successful communities in the 21st Century." Climate Resilience is the ability of communities and individuals to survive, adapt, and grow in the face of chronic stresses and acute shocks related to climate change and weather extremes. Austin is experiencing more extreme heat days, extended periods of drought, increased wildfire risks, more intense rainfall events, and increased flooding. Climate disaster events pose a greater risk to communities that are already burdened by chronic stressors such as the very young, the elderly, the handicapped, the sick, and the poor.

Resilience Hubs are multi-functional and are 1) **Organizations of residents**, local businesses, nonprofits, libraries, faith-based institutions, schools, and others that have committed to providing assistance to their neighbors before, during, and after extreme weather events; 2) **Community facilities** that provide day-to-day services and resources that help address chronic stressors within the neighborhood (such as a recreation center, library, or community health center) and also supports the community during disaster events; and 3) **Tools of empowerment for residents**, allowing them to take responsibility for a portion of disaster preparedness and response on behalf of their communities, shifting power to members of the community.

The Office of Sustainability will create a Request for Proposal (RFP) to hire a local professional engineering firm to provide facility assessments, looking at the structural, mechanical, and spatial ability of City-owned facilities to meet the requirements outlined by the community, and to provide professional recommendations as to which facilities are most appropriate to serve as resilience hubs and/or what the cost would be to retrofit certain facilities to meet the requirements of a resilience hub. Importantly, this work must be informed by conversations with community members and stakeholders regarding their true needs during disaster events.

Lead Department

Office of Sustainability in close collaboration with other departments for planning and technical support (Austin Energy Green Building, Homeland Security & Emergency Management) and identification of potential facilities (Parks & Recreation, Austin Public Health, Austin Public Library)

Funding and Staffing Needs

Office of Sustainability proposes to contract with a local design or engineering firm to assess the capabilities of community-facing City of Austin facilities to serve as potential resilience hubs for a **one-time amount of \$75,000.**

Potential Partnerships

No funding partners have been identified for this work.

Indicators

Austin Strategic Direction 2023 includes the following indicator related to this option:

- S.C.2: Percentage of residents living in high risk areas for natural disasters who say they
 have access to information and education pertaining to disasters and other major
 emergencies.
- **S.C.3:** Percentage of residents who say that they are prepared to help themselves, their families, and their neighbors to respond effectively to disasters and major emergencies.
- **HE.E.2:** Percentage of residents who report having high levels of social support through friends and neighbors outside of their home.